#### CHAPTER 11

# ANALYZING CASH RETURNED TO STOCKHOLDERS

Companies return cash to stockholders in the form of dividends, but over the last few years, they have also increasingly turned to stock buybacks as an alternative. Over the last few years, how much have companies returned to their stockholders, and how much could they have returned? As stockholders in these firms, would we want them to change their policies and return more or less than they are doing currently? In this chapter, we expand our definition of cash returned to stockholders to include stock buy backs. As we will document, firms in the United States have turned increasingly to buying back stock to either augment regular dividends, or, in some cases, to substitute for cash dividends.

Using this expanded measure of actual cash flows returned to stockholders, we consider two ways in which firms can analyze whether they are returning too little or too much to stockholders. In the first, we examine how much cash is left over after reinvestment needs have been met and debt payments made. We consider this cash flow to be the cash available for return to stockholders and compare it to the actual amount returned. We categorize firms into those that return more to stockholders than they have available in this cash flow, firms that return what they have available and firms that return less than they have available. We then examine the firms that consistently return more or less cash than they have available, and the consequences of these policies. For this part of the analysis, we bring in two factors – the quality of the firm's investments and the firm's plans to change its financing mix. We argue that firms that return less to their stockholders than they have available in free cash flows to equity are much more likely to be trusted with the cash if they have a track record of good investments. Firms that return more cash than they have available are on firm ground if they are trying to increase their debt ratios.

In the second approach to analyzing dividend policy, we consider how much comparable firms in the industry are paying as dividends. Many firms set their dividend policies by looking at their peer groups. We discuss this practice, and suggest some refinements in it to allow for the vast differences that often exist between firms in the same sector. In the last part of this chapter, we look at how firms that decide they are paying too much or too little in dividends can change their dividend policies. Since firms tend to attract stockholders who like their existing dividend policies, and because dividends convey information to financial markets, changing dividends can have unintended and negative consequences. We suggest ways in which firms can manage a transition from a high dividend payout to a low dividend payout, or vice versa.

#### **Cash Returned to Stockholders**

In the last chapter, we considered the decision about how much to pay in dividends and three schools of thought about whether dividend policy affected firm value. Until the middle of the 1980s, dividends remained the primary mechanism for firms to return cash to stockholders. Starting in that period, we have seen firms increasingly turn to buying back their own stock, using either cash on hand or borrowed money, as a mechanism for returning cash to their stockholders.

#### The Effects of Buying Back Stock

Let us first consider the effect of a stock buyback on the firm doing the buyback. The stock buyback requires cash, just as a dividend would, and thus has the same effect on the assets of the firm – a reduction in the cash balance. Just as a dividend reduces the book value of the equity in the firm, a stock buyback reduces the book value of equity. Thus, if a firm with a book value of equity of \$ 1 billion buys back \$ 400 million in equity<sup>1</sup>, the book value of equity will drop to \$ 600 million. Both a dividend payment and a stock buyback reduce the overall market value of equity in the firm, but the way they affect the market value is different. The dividend reduces the market price, on the exdividend day and does not change the number of shares outstanding. A stock buyback reduces the number of shares outstanding and is often accompanied by a stock price increase. For instance, if a firm with 100 million shares will decline to 90 million, but the

<sup>&</sup>lt;sup>1</sup> The stock buyback is at market value. Thus, when the market value is significantly higher than the book value of equity, a buyback of stock will reduce the book value of equity disproportionately. For example, if the market value is five times the book value of equity, buying back 10% of the stock will reduce the book value of equity by 50%.

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stock price may increase to \$ 10.50. The total market value of equity after the buyback will be \$ 945 million, a drop in value of 5.5%.

Unlike a dividend, which returns cash to all stockholders in a firm, a stock buyback returns cash selectively to those stockholders who choose to sell their stock to the firm. The remaining stockholders get no cash; they gain indirectly from the stock buyback if the stock price increases. Stockholders in the firm described above will find the value of their holdings increasing by 5%, after the stock buyback.

# In Practice: How do you buy back stock?

The process of repurchasing equity will depend largely upon whether the firm intends to repurchase stock in the open market, at the prevailing market price, or to make a more formal tender offer for its shares. There are three widely used approaches to buying back equity:

- <u>Repurchase Tender Offers</u>: In a repurchase tender offer, a firm specifies a price at which it will buy back shares, the number of shares it intends to repurchase, and the period of time for which it will keep the offer open, and invites stockholders to submit their shares for the repurchase. In many cases, firms retain the flexibility to withdraw the offer if an insufficient number of shares are submitted or to extend the offer beyond the originally specified time period. This approach is used primarily for large equity repurchases.
- <u>Open Market Purchases</u>: In the case of open market repurchases, firms buy shares in the market at the prevailing market price. While firms do not have to disclose publicly their intent to buy back shares in the market, they have to comply with SEC requirements to prevent price manipulation or insider trading. Finally, open market purchases can be spread out over much longer time periods than tender offers and are much more widely used for smaller repurchases. In terms of flexibility, an open market repurchase affords the firm much more freedom in deciding when to buy back shares and how many shares to repurchase.
- <u>Privately Negotiated Repurchases</u>: In privately negotiated repurchases, firms buy back shares from a large stockholder in the company at a negotiated price. This method is not as widely used as the first two and may be employed by managers or owners as a way of consolidating control and eliminating a troublesome stockholder.

#### The Magnitude of Stock Buybacks

In the last decade, more and more firms have used equity repurchases as an alternative to paying dividends. Figure 11.1 summarizes dividends paid and equity repurchases at U.S. corporations between 1989 and 2002.





It is worth noting that while aggregate dividends at all US firms have grown at a rate of about 1.18% a year over this 10-year period, stock buybacks have grown 9.83% a year. In another interesting shift, the proportion of cash returned to stockholders in the form of stock buybacks has climbed from 32% in 1989 to about 57% in 2002. Stock buybacks, in the aggregate, exceeded dividends, in the aggregate, in 1999 for the first time in US corporate history. While the slowdown in the economy resulted in both dividends and stock buybacks decreasing in 2001 and 2002, buybacks still exceeded dividends in 2002.

This shift has been much less dramatic outside the United States. Firms in other countries are far less likely to use stock buybacks to return cash to stockholders for a number of reasons. First, dividends in the United States bear a much higher tax burden, relative to capital gains, than dividends paid in other countries. Many European countries,

Source: Compustat database (2003)

for instance, allow investors to claim a tax credit on dividends, for taxes paid by the firms paying these dividends. Stock buybacks, therefore, provide a much greater tax benefit to investors in the United States than they do to investors outside the United States, by shifting income from dividends to capital gains. Second, stock buybacks are prohibited or tightly constrained in many countries. Third, a strong reason for the increase in stock buybacks in the United States has been pressure from stockholders on managers to pay out idle cash. This pressure is far less in the weaker corporate governance systems that exist outside the United States.

For the rest of this section, we will be using "dividend policy" to mean not just what gets paid out in dividends but also the cash that is returned to stockholders in the form of stock buybacks.

#### Illustration 11.1: Dividends and Stock Buybacks: Disney, Aracruz and Deutsche Bank

In the table that follows, we consider how much the Disney, Aracruz and Deutsche Bank have returned to stockholders in dividends, and how much stock they have bought back each year between 1994 and 2003.

Table 11.1: Cash Returned to Stockholders: Disney, Aracruz and Deutsche Bank (in

	Disney			Aracruz,			Deutsche Bank		
Year	Dividends (in \$)	Equity Repurchases (in \$)	Cash to Equity	Dividends (in \$)	Equity Repurchases (in \$)	Cash to Equity	Dividends (in Eu)	Equity Repurchases (in Eu)	Cash to Equity
1994	\$153	\$571	\$724	\$80	\$0	\$80	\$400	\$0	\$400
1995	\$180	\$349	\$529	\$113	\$0	\$113	\$459	\$0	\$459
1996	\$271	\$462	\$733	\$27	\$0	\$27	\$460	\$0	\$460
1997	\$342	\$633	\$975	\$28	\$0	\$28	\$489	\$0	\$489
1998	\$412	\$30	\$442	\$24	\$26	\$51	\$600	\$0	\$600
1999	\$0	\$19	\$19	\$18	\$0	\$18	\$707	\$0	\$707
2000	\$434	\$166	\$600	\$58	\$23	\$81	\$801	\$0	\$801
2001	\$438	\$1,073	\$1,511	\$63	\$0	\$63	\$808	\$0	\$808
2002	\$428	\$0	\$428	\$74	\$2	\$76	\$808	\$0	\$808
2003	\$429	\$0	\$429	\$109	\$3	\$112	\$808	\$0	\$808

millions)

All three companies paid dividends over the ten-year period but there are interesting differences between the companies. Deutsche Bank has the steadiest dividend payment record as the total dividend paid increased from 400 million euros in 1994 to 808 million euros in 2003. Dividends were never cut during the entire period and have generally

grown, though the amount paid has remained unchanged from 2001 to 2003. Disney has generally also increased its dividends over the ten-year period, with one naotable exception. In 1999, Disney did not pay dividends as its operating performance turned negative. Aracruz has had the most volatile history in terms of dividends paid, with dividends rising in 5 of the 10 years examined and falling in 4 of the 10 years.

Looking at stock buybacks, Disney has been the most active player buying stock in 8 out of the 10 years, with a buyback exceeding a billion dollars in 2001. Aracruz has bought back relatively small amounts of stock over the same period, mostly has treasury stock and Deutsche Bank has never bought back stock. These differences reflect the markets that these firms operate in. As noted earlier, companies in the United States have generally bought back more stock than their counterparts in other markets. Stock buybacks are rare in Brazil and were not allowed in Germany for much of the ten year period examined.

#### **Reasons for Stock Buybacks**

Firms that want to return substantial amounts of cash to their stockholders can either pay a large special dividend or buy back stock. There are several advantages to both the firm and its stockholders to using stock buybacks as an alternative to dividend payments. There are four significant advantages to the firm:

- Unlike regular dividends, which typically commit the firm to continue payment in future periods, equity repurchases are one-time returns of cash. Consequently, firms with excess cash that are uncertain about their ability to continue generating these cash flows in future periods should repurchase stocks rather than pay dividends. (They could also choose to pay special dividends, since these do not commit the firm to making similar payments in the future.)
- The decision to repurchase stock affords a firm much more flexibility to reverse itself and to spread the repurchases over a longer period than does a decision to pay an equivalent special dividend. In fact, there is substantial evidence that many firms that announce ambitious stock repurchases do reverse themselves and do not carry the plans through to completion.

- Equity repurchases may provide a way of increasing insider control in firms, since they reduce the number of shares outstanding. If the insiders do not tender their shares back, they will end up holding a larger proportion of the firm and, consequently, having greater control.
- Finally, equity repurchases may provide firms with a way of supporting their stock prices, when they are declining<sup>2</sup>. For instance, in the aftermath of the crash of 1987, many firms initiated stock buyback plans to keep stock prices from falling further. There are two potential benefits that stockholders might perceive in stock buybacks:
- Equity repurchases may offer tax advantages to stockholders, since dividends are taxed at ordinary tax rates, while the price appreciation that results from equity repurchases is taxed at capital gains rates. Furthermore, stockholders have the option not to sell their shares back to the firm and therefore do not have to realize the capital gains in the period of the equity repurchases.
- Equity repurchases are much more selective in terms of paying out cash only to those stockholders who need it. This benefit flows from the voluntary nature of stock buybacks: those who need the cash can tender their shares back to the firm, while those who do not can continue to hold on to them.

In summary, equity repurchases allow firms to return cash to stockholders and still maintain flexibility for future periods.

Intuitively, we would expect stock prices to increase when companies announce that they will be buying back stock. Studies have looked at the effect on stock price of the announcement that a firm plans to buy back stock. There is strong evidence that stock prices increase in response. Lakonishok and Vermaelen examined a sample of 221 repurchase tender offers that occurred between 1962 and 1977, and at stock price changes in the 15 days around the announcement.<sup>3</sup> Table 11.2 summarizes the fraction of shares bought back in these tender offers and the change in stock price for two sub-periods: 1962-79 and 1980-86.

 $<sup>^2</sup>$  This will be true only if the price decline is not supported by a change in the fundamentals – drop in earnings, declining growth etc. If the price drop is justified, a stock buyback program can, at best, provide only temporary respite.

<sup>&</sup>lt;sup>3</sup> Lakonishok, J. and T. Vermaelen, 1990, Anomalous Price Behavior around Repurchase Tender Offers, Journal of Finance, v45, 455-478

	1962-1979	1980-1986	1962-1986
Number of	131	90	221
buybacks			
Percentage of shares	15.45%	16.82%	16.41%
purchased			
Abnormal return to	16.19%	11.52%	14.29%
all stockholders			

Table 11.2: Returns around Stock Repurchase Tender Offers

On average, across the entire period, the announcement of a stock buyback increased stock value by 14.29%.

#### In Practice: Equity Repurchase and the Dilution Illusion

Some equity repurchases are motivated by the desire to reduce the number of shares outstanding and therefore increase the earnings per share. If we assume that the firm's price earnings ratio will remain unchanged, reducing the number of shares will usually lead to a higher price. This provides a simple rationale for many companies embarking on equity repurchases.

There is a problem with this reasoning, however. Although the reduction in the number of shares might increase earnings per share, the increase is usually caused by higher debt ratios and not by the stock buyback per se. In other words, a special dividend of the same amount would have resulted in the same returns to stockholders. Furthermore, the increase in debt ratios should increase the riskiness of the stock and lower the price earnings ratio. Whether a stock buyback will increase or decrease the price per share will depend on whether the firm is moving to its optimal debt ratio by repurchasing stock, in which case the price will increase, or moving away from it, in which case the price will drop.

To illustrate, assume that an all-equity financed firm in the specialty retailing business, with 100 shares outstanding, has \$100 in earnings after taxes and a market value of \$1,500. Assume that this firm borrows \$300 and uses the proceeds to buy back 20 shares. As long as the after-tax interest expense on the borrowing is less than \$20, this firm will report higher earnings per share after the repurchase. If the firm's tax rate is 50%, for instance, the effect on earnings per share is summarized in the table below for two scenarios: one where the interest expense is \$30 and one where the interest expense is \$55.

Effect of Stock Repurchase on Earnings per Share						
	Before	After Repurchase				
	Repurchase	Interest Expense = \$ 30	Interest Expense = \$55			
EBIT	\$ 200	\$200	\$ 200			
- Interest	\$ 0	\$ 30	\$ 55			
= Taxable Inc.	\$ 200	\$ 170	\$ 145			
- Taxes	\$ 100	\$ 85	\$ 72.50			
= Net Income	\$ 100	\$ 85	\$ 72.50			
# Shares	100	80	80			
EPS	\$ 1.00	\$ 1.125	\$ 0.91			

If we assume that the price earnings ratio remains at 15, the price per share will change in proportion to the earnings per share. Realistically, however, we should expect to see a drop in the price earnings ratio, as the increase in debt makes the equity in the firm riskier. Whether the drop will be sufficient to offset or outweigh an increase in earnings per share will depend upon whether the firm has excess debt capacity and whether, by going to 20%, it is moving closer to its optimal debt ratio.

# **Choosing between Dividends and Equity Repurchases**

Firms that plan to return cash to their stockholders can either pay them dividends or buy back stock. How do they choose? The choice will depend upon the following factors:

- Sustainability and Stability of Excess Cash Flow: Both equity repurchases and increased dividends are triggered by a firm's excess cash flows. If the excess cash flows are temporary or unstable, firms should repurchase stock; if they are stable and predictable, paying dividends provides a stronger signal of future project quality.
- *Stockholder Tax Preferences*: If stockholders are taxed at much higher rates on dividends than capital gains, they will be better off if the firm repurchases stock. If, on the other hand, stockholders prefer dividends, they will gain if the firm pays a special dividend.
- *Predictability of Future Investment Needs*: Firms that are uncertain about the magnitude of future investment opportunities should use equity repurchases as a way

of returning cash to stockholders. The flexibility that is gained will be useful, if they need cash flows in a future period to accept an attractive new investment.

- Undervaluation of the Stock: For two reasons, an equity repurchase makes even more sense when managers believe their stock to be undervalued. First, if the stock remains undervalued, the remaining stockholders will benefit if managers buy back stock at less than true value. The difference between the true value and the market price paid on the buyback will be accrue to those stockholders who do not sell their stock back. Second, the stock buyback may send a signal to financial markets that the stock is undervalued, and the market may react accordingly, by pushing up the price.
- *Management Compensation:* Managers often receive options on the stock of the companies that they manage. The prevalence and magnitude of such option-based compensation can affect whether firms use dividends or buy back stock. The payment of dividends reduces stock prices, while leaving the number of shares unchanged. The buying back of stock reduces the number of shares, and the share price usually increases on the buyback. Since options become less valuable as the stock price decreases, and more valuable as the stock price increases, managers with significant option positions may be more likely to buy back stock than pay dividends.

Bartov, Krinsky and Lee examined three of these determinants – undervaluation, management compensation and institutional investor holdings (as a proxy for stockholder tax preferences) – of whether firms buy back stock or pay dividends.<sup>4</sup> They looked at 150 firms announcing stock buyback programs between 1986 and 1992 and compared these firms to other firms in their industries that chose to increase dividends instead. Table 11.3 reports on the characteristics of the two groups.

Table 11.3: Characteristics of Firms Buying Back Stock versus those Increasing

Dividends

	Firms buying back stock	Firms increasing	Difference is significant	
		dividends		
Book/Market	56.90%	51.70%	Yes	
Options/shares	7.20%	6.30%	No	

<sup>&</sup>lt;sup>4</sup> Bartov, E., I. Krinsky and J. Lee, 1998, *Some Evidence on how Companies choose between Dividends and Stock Repurchases*, Journal of Applied Corporate Finance, v11, 89-96.

No of institutional holders	219.4	180	yes
TT 71 11 11 11 11	11 0		

While the option holdings of managers seemed to have had no statistical impact on whether firms bought back stock or increased dividends, firms buying back stock had higher book to market ratios than firms increasing dividends, and more institutional stockholders. The higher book to price ratio can be viewed as an indication that these firms are more likely to view themselves as under valued. The larger institutional holding might suggest a greater sensitivity to the tax advantage of stock buybacks.

#### 11.1. Price Effects

For which of the following types of firms would a stock buyback be most likely to lead to a drop in the stock price?

- a. Companies with a history of poor project choice
- b. Companies which borrow money to buy back stock
- c. Companies which are perceived to have great investment opportunities Explain.

# A Cash Flow Approach to Analyzing Dividend Policy

Given what firms are returning to their stockholders in the form of dividends or stock buybacks, how do we decide whether they are returning too much or too little? In the cash flow approach, we follow four steps. We first measure how much cash is available to be paid out to stockholders after meeting reinvestment needs and compare this amount to the amount actually returned to stockholders. We then have to consider how good existing and new investments in the firm are. Thirdly, based upon the cash payout and project quality, we consider whether firms should be accumulating more cash or less. Finally, we look at the relationship between dividend policy and debt policy.

#### Step 1: Measuring Cash Available to be returned to Stockholders

To estimate how much cash a firm can afford to return to its stockholders, we begin with the net income — the accounting measure of the stockholders' earnings during the period — and convert it to a cash flow by subtracting out a firm's reinvestment needs. First, any capital expenditures, defined broadly to include acquisitons, are subtracted from the net income, since they represent cash outflows. Depreciation and

amortization, on the other hand, are added back in because they are non-cash charges. The difference between capital expenditures and depreciation is referred to as *net capital expenditures* and is usually a function of the growth characteristics of the firm. Highgrowth firms tend to have high net capital expenditures relative to earnings, whereas lowgrowth firms may have low, and sometimes even negative, net capital expenditures.

Second, increases in working capital drain a firm's cash flows, while decreases in working capital increase the cash flows available to equity investors. Firms that are growing fast, in industries with high working capital requirements (retailing, for instance), typically have large increases in working capital. Since we are interested in the cash flow effects, we consider only changes in *non-cash working capital* in this analysis.

Finally, equity investors also have to consider the effect of changes in the levels of debt on their cash flows. Repaying the principal on existing debt represents a cash outflow, but the debt repayment may be fully or partially financed by the issue of new debt, which is a cash inflow. Again, netting the repayment of old debt against the new debt issues provides a measure of the cash flow effects of changes in debt.

Allowing for the cash flow effects of net capital expenditures, changes in working capital, and net changes in debt on equity investors, we can define the cash flows left over after these changes as the **free cash flow to equity (FCFE)**:

Free Cash Flow to Equity (FCFE) = Net Income - (Capital Expenditures - Depreciation) - (Change in Non-cash Working Capital)

+ (New Debt Issued - Debt Repayments)

This is the cash flow available to be paid out as dividends.

This calculation can be simplified if we assume that the net capital expenditures and working capital changes are financed using a fixed mix<sup>5</sup> of debt and equity. If  $\delta$  is the proportion of the net capital expenditures and working capital changes that is raised from debt financing, the effect on cash flows to equity of these items can be represented as follows:

<sup>&</sup>lt;sup>5</sup> The mix has to be fixed in book value terms. It can be varying in market value terms.

Equity Cash Flows associated with Working Capital Needs = - ( $\Delta$  Working Capital) (1- $\delta$ ) Accordingly, the cash flow available for equity investors after meeting capital expenditure and working capital needs is:

Free Cash Flow to Equity = Net Income

- (Capital Expenditures - Depreciation)  $(1 - \delta)$ 

- ( $\Delta$  Working Capital) (1- $\delta$ )

Note that the net debt payment item is eliminated, because debt repayments are financed with new debt issues to keep the debt ratio fixed. It is particularly useful to assume that a specified proportion of net capital expenditures and working capital needs will be financed with debt if the target or optimal debt ratio of the firm is used to forecast the free cash flow to equity that will be available in future periods. Alternatively, in examining past periods, we can use the firm's average debt ratio over the period to arrive at approximate free cash flows to equity.

# In Practice: Estimating the FCFE at a Financial Service Firm

The standard definition of free cash flows to equity is straightforward to put into practice for most manufacturing firms, since the net capital expenditures, non-cash working capital needs and debt ratio can be estimated from the financial statements. In contrast, the estimation of free cash flows to equity is difficult for financial service firms, due to several reasons. First, estimating net capital expenditures and non-cash working capital for a bank or insurance company is difficult to do, since all of the assets and liabilites are in the form of financial claims. Second, it is difficult to define short-term debt for financial service firms, again due to the complexity of their balance sheets.

To estimate the FCFE for a bank, we begin by categorizing the income earned into three categories - *net interest income* from taking deposits and lending them out a higher interest rate, *arbitrage income* from buying financial claims (at a lower price) and selling financial claims (of equivalent risk) at a higher price and *advisory and fee income* from providing financial advice and services to firms. For each of these sources of income, we traced the equity investment that would be needed:

*Type of Income* Net Investment Needed

Net Interest Income Net Loans - Total Deposits

Arbitrage IncomeInvestments in Financial Assets - Corresponding Financial LiabilitiesAdvisory IncomeTraining Expenses

(Net Loans = Total Loans - Bad Debt Provisions)

The first two categories of net investment can usually be obtained from the balance sheet, and changes in these net figures from year to year can be treated as the equivalent of net capital expenditures. While, in theory, training expenses should be capitalized and treated as tax-deductible capital expenditures, they are seldom shown in enough detail at most firms for this to be feasible.

Illustration 11.2: Estimating Free Cash Flows to Equity – Disney, Aracruz and Deutsche Bank

In Table 11.4, we estimate the free cash flows to equity for Disney from 1994 to 2003, using historical information from their financial statements.

				Change in	FCFE		FCFE
	Net		Capital	non-cash	(before	Net CF	(after
Year	Income	Depreciation	Expenditures	WC	debt CF)	from Debt	Debt CF)
1994	\$1,110.40	\$1,608.30	\$1,026.11	\$654.10	\$1,038.49	\$551.10	\$1,589.59
1995	\$1,380.10	\$1,853.00	\$896.50	(\$270.70)	\$2,607.30	\$14.20	\$2,621.50
1996	\$1,214.00	\$3,944.00	\$13,464.00	\$617.00	(\$8,923.00)	\$8,688.00	(\$235.00)
1997	\$1,966.00	\$4,958.00	\$1,922.00	(\$174.00)	\$5,176.00	(\$1,641.00)	\$3,535.00
1998	\$1,850.00	\$3,323.00	\$2,314.00	\$939.00	\$1,920.00	\$618.00	\$2,538.00
1999	\$1,300.00	\$3,779.00	\$2,134.00	(\$363.00)	\$3,308.00	(\$176.00)	\$3,132.00
2000	\$920.00	\$2,195.00	\$2,013.00	(\$1,184.00)	\$2,286.00	(\$2,118.00)	\$168.00
2001	(\$158.00)	\$1,754.00	\$1,795.00	\$244.00	(\$443.00)	\$77.00	(\$366.00)
2002	\$1,236.00	\$1,042.00	\$1,086.00	\$27.00	\$1,165.00	\$1,892.00	\$3,057.00
2003	\$1,267.00	\$1,077.00	\$1,049.00	(\$264.00)	\$1,559.00	(\$1,145.00)	\$414.00
Average	\$1,208.55	\$2,553.33	\$2,769.96	\$22.54	\$969.38	\$676.03	\$1,645.41

Table 11.4: Estimates of Free Cashflows to Equity for Disney: 1994-2003

The depreciation numbers also include amortization and the capital expenditures include acquisitions; the acquisition of Capital Cities/ABC is reflected in the large jump in capital expenditures in 1996 and in depreciation in the years after as goodwill was amortized. Increases in non-cash working capital, shown as positive numbers, represent a drain on the cash. In 1994, for example, non-cash working capital increased by \$ 654.10 million, reducing the cash available for stockholders in that year by the same amount. Finally, the

net cashflow from debt is the cash generated by the issuance of new debt, netted out against the cash outflow from the repayment of old debt. Again, using 1994 as an example, Disney issued \$ 551.10 million more in new debt than it paid off on old debt, and this represents a cash inflow in that year.

We have computed two measures of free cashflow to equity, one before the net debt cashflow and one after. Using 1994 as an illustration, we compute each as follows:

FCFE before net Debt CF = Net Income + Depreciation – Capital Expenditures – Change in non-cash Working Capital = 1110.40 + 1608.30 – 1026.11 -654.10 = \$ 1038.49 million

FCFE after net Debt CF = FCFE before net Debt CF + Net Debt Cashflow = 1038.49 + 551.10 = \$1589.59 million

As Table 11.4 indicates, Disney had negative free cash flows to equity in 2 of the 10 years, in 1996 because of the Capital Cities acquisition and in 2001 because they reported a loss. The average annual FCFE before net debt issues over the period was \$968 million and the average net debt issued over the period was \$676 million, resulting in an annual FCFE after net debt issues of \$1,645 million.

A similar estimation of FCFE was done for Aracruz from 1998 to 2003 in table 11.5, again using historical information:

				Change in	FCFE		FCFE
	Net		Capital	non-cash	(before net	Net Debt	(after net
Year	Income	Depreciation	Expenditures	WC	Debt CF)	Cashflow	Debt CF)
1998	\$3.45	\$152.80	\$88.31	\$76.06	(\$8.11)	\$174.27	\$166.16
1999	\$90.77	\$158.83	\$56.47	\$2.18	\$190.95	(\$604.48)	(\$413.53)
2000	\$201.71	\$167.96	\$219.37	\$12.30	\$138.00	(\$292.07)	(\$154.07)
2001	\$18.11	\$162.57	\$421.49	(\$56.76)	(\$184.06)	\$318.24	\$134.19
2002	\$111.91	\$171.50	\$260.70	(\$5.63)	\$28.34	\$36.35	\$64.69
2003	\$148.09	\$162.57	\$421.49	(\$7.47)	(\$103.37)	\$531.20	\$427.83
Average	\$95.67	\$162.70	\$244.64	\$3.45	\$10.29	\$27.25	\$37.54

Table 11.5: FCFE for Aracruz in US\$ from 1998 to 2003

Between 1998 and 2003, Aracruz had big swings in net income and corresponding swings in FCFE, with FCFE being negative in 3 of the 6 years. The average annual FCFE before net debt cashflows was approximately 10 million dollars. The cashflows from debt add to the volatility, since Aracruz paid off large amounts of debt in 1999 and 2000 and

raised large amounts of debt in 1998, 2001 and 2003. The average annual FCFE after net debt cashflows changes relatively little to 37.54 million dollars.

We can compute Aracruz's FCFE each year, using the approximation that we described in the last section. To do this, we first have to compute the net debt cashflows as percent of reinvestment needs over this period. Using the average values for debt cashflows, capital expenditures, depreciation and changes in non-cash working capital:

Average Debt Ratio = Net Debt Cashflow/ (Capital expenditures – Depreciation +

Change in non-cash Working capital) = 27.25/(244.64-162.70+3.45) = 31.92%

The FCFE each year can then be estimated using the average debt ratio, instead of the actual net debt cashflows. Table 11.6 contains the estimates of FCFE each year using this approach for Aracruz:

Year	Net Income	(Capital Expenditures - Depreciation)*(1-DR)	Change in non-cash WC (1- DR)	FCFE
1998	\$3.45	-\$43.91	\$51.78	-\$4.42
1999	\$90.77	-\$69.69	\$1.48	\$158.98
2000	\$201.71	\$35.00	\$8.38	\$158.34
2001	\$18.11	\$176.28	-\$38.64	-\$119.53
2002	\$111.91	\$60.73	-\$3.83	\$55.02
2003	\$148.09	\$176.28	-\$5.09	-\$23.11
Average	\$95.67	\$55.78	\$2.35	\$37.54

Table 11.6: Approximate FCFE for Aracruz from 1998 to 2003

Note that the average FCFE between 1998 and 2003 remains the same at 37.54 million dollars a year when we use the approximation. The FCFE in each year is different, though, from the estimates in table 11.5, because we are smoothing out the effects of the cashflows from debt.

To estimate the FCFE for Deutsche Bank, we used the categories developed earlier for banks - *net interest income*, *arbitrage income* and *advisory and fee income* from providing financial advice and services to firms. To estimate the net investment made in 2003 for each source of income, and ignoring training expenses, we used the balance sheet numbers for 2002 and 2003. Table 11.7 reports these numbers.

Table 11.7: Deutsche Bank: 2002 and 2003 Financials

	2002	2003	Change
Interbank Assets	€ 25,691.00	€ 14,649.00	-€ 11,042.00
Net Loans	€ 167,303.00	€ 144,946.00	-€ 22,357.00

Security Purchases/Resell	€ 155,258.00	€ 185,215.00	€ 29,957.00
ST Investments	€ 318,681.00	€ 370,002.00	€ 51,321.00
LT Investments	€ 4,729.00	€ 2,569.00	-€ 2,160.00
Net Fixed Assets	€ 8,883.00	€ 5,786.00	-€ 3,097.00
Other Assets	€ 68,732.00	€ 73,751.00	€ 5,019.00
Total Non-Cash Assets	€ 749,277.00	€ 796,918.00	€ 47,641.00
Total Deposits	€ 327,625.00	€ 306,154.00	-€ 21,471.00
ST Borrowings	€ 125,842.00	€ 155,002.00	€ 29,160.00
LT Borrowing	€ 92,388.00	€ 82,018.00	-€ 10,370.00
ST Liabilities	€ 172,379.00	€ 222,838.00	€ 50,459.00
LT Liabilities	€ 10,130.00	€ 9,400.00	-€ 730.00
Liabilities	€ 728,364.00	€ 775,412.00	€ 47,048.00

We then categorized these changes into the "interest income" investments, "arbitrage income" investments and "other" investments, considering interbank investments as interest income investments.

Interest Income Investments = (Net Loans + Interbank Investments - Deposits)<sub>2003</sub> - (Net Loans + Interbank Investments - Deposits)<sub>2002</sub>

Arbitrage Investments = (Short Term and Long Term Investments + Security Purchases - ST Borrowings - LT Borrowings - ST Liabilities - LT Liabilities)<sub>2003</sub> - (Short Term and Long Term Investments - ST Borrowings - LT Borrowings -ST Liabilities - LT Liabilities)<sub>2002</sub> Other Investments = (Net Fixed Assets + Other Assets)<sub>2003</sub> - (Net Fixed Assets + Other Assets)<sub>2002</sub>

With these definitions, and based upon Deutsche's Bank's net income of 1,365 million Euro in 2003, we estimated the FCFE :

Net Income =	1365
- Interest Income Investments	-(-€ 11,928.00)
- Arbitrage Investments	- € 10,599.00
- Other Investments	- € 1,922.00
FCFE	= € 772.00

This analysis would suggest that Deutsche Bank had 772 million Euros available to be returned to stockholders in 2003.

# 11.2. <sup>(C)</sup>: Defining Free Cash Flows to Equity

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The reason that the net income is not the amount that a company can afford to pay out in dividends is because

- a. Earnings are not cash flows
- b. Some of the earnings have to be reinvested back in the firm to create growth
- c. There may be cash inflows or outflows associated with the use of debt
- d. All of the above

Explain.

#### Measuring the Payout Ratio

The conventional measure of dividend policy — the dividend payout ratio — gives us the value of dividends as a proportion of earnings. In contrast, our approach measures the total cash returned to stockholders as a proportion of the free cash flow to equity:

Dividend Payout Ratio = Dividends / Earnings

Cash to Stockholders to FCFE Ratio = (Dividends + Equity Repurchases) / FCFE The ratio of cash returned to stockholders to FCFE shows how much of the cash available to be paid out to stockholders is actually returned to them in the form of dividends and stock buybacks. If this ratio, over time, is equal or close to 100%, the firm is paying out all that it can to its stockholders. If it is significantly less than 100%, the firm is paying out less than it can afford to and is using the difference to increase its cash balance or to invest in marketable securities. If it is significantly over 100%, the firm is paying out more than it can afford and is either drawing on an existing cash balance or issuing new securities (stocks or bonds).

Illustration 11.3: Comparing Dividend Payout Ratios to FCFE Payout Ratios: Disney and Aracruz

In the following analysis, we compare the dividend payout ratios to the cash to stockholders as a percent of FCFE for Disney and Aracruz. Table 11.8 shows both numbers for Disney from 1994 to 2003.

# Table 11.8: Disney: Dividends as Percentage of Earnings and Cash Returned as Percentage of FCFE

					Cash returned	
			Payout		to	Cash
Year	Net Income	Dividends	Ratio	FCFE	Stockholders	Returned/FCFE
1994	\$1,110.40	\$153.20	13.80%	\$1,589.59	\$723.90	45.54%
1995	\$1,380.10	\$180.00	13.04%	\$2,621.50	\$528.70	20.17%
1996	\$1,214.00	\$271.00	22.32%	(\$235.00)	\$733.00	NA
1997	\$1,966.00	\$342.00	17.40%	\$3,535.00	\$975.00	27.58%
1998	\$1,850.00	\$412.00	22.27%	\$2,538.00	\$442.00	17.42%
1999	\$1,300.00	\$0.00	0.00%	\$3,132.00	\$19.00	0.61%
2000	\$920.00	\$434.00	47.17%	\$168.00	\$600.00	357.14%
2001	(\$158.00)	\$438.00	NA	(\$366.00)	\$1,511.00	NA
2002	\$1,236.00	\$428.00	34.63%	\$3,057.00	\$428.00	14.00%
2003	\$1,267.00	\$429.00	33.86%	\$414.00	\$429.00	103.62%
1994-						
2003	\$12,085.50	\$3,087.20	25.54%	\$16,454.09	\$6,389.60	38.83%

As you can see, Disney paid out 25.54% of its aggregate earnings as dividends over this period.<sup>6</sup> Over the same period, it returned 38.83% of its FCFE to its stockholders in the form of dividends and stock buybacks. Though the payout ratio gives us little information about the company, the cash returned as a percent of FCFE suggests that Disney accumulated cash during this period. Even if we ignore the cashflows generated by debt in estimating FCFE, Disney returned only 65.91% of its FCFE to its stockholders in the form of dividends and stock buybacks.

Table 11.9 shows dividend payout ratios and cash returned to stockholders as a percent of FCFE for Aracruz from 1998 to 2003.

Table 11.9: Aracruz – Dividends as Percentage of Earnings and Cash Returned as

Year	Net Income	Dividends	Payout Ratio	FCFE	Cash returned to Stockholders	Cash Returned/FCFE
1998	\$3.45	\$24.39	707.51%	\$166.16	\$50.79	30.57%
1999	\$90.77	\$18.20	20.05%	(\$413.53)	\$18.20	NA
2000	\$201.71	\$57.96	28.74%	(\$154.07)	\$80.68	NA
2001	\$18.11	\$63.17	348.87%	\$134.19	\$63.17	47.08%
2002	\$111.91	\$73.80	65.94%	\$64.69	\$75.98	117.45%
2003	\$148.09	\$109.31	73.81%	\$427.83	\$112.31	26.25%
1998-	\$574.04	\$346.83	60.42%	\$225.27	\$401.12	178.07%

Percent of FCFE

<sup>&</sup>lt;sup>6</sup> To compute the payout ratio over the entire period, we first aggregated earnings and dividends over the entire period and then divided the aggregate dividends by the aggregate earnings. This avoids the problems created by averaging ratios where outliers (very high ratios) are common.

2003			

As with Disney, the payout ratio and the cash returned as a percent of FCFE tell you different stories. While Aracruz paid out 60.42% of its aggregate earnings over the period as dividends, the total cash returned as a percent of aggregate FCFE was in excess of 100%. Some of the dividends were clearly funded using cash accumulated at the start of the period.

*dividends.xls*: This spreadsheet allows you to estimate the free cash flow to equity and the cash returned to stockholders for a period of up to 10 years.

# P

*divfcfe.xls*: There is a dataset on the web that summarizes dividends, cash returned to stockholders and free cash flows to equity, by sector, in the United States.

# Why Firms may pay out less than is available

For several reasons, many firms pay out less to stockholders, in the form of dividends and stock buybacks, than they have available in free cash flows to equity. The reasons vary from firm to firm and we list some below –

- The managers of a firm may gain by retaining cash rather than paying it out as a dividend. The desire for empire building may make increasing the size of the firm an objective on its own. Or, management may feel the need to build up a cash cushion to tide over periods when earnings may dip; in such periods, the cash cushion may reduce or obscure the earnings drop and may allow managers to remain in control.
- The firm may be unsure about its future financing needs and may choose to retain some cash to take on unexpected investments or meet unanticipated needs.
- The firm may have volatile earnings and may retain cash to help smooth out dividends over time.
- Bondholders may impose restrictions on cash payments to stockholders, which may prevent the firm from returning available cash flows to its stockholders.

# 11.3. **EF:** What happens to the FCFE that are not paid out?

In 2003, Microsoft had free cash flows to equity of roughly \$ 9 billion, paid no dividends and bought back no stock. Where would you expect to see the difference of \$ 9 billion show up in Microsoft's financials?

a. It will be invested in new projects

- b. It will be in retained earnings, increasing the book value of equity
- c. It will increase the cash balance of the company
- d. None of the above

Explain.

#### **Evidence on Dividends and FCFE**

We can observe the tendency of firms to pay out less to stockholders than they have available in free cash flows to equity by examining cash returned to stockholders paid as a percentage of free cash flow to equity. In 2003, for instance, the median dividend to free cash flow to equity ratio across dividend paying firms listed in the United States was 60%. Figure 11.2 shows the distribution of cash returned as a percent of FCFE across all dividend-paying firms.



Figure 11.2: Dividends paid as % of FCFE

A percentage less than 100% means that the firm is paying out less in dividends than it has available in free cash flows and that it is generating surplus cash. For those firms that did not make net debt payments (debt payments in excess of new debt issues) during the period, this cash surplus appears as an increase in the cash balance. A percentage greater than 100% indicates that the firm is paying out more in dividends than it has available in cash flow. These firms have to finance these dividend payments either out of existing cash balances or by making new stock and debt issues. Note that there are almost 300 firms in this period that paid dividends even though they had negative free cashflows to equity. These firms will have to come up with enough funds, either from existing cash balances or new stock issues, to cover both the dividends and the cash deficit.

This spreadsheet allows you to estimate the free cash flows to equity for a firm over a period for up to 10 years and compare it to dividends paid.

#### **Step 2: Assessing Project Quality**

The alternative to returning cash to stockholders is reinvestment. Consequently, a firm's investment opportunities influence its dividend policy. Other things remaining equal, a firm with better projects typically has more flexibility in setting dividend policy and defending it against stockholder pressure for higher dividends. But how do we define a good project?

According to our analysis of investment decisions, a good project is one that earns at least the hurdle rate, which is the cost of equity, if cash flows are estimated on an equity basis, or the cost of capital if cash flows are measured on a pre-debt basis. In theory, we could estimate the expected cash flows on every project available to the firm and calculate the internal rates of return or net present value of each project to evaluate project quality. There are several practical problems with this, however. First, we have to be able to obtain the detailed cash flow estimates and hurdle rates for all available projects, which can daunting if the firm has dozens or even hundreds of projects. The second problem is that, even if these cash flows are available for existing projects, they will not be available for future projects. As an alternative approach to measuring project quality, we can use one or more of the three measures we developed in chapter 5 to evaluate a firm's current project portfolio:

- Cash Flow Return on Investment (CFROI), which measures the real internal rate of return on existing investments, based upon expected cash flows and the remaining life of the investments, and compares it to the real cost of capital
- Accounting Return differentials, where we compare the accounting return on equity to the cost of equity and the accounting return on capital to the cost of capital.
- Economic value Added, which measures the excess return earned on capital invested in existing investments, and can be computed either on an equity or capital basis.

We did note the limitations of each of these approaches in chapter 5, but they still provide a measure of the quality of a firm's existing investments.

Using past project returns as a measure of future project quality can result in errors if a firm is making a transition from one stage in its growth cycle to the next, or if it is in the process of restructuring. In such situations, it is entirely possible that the expected returns on new projects will differ from past project returns. Consequently, it may be worthwhile scrutinizing past returns for trends that may carry over into the future. The average return on equity or capital for a firm will not reveal these trends very well, because they are slow to reflect the effects of new projects, especially for large firms. An alternative accounting return measure, which better captures year to year shifts, is the **marginal return on equity or capital**, which is defined as follows:

Marginal Return on Equity<sub>t</sub> =  $\frac{\text{Net Income}_{t} - \text{Net Income}_{t-1}}{\text{Book Value of Equity}_{t} - \text{Book Value of Equity}_{t-1}}$ 

Marginal Return on Capital = 
$$\frac{\text{EBIT}(1 - t)_{t} - \text{EBIT}(1 - t)_{t-1}}{\text{Book Value of Capital}_{t} - \text{Book Value of Capital}_{t-1}}$$

Although the marginal return on equity (capital) and the average return on equity (capital) will move in the same direction, the marginal returns typically change much more than do the average returns, the difference being a function of the size of the firm. These marginal returns can be used to compute the quality of the new projects added on by the firm.

The alternative to using accounting returns to measure the quality of a firm's projects is to look at how well or badly a firm's stock has done in financial markets. In chapter 4, we compared the returns earned by a stock to the returns earned on the market, after adjusting for risk. The risk-adjusted excess return that we estimated becomes a measure of whether a stock has under- or outperformed the market. A positive excess return would then be viewed as an indication that a firm has done better than expected, while a negative excess return would indicate that a firm has done worse than anticipated.

Finally, accounting income and stock returns may vary year to year, not only because of changes in project quality, but also because of fluctuations in the business cycles and interest rates. Consequently, the comparisons between returns and hurdle rates should be made over long enough periods, say five to ten years, to average out these other effects.

# Illustration 11.4: Evaluating Project Quality at Disney and Aracruz

In illustration 5.9, we examined the quality of existing investments at Disney and Aracruz, using both accounting returns and economic value added. In the following analysis, we examine both accounting and market measures of return at Disney and Aracruz over the most recent time period, and compare them to the appropriate hurdle rates to evaluate the quality of the projects taken at each firm during the period. We begin with an analysis of Disney's accounting return on equity, the return from holding the stock, and the required return (given the beta and market performance during each year<sup>7</sup>) from 1994 to 2003 as shown in Figure 11.3.

<sup>&</sup>lt;sup>7</sup> For instance, to estimate the expected return in 1998, we use the following:

Expected Return in 1998 = Riskfree rate at beginning of 1998 + Beta (Return on Market in 1998 – Riskfree Rate at the beginning of 1998)

An average beta of 1.20 was used over the entire period for Disney.



Figure 11.3: ROE, Return on Stock and Cost of Equity: Disney

As you can see, the verdict is not favorable to Disney, especially after the acquisition of Capital Cities in 1996. The return on equity for the firm, which exceeded 20% in the two years prior to the acquisition, plummeted in the years after to single digits. Accounting rules can be blamed partially for the decline immediately after the acquisition because the book value of equity at Disney jumped when it bought ABC. However, the continuing decline in return on equity in 1998 and 1998 cannot be attributed to the book value write and neither can the poor stock price performance between 1998 and 2001. It is clear that any promised synergy in this merger has not materialized over the following seven years. While there are individual years in which Disney project returns and stock returns exceed the required return, the average return on equity over the entire period is 7.50%, which is lower than the required rate of return of 14.62%. The average annual return from holding Disney stock is 8.27%, which is also lower than the required return. Based upon the company's performance over the last few years, that there is little to suggest that Disney's managers can be trusted with cash.

Repeating this analysis for Aracruz for the 1998-2003 time period yields different results. Figure 11.4 summarizes returns on equity, returns on the stock, and the required return at the firm for each year between 1998 and 2003.



Figure 11.4: ROE, Return on Stock and Cost of Equity: Aracruz

During this period, Aracruz earned an average return on equity of 5.68%, barely in excess of its cost of equity of 5.27% but an investor in its stock would have seen an average annual return of 22.84% over the same period. , Stockholders may be willing, at this stage, to accept the firm's contention that its projects are delivering sufficient returns, but a key question will how much these returns are dependent upon the price of paper/pulp holding up in future years. Looking at Aracruz's history, it is quite clear that much of the volatility in returns from year to year can be attributed to commodity price variation.

*dividends.xls*: This spreadsheet allows you to estimate the average return on equity and cost of equity for a firm for a period of up to 10 years.

#### 11.4. B: Historical, Average and Projected Returns on Capital

You have been asked to judge the quality of the projects available at Super Meats, a meat processing company. It has earned an average return on capital of 10% over the last 5

years, but its marginal return on capital last year was 14%. The industry average return on capital is 12%, and it is expected that Super Meats will earn this return on its projects over the next 5 years. If the cost of capital is 12.5%, which of the following conclusions would you draw about Super Meat's projects

- a. It invested in good projects over the last 5 years
- b. It invested in good projects last year
- c. It can expect to invest in good projects over the next 5 years

In terms of setting dividend policy, which of these conclusions matter the most?

#### In Practice: Dealing with Accounting Returns

Accounting rates of return, such as return on equity and capital, are subject to abuse and manipulation. For instance, decisions on how to account for acquisitions (purchase or pooling), choice of depreciation methods (accelerated versus straight line), and whether to expense or capitalize an item (research and development) can all affect reported income and book value. In addition, in any specific year, the return on equity and capital can be biased upwards or downwards depending upon whether the firm had an unusually good or bad year. To estimate a fairer measure of returns on existing projects, we would recommend the following:

- Normalize the income, before computing returns on equity or capital. For Aracruz, in the analysis above, using the average income over the last 3 years, instead of the depressed income in 1996 provides returns on equity or capital that are much closer to the required returns.
- Back out the effects of cosmetic earnings effects caused by accounting decisions, such as the one on pooling versus purchase. This is precisely why we should consider Disney's income prior to the amortization of the Capital Cities acquisition in computing returns on equity and capital.
- 3. If there are operating expenses designed to create future growth, rather than current income, capitalize those expenses and treat them as part of book value, while computing operating income, prior to those expenses. This is what we did with Bookscape, when we capitalized operating leases and treated them as part of the

capital base, and looked at earnings before interest, taxes and operating leases in computing return on capital.

#### **Step 3: Evaluating Dividend Policy**

Once we have measured a firm's capacity to pay dividends and assessed its project quality, we can decide whether the firm should continue its existing policy of returning cash to stockholders, return more cash or return less. The assessment will depend upon how much of the free cash flow to equity is returned to stockholders each period, and on how good the firm's project opportunities are. There are four possible scenarios:

- A firm may have good projects and may be paying out more (in dividends and stock buybacks) than its free cash flow to equity: In this case, the firm is losing value in two ways. First, by paying too much in dividends, it is creating a cash shortfall that has to be met by issuing more securities. Second, the cash shortfall often creates capital rationing constraints; as a result, the firm may reject good projects it otherwise would have taken.
- A firm may have good projects and may be paying out less than its free cash flow to equity as a dividend. While it will accumulate cash as a consequence, the firm can legitimately argue that it will have good projects in the future in which it can invest the cash, though investors may wonder why it did not take the projects in the current period.
- A firm may have poor projects and may be paying out less than its free cash flow to equity as a dividend. This firm will also accumulate cash, but it will find itself under pressure from stockholders to distribute the cash, because of their concern that the cash will be used to finance poor projects.
- A firm may have poor projects and may be paying out more than its free cash flow to equity as a dividend. This firm first has to deal with its poor project choices, possibly by cutting back on those investments that make returns below the hurdle rate. Since the reduced capital expenditure will increase the free cash flow to equity, this may take care of the dividend problem. If it does not, the firm will have to cut dividends as well.

	Poor Projects	Good Projects	
	Increase payout Reduce Investment	Flexibility to accumulate cash	
Cash Returned < FCFE	Disney 👝	O Microsoft	
			FCFE -
Cash Returned > FCFE		Aracruz	Cash Returns
	Cut payout Reduce Investment	Cut payout Invest in Projects	

Figure 11.5 illustrates the possible combinations of cash payout and project quality.

ROE - Cost of Equity

Figure 11.5: Analyzing Dividend Policy

In this matrix, Aracruz, with its superior (albeit barely) project returns and its history of paying out more in dividends than it has available in free cash flows to equity falls in the quadrant where cutting dividends and redirecting the cash to projects seems to make the most sense. Disney, on the other hand, which pays less in dividends than it has available in free cash flows to equity and has a recent history of poor project returns, clearly will come under pressure to return more cash to its stockholders.

Note, though, that the pressure to pay dividends comes from the lack of trust in Disney's management rather than any greed on the part of stockholders. For a contrast, consider Microsoft, which had \$11.175 billion in free cashflows to equity inn 2003 and returned only \$857 million in dividends. The company's high return on equity (>25%) and superior stock price performance earned it the flexibility to pay out far less in cash than it generated, with little protest from stockholders.

While we might obtain estimates of return on equity and free cash flow to equity by looking at past data, the entire analysis should be forward looking. The objective is not to estimate return on equity on past projects, but to forecast expected returns on future investments. Only to the degree that past information is useful in making these forecasts is it an integral part of the analysis.

#### Consequences of Payout not matching FCFE

The consequences of the cash payout to stockholders not matching the free cash flows to equity can vary depending upon the quality of a firm's projects. In this section, we examine the consequences of paying out too little or too much for firms with good projects and for firms with bad projects. We also look at how managers in these firms may justify their payout policy, and how stockholders are likely to react to the justification.

#### A. Poor Projects and Low Payout

There are firms that invest in poor projects and accumulate cash by not returning the cash they have available to stockholders. We discuss stockholder reaction and management response to the dividend policy.

#### Consequences of Low Payout

When a firm pays out less than it can afford to in dividends, it accumulates cash. If a firm does not have good projects in which to invest this cash, it faces several possibilities: In the most benign case, the cash accumulates in the firm and is invested in financial assets. Assuming that these financial assets are fairly priced, the investments are zero net present value projects and should not negatively affect firm value. There is the possibility, however, that the firm may find itself the target of an acquisition, financed in part by its large holdings of liquid assets.

In the more damaging scenario, as the cash in the firm accumulates, the managers may be tempted to invest in projects that do not meet their hurdle rates, either to reduce the likelihood of a takeover or to earn higher returns than they would on financial assets.<sup>8</sup>

<sup>&</sup>lt;sup>8</sup> This is especially likely if the cash is invested in treasury bills or other low-risk low-return investments. On the surface, it may seem better for the firm to take on risky projects that earn, say 7%, than invest in T.Bills and make 3%, though this clearly does not make sense after adjusting for the risk.

These actions will lower the value of the firm. Another possibility is that the management may decide to use the cash to finance an acquisition. This hurts stockholders in the firm because some of their wealth is transferred to the stockholders of the acquired firms. The managers will claim that such acquisitions have strategic and synergistic benefits. The evidence<sup>9</sup> indicates, however, that most firms that have financed takeovers with large cash balances, acquired over years of paying low dividends while generating high free cash flows to equity, have reduced stockholder value.

#### Stockholder Reaction

Because of the negative consequences of building large cash balances, stockholders of firms that pay insufficient dividends and do not have "good" projects pressure managers to return more of the cash back to them. This is the basis for the free cash flow hypothesis, where dividends serve to reduce free cash flows available to managers and, by doing so, reduce the losses management actions can create for stockholders.

#### Management's Defense

Not surprisingly, managers of firms that pay out less in dividends than they can afford view this policy as being in the best long-term interests of the firm. They maintain that while the current project returns may be poor, future projects will both be more plentiful and have higher returns. Such arguments may be believable initially, but they become more difficult to sustain if the firm continues to earn poor returns on its projects. Managers may also claim that the cash accumulation is needed to meet demands arising from future contingencies. For instance, cyclical firms will often state that large cash balances are needed to tide them over the next recession. Again, while there is some truth to this view, the reasonableness of the cash balance must be compared to the experience of the firm in terms of cash requirements in prior recessions.

Finally, in some cases, managers will justify a firm's cash accumulation and low dividend payout based upon the behavior of comparable firms. Thus, a firm may claim that it is essentially matching the dividend policy of its closest competitors and that it has

<sup>&</sup>lt;sup>9</sup> See chapter 26.

to continue to do so to remain competitive. The argument that "every one else does it" cannot be used to justify a bad dividend policy, however.

Although all these justifications seem consistent with stockholder wealth maximization or the best long-term interests of the firm, they may really be smoke screens designed to hide the fact that this dividend policy serves managerial rather than stockholder interests. Maintaining large cash balances and low dividends provides managers with two advantages: it increases the funds that are directly under their control and thus increases their power to direct future investments; and it increases their margin for safety stabilizing earnings and protecting their jobs.

#### B. Good Projects and Low Payout

While the outcomes for stockholders in firms with poor projects and low dividend payout ratios range from neutral to terrible, the results may be more positive for firms that have a better selection of projects, and whose management have had a history of earning high returns for stockholders.

### Consequences of Low Payout

The immediate consequence of paying out less in dividends than is available in free cash flow to equity is the same for firms with good projects as it is for firms with poor projects: the cash balance of the firm increases to reflect the cash surplus. The long term effects of cash accumulation are generally much less negative for these firms, however, for the following reasons:

- These firms have projects that earn returns greater than the hurdle rate, and it likely that the cash will be used productively in the long term.
- The high returns earned on internal projects reduces both the pressure and the incentive to invest the cash in poor projects or in acquisitions.
- Firms that earn high returns on their projects are much less likely to be targets of takeovers, reducing the threat of hostile acquisitions.

To summarize, firms that have a history of investing in good projects and that expect to continue to have such projects in the future may be able to sustain a policy of retaining cash rather than paying out dividends. In fact, they can actually create value in the long term by using this cash productively.

#### Stockholders Reaction

Stockholders are much less likely to feel a threat to their wealth in firms that have historically shown good judgment in picking projects. Consequently, they are more likely to agree when managers in those firms withhold cash rather than pay it out. While there is a solid basis for arguing that managers cannot be trusted with large cash balances, this proposition does not apply equally across all firms. The managers of some firms earn the trust of their stockholders because of their capacity to deliver extraordinary returns on both their projects and their stock over long periods of time. These managers will be generally have much more flexibility in determining dividend policy.

The notion that greedy stockholders force firms with great investments to return too much cash too quickly is not based in fact. Rather, stockholder pressure for dividends or stock repurchases is greatest in firms whose projects yield marginal or poor returns, and least in firms whose projects have high returns.

#### Management Responses

Managers in firms that have posted stellar records in project and stock returns clearly have a much easier time convincing stockholders of the desirability of withholding cash rather than paying it out. The most convincing argument for retaining funds for reinvestment is that the cash will be used productively in the future and earn excess returns for the stockholders. Not all stockholders will agree with this view, especially if they feel that future projects will be less attractive than past projects, as may occur if the industry in which the firm operates is maturing. For example, many specialty retail firms, such as the Limited, found themselves under pressure to return more cash to stockholders in the early 1990s as margins and growth rates in the business declined.

#### C. Poor Projects and High Payout

In many ways, the most troublesome combination of circumstances occurs when firms pay out much more in dividends than they can afford, and at the same time earn disappointing returns on their projects. These firms have problems with both their investment and their dividend policies, and the latter cannot be solved adequately without addressing the former.

#### Consequences of High Payout

When a firm pays out more in dividends than it has available in free cash flows to equity, it is creating a cash deficit that has to be funded by drawing on the firm's cash balance, by issuing stock to cover the shortfall, or by borrowing money to fund its dividends. If the firm uses its cash reserves, it will reduce equity and raise its debt ratio. If it issues new equity, the drawback is the issuance cost of the stock. By borrowing money, the firm increases its debt, while reducing equity and increasing its debt ratio.

Since the free cash flows to equity are after capital expenditures, this firm's real problem is not that it pays out too much in dividends, but that it invests too heavily in bad projects. Cutting back on these projects would therefore increase the free cash flow to equity and might eliminate the cash shortfall created by paying dividends.

### Stockholder Reaction

The stockholders of a firm that pays more in dividends than it has available in free cash flow to equity faces a dilemma: On the one hand, they may want the firm to reduce its dividends to eliminate the need for additional borrowing or equity issues each year. On the other hand, the management's record in picking projects does not evoke much trust that the firm is using funds wisely, and it is likely that the funds saved by not paying the dividends will be used on other poor projects. Consequently, these firms will first have to solve their investment problems and then cut back on poor projects, which, in turn, will increase the free cash flow to equity. If the cash shortfall persists, the firm should then cut back on dividends.

It is therefore entirely possible, especially if the firm is underleveraged to begin with, that the stockholders will not push for lower dividends but will try to convince managers to improve project choice instead. It is also possible that they will encourage the firm to eliminate enough poor projects so that the free cash flow to equity covers the expected dividend payment.

#### Management Responses

The managers of firms with poor projects and dividends that exceed free cash flows to equity may not think that they have investment problems rather than dividend problems. They may also disagree that the most efficient way of dealing with these problems is to eliminate some of the capital expenditures. In general, their views will be the same as managers who have a poor investment track record. They will claim the period used to analyze project returns was not representative, it was an industry-wide problem that will pass, or the projects have long gestation periods.

Overall, it is unlikely that these managers will convince the stockholders of their good intentions on future projects. Consequently, there will be a strong push towards cutbacks in capital expenditures, especially if the firm is borrowing money to finance the dividends and does not have much excess debt capacity.

#### 11.5. Stockholder Pressure and Dividend Policy

Which of the following companies would you expect to see under greatest pressure from its stockholders to buy back stock or pay large dividends? (All of the companies have costs of capital of 12%.)

- a. A company with a historical return on capital of 25%, and a small cash balance
- b. A company with a historical return on capital of 6%, and a small cash balance
- c. A company with a historical return on capital of 25%, and a large cash balance
- d. A company with a historical return on capital of 6%, and a large cash balance

The managers at the company argue that they need the cash to do acquisitions. Would this make it more or less likely that stockholders will push for stock buybacks?

- a. More likely
- b. Less likely

#### D. Good Projects and High Payout

The costs of trying to maintain unsustainable dividends are most evident in firms that have a selection of good projects to choose from. The cash that is paid out as dividends could well have been used to invest in some of these projects, leading to a much higher return for stockholders and higher stock prices for the firm.

#### Consequences of High Payout

When a firm pays out more in dividends than it has available in free cash flow to equity, it is creating a cash shortfall. If this firm also has good projects available but cannot invest in them because of capital rationing constraints, the firm is paying a hefty price for its dividend policy. Even if the projects are passed up for other reasons, the cash this firm is paying out as dividends would earn much better returns if left to accumulate in the firm.

Dividend payments also create a cash deficit that now has to be met by issuing new securities. Issuing new stock carries a potentially large issuance cost, which reduces firm value. But, if the firm issues new debt, it might become overleveraged, and this may reduce value.

#### Stockholder Reaction

The best course of action for stockholders is to insist that the firm pay out less in dividends and invest in better projects. If the firm has paid high dividends for an extended period of time and has acquired stockholders who value high dividends even more than they value the firm's long-term health, reducing dividends may be difficult. Even so, stockholders may be much more amenable to cutting dividends and reinvesting in the firm, if the firm has a ready supply of good projects at hand.

#### Management Responses

The managers of firms that have good projects, while paying out too much in dividends, have to figure out a way to cut dividends, while differentiating themselves from those firms that are cutting dividends due to declining earnings. The initial suspicion with which markets view dividend cuts can be overcome, at least partially, by providing markets with information about project quality at the time of the dividend cut. If the dividends have been paid for a long time, however, the firm may have stockholders who like the high dividends and may not particularly be interested in the projects that the firm has available. If this is the case, the initial reaction to the dividend cut, no matter how carefully packaged, will be negative. However, as disgruntled stockholders sell their holdings, the firm will acquire new stockholders who may be more willing to accept the lower dividend and higher investment policy.

# 11.6. British Crowth Firms

High growth firms are often encouraged to start paying dividends to expand their stockholder base, since there are stockholders who will not or cannot hold stock that do not pay dividends. Do you agree with this rationale?

a. Yes

b. No Explain.

#### **Step 4: Interaction between Dividend Policy and Financing Policy**

The analysis of dividend policy is further enriched — and complicated — if we bring in the firm's financing decisions as well. In Chapter 9, we noted that one of the ways a firm can increase leverage over time is by increasing dividends or repurchasing stock; at the same time, it can decrease leverage by cutting or not paying dividends. Thus, we cannot decide how much a firm should pay in dividends without determining whether it is under- or over-levered and whether or not it intends to close this leverage gap.

An underlevered firm may be able to pay more than its FCFE as dividend and may do so intentionally to increase its debt ratio. An overlevered firm, on the other hand, may have to pay less than its FCFE as dividends, because of its desire to reduce leverage. In some of the scenarios described above, leverage can be used to strengthen the suggested recommendations. For instance, an under-levered firm with poor projects and a cash flow surplus has an added incentive to raise dividends and to reevaluate investment policy, since it will be able to increase its leverage by doing so. In some cases, however, the imperatives of moving to an optimal debt ratio may act as a barrier to carrying out changes in dividend policy. Thus, an over-levered firm with poor projects and a cash flow surplus may find the cash better spent reducing debt rather than paying out dividends.

#### Illustration 11.5: Analyzing the Dividend Policy of Disney and Aracruz

Using the cash flow approach, described above, we are now in a position to analyze Disney's dividend policy. To do so, we will draw on three findings:

- Earlier, we compared the cash returned to stockholders by Disney between 1994 and 2003 to its free cash flows to equity. On average, Disney paid out 38.83% of its free cash flow to equity as dividends. In recent years, though, Disney has had significant operating problems, and its net income reflects these troubles.
- We then compared Disney's return on equity and stock to the required rate of return, and found that the company had under performed on both measures.
- Finally, in our analysis in chapter 8, we noted that Disney was slightly under levered, with an actual debt ratio of 21% and an optimal debt ratio of 30%.

Given its recent operating problems, we would recommend that Disney maintain its existing dividend payments for the next year. If the higher earnings that the company has reported in recent quarters are sustained, the free cash flows to equity will be higher than the dividend payments, In table 11.10, we forecast the free cashflows to equity for Disney over the next 5 years and compare it to existing dividend payments:

		Expected					
	Current	Rate	1	2	3	4	5
Net Income	\$1,267	6.00%	\$1,343	\$1,424	\$1,509	\$1,600	\$1,696
- (Cap Ex -							
Deprec'n) (1 -	(\$20)		¢0	<b>6</b> 41	<b>470</b>	¢100	¢174
DR)	(\$20)		\$9	\$41	\$79	\$123	\$174
- Change in Working Capital							
(1 - DR)	(\$185)		\$22	\$23	\$24	\$26	\$28
FCFE	\$1,471		\$1,313	\$1,359	\$1,405	\$1,450	\$1,494
Expected							
Dividends	\$429	0.00%	\$429	\$429	\$429	\$429	\$429
Cash available for stock							
buybacks	\$1,042		\$884	\$930	\$976	\$1,021	\$1,065
Revenues	\$27,061	6.00%	\$28,685	\$30,406	\$32,230	\$34,164	\$36,214
Non-cash WC	\$519		\$31	\$33	\$35	\$37	\$39
Capital							
Expenditures	\$1,049	10.00%	\$1,154	\$1,269	\$1,396	\$1,536	\$1,689
Depreciation	\$1,077	6.00%	\$1,142	\$1,210	\$1,283	\$1,360	\$1,441

Table 11.10: Forecasted FCFE and Cash Available for Stock Buybacks: Disney

Note that we have assumed that revenues, net income and depreciation are expected to grow 6% a year for the next 5 years and that working capital remains at its existing percentage (1.92%) of revenues. We have also assumed that capital expenditures will grow faster (10%) over the next 5 years to compensate for reduced investment in prior years. Finally, we assumed that 30% of the net capital expenditures and working capital changes would be funded with debt, reflecting the optimal debt ratio we computed for Disney in chapter 8. Based upon these forecasts, and assuming that Disney maintains its existing dividend, Disney should have about \$4.876 million in excess cash that it can return to its stockholders either as dividends or in the form of stock buybacks over the period.

Examining Aracruz, we find that the firm is paying out more in dividends than it has available in free cashflows to equity. If you couple this finding with large investment needs, potentially good project returns and superior stock price performance, is seems clear that Aracruz will gain by cutting its dividends. In fact, this conclusion is strengthened when we forecast the free cashflows to equity for the next 5 years and compare them to the dividends being paid in Table 11.11;

		Expected Growth					
	Current	Rate	1	2	3	4	5
Net Income	\$148	5.00%	\$155	\$163	\$171	\$180	\$189
- (Cap Ex - Deprec'n) (1 - DR)	\$176		\$120	\$126	\$133	\$139	\$146
- Change in Working Capital (1 - DR)	(\$5)		\$5	\$5	\$6	\$6	\$6
FCFE	(\$23)		\$30	\$32	\$33	\$35	\$37
Expected Dividends	\$109	0.00%	\$109	\$109	\$109	\$109	\$109
Cash available for stock buybacks			(\$79)	(\$78)	(\$76)	(\$74)	(\$73)
Revenues							
Non-cash WC	\$1,003	5.00%	\$1,053	\$1,106	\$1,161	\$1,219	\$1,280
Capital Expenditures	\$150		\$8	\$8	\$8	\$9	\$9
Depreciation	\$421	5.00%	\$347	\$365	\$383	\$402	\$422

Table 11.11: Expected FCFE and Cash Available for Dividends

In making these estimates, we assumed that revenues, net income, capital expenditures and depreciation will all grow 5% a year for the next 5 years and the non-cash working capital will remain at 15% of revenues. For capital expenditures, which have been volatile over the last few years, we used the average amount from 2000-03 as the base year number. If Aracruz maintains its existing dividends, the firm will find itself facing cash deficits in each of the next 5 years, aggregating to about \$381 million. While the case for cutting dividends is strong, Aracruz has a potential problem because of its share structure, where the "preferred shares" held by outside investors get no voting rights but are compensated for with a larger dividend. Cutting dividends may violate the commitments given to preferred stockholders and trigger at least a partial loss of control. While there is no easy solution, it highlights a cost of trading off dividends for control.





#### A Comparable Firm Approach to Analyzing Dividend Policy

So far, we have examined the dividend policy of a firm by looking at its cash flows and the quality of its investments. There are managers who believe that their dividend policies are judged relative to those of their competitors. This "comparablefirm" approach to analyzing dividend policy is often used narrowly, by looking at only firms that are similar in size and business mix, for example. As we will illustrate, it can be used more broadly, by looking at the determinants of dividend policy across all firms in the market.

#### **Using Firms in the Industry**

In the simplest form of this approach, a firm's dividend yield and payout are compared to those of firms in its industry and judged to be adequate, excessive, or inadequate, accordingly. Thus, a utility stock with a dividend yield of 3.5% may be criticized for paying out an inadequate dividend if utility stocks, on average, have a much higher dividend yield. In contrast, a computer software firm that has a dividend yield of 1.0% may be viewed as paying too high a dividend, if software firms on average pay a much lower dividend.

While comparing a firm to comparable firms on dividend yield and payout may have some intuitive appeal, it can be misleading. First, it assumes that all firms within the same industry group have the same net capital expenditure and working capital needs. These assumptions may not be true, if firms are in different stages of the life cycle. Second, even if the firms are at the same stage in their life cycles, the entire industry may have a dividend policy that is unsustainable or sub-optimal. Third, it does not consider stock buybacks as an alternative to dividends. The third criticism can be mitigated when the approach is extended to compare cash returned to stockholders, rather than just dividends.

*divfund.xls*: There is a dataset on the web that summarizes the dividend yields and payout ratios, by sector, for U.S. companies.

# Illustration 11.6: Analyzing Disney's Dividend Payout Using Comparable Firms

In comparing Disney's dividend policy to its peer group, we analyze the dividend yields and payout ratios of comparable firms in 2003, as shown in Table 11.12. We defined comparable firms as entertainment companies with a market capitalization in excess of \$ 1 billion.

Company Name	Dividend Yield	Dividend Payout
Astral Media Inc. 'A'	0.00%	0.00%
Belo Corp. 'A'	1.34%	34.13%
CanWest Global Comm. Corp.	0.00%	0.0%
Cinram Intl Inc	0.00%	0.0%
Clear Channel	0.85%	35.29%
Cox Radio 'A' Inc	0.00%	0.0%
Cumulus Media Inc	0.00%	0.0%
Disney (Walt)	0.90%	32.31%
Emmis Communications	0.00%	0.00%
Entercom Comm. Corp	0.00%	0.00%
Fox Entmt Group Inc	0.00%	0.00%
Hearst-Argyle Television Inc	0.00%	0.00%
InterActiveCorp	0.00%	0.00%
Liberty Media 'A'	0.00%	0.00%
Lin TV Corp.	0.00%	0.00%
Metro Goldwyn Mayer	0.00%	0.00%
Pixar	0.00%	0.00%
Radio One INC.	0.00%	0.00%
Regal Entertainment Group	2.70%	66.57%
Sinclair Broadcast	0.00%	0.00%
Sirius Satellite	0.00%	0.00%
Time Warner	0.00%	0.00%
Univision Communic.	0.00%	0.00%
Viacom Inc. 'B'	0.56%	19.00%
Westwood One	0.00%	0.00%
XM Satellite `A'	0.00%	0.00%
Average	0.24%	7.20%

Table 11.12: Payout Ratios and Dividend Yields: Entertainment Companies

Source: Value Line Database

Of the 26 companies in this group, only 5 paid dividends. Relative to the other companies in this sector, Disney pays high dividends. The interesting question, though, is whether Disney should be setting dividend policy based upon entertainment firms, most of which are smaller and much less diversified than Disney, or upon large firms in other businesses which resemble it in terms of cashflows and risk.

For Deutsche Bank, we used large money-center European banks as comparable firms. Table 11.13 provides the listing of the firms, as well as their dividend yields and payout ratios.

Name	Dividend Yield	Dividend Payout
Banca Intesa Spa	1.57%	167.50%
Banco Bilbao Vizcaya Argenta	0.00%	0.00%
Banco Santander Central Hisp	0.00%	0.00%
Barclays Plc	3.38%	35.61%
Bnp Paribas	0.00%	0.00%
Deutsche Bank Ag -Reg	1.98%	481.48%
Erste Bank Der Oester Spark	0.99%	24.31%
Hbos Plc	2.85%	27.28%
Hsbc Holdings Plc	2.51%	39.94%
Lloyds Tsb Group Plc	7.18%	72.69%
Royal Bank Of Scotland Group	3.74%	38.73%
Sanpaolo Imi Spa	0.00%	0.00%
Societe Generale	0.00%	0.00%
Standard Chartered Plc	3.61%	46.35%
Unicredito Italiano Spa	0.00%	0.00%
Average	1.85%	62.26%

Table 11.13: Payout Ratios and Dividend Yields: Home Improvement Products Retailers

Source: Value Line Database

On both dividend yield and payout ratios, Deutsche Bank pays a much higher dividend than the typical European bank. It is interesting, though, that the British banks are the highest dividend payers in the group, with Lloyds maintaining a dividend yield of 7.18%.

For Aracruz, we did look at the average dividend yield and payout ratios of four sets of comparable firms – Latin American paper and pulp companies, emerging market paper and pulp companies, US paper and pulp companies and all paper and pulp companies listed globally. Table 11.14 summarizes these statistics.

Table 11.14: Dividend Yield and Payout Ratios for Paper and Pulp Companies

Group	Dividend Yield	Dividend Payout
Latin America	2.86%	41.34%
Emerging Market	2.03%	22.16%
US	1.14%	28.82%
All paper and pulp	1.75%	34.55%

Aracruz	3.00%	37.41%

Aracruz has a dividend yield and payout ratio similar to that of other Latin American paper and pulp companies, though it is higher than dividends paid out by paper companies listed elsewhere.

With all three companies, the dangers of basing dividend policy based upon comparable firms are clear. The "right' amount to pay in dividends will depend heavily upon what we define "comparable' to be. If managers are allowed to pick their peer group, it is easy to justify even the most irrational dividend policy,

# 11.7. Seer Group Analysis

Assume that you are advising a small high-growth bank, which is concerned about the fact that its dividend payout and yield are much lower than other banks. The CEO of the bank is concerned that investors will punish the bank for its dividend policy. What do you think?

- a. I think that the bank will be punished for its errant dividend policy
- b. I think that investors are sophisticated enough for the bank to be treated fairly
- c. I think that the bank will not be punished for its low dividends as long as it tries to convey information to its investors about the quality of its projects and growth prospects.

# Using the Market

The alternative to using only comparable firms in the same industry is to study the entire population of firms and to try to estimate the variables that cause differences in dividend payout across firms. We outlined some of the determinants of dividend policy in the last chapter, and we could try to arrive at more specific measures of each of these determinants. For instance,

• *Growth Opportunities*: Firms with greater growth opportunities should pay out less in dividends than firms without these opportunities. Consequently, dividend payout ratios (yields) and expected growth rates in earnings should be negatively correlated with each other.

- Investment Needs: Firms with larger investment needs (capital expenditures and working capital) should pay out less in dividends than firms without these needs.
   Dividend payout ratios and yields should be lower for firms with significant capital expenditure needs.
- *Insider Holdings*: As noted earlier in the chapter, firms where stockholders have less power are more likely to hold on to cash and not pay out dividends. Hence, dividend payout ratios and insider holdings should be negatively correlated with each other
- *Financial Leverage*: Firms with high debt ratios should pay lower dividends, because they have already pre-committed their cash flows to make debt payments. Therefore, dividend payout ratios and debt ratios should be negatively correlated with each other

Since there are multiple measures that can be used for each of these variables, we chose specific proxies – analyst estimates of growth in earnings for growth opportunities, capital expenditures as a percent of total assets for investment needs, percent of stock held by insiders for insider holdings and total debt as a percent of market capitalization as a measure of financial leverage. Using data from the end of 2003, we regressed dividend yields and payout ratios against all of these variables and arrived at the following regression equations (t statistics are in brackets below coefficients):

$$PYT = 0.3889 - 0.738 CPXFR - 0.214 INS + 0.193 DFR - 0.747 EGR$$

$$(20.41) (3.42) (3.41) (4.80) (8.12)$$

$$R^{2} = 18.30\%$$

$$YLD = 0.0205 - 0.058 CPXFR - 0.012 INS + 0.0200 DFR - 0.047 EGR$$

$$(22.78) (5.87) (3.66) (9.45) (11.53)$$

 $R^2 = 28.5\%$ 

Where,

PYT = Dividend Payout Ratio = Dividends/Net Income
YLD = Dividend Yield = Dividends/Current Price
CPXFR = Capital Expenditures / Book Value of Total Assets
EGR = Expected growth rate in earnings over next 5 years (analyst estimates)
DFR = Debt / (Debt + Market Value of Equity)
INS = Insider holdings as a percent of outstanding stock

The regressions explain about 20-30% of the differences in dividend yields and payout across firms in the United States. The two strongest factors seem to be earnings growth

and the debt ratio, with higher growth firms with lower debt ratios paying out less of their earnings as dividends and having lower dividend yields. While this contradicts our hypothesis that higher leverage should lead to lower payout, it is not difficult to explain. It can be attributed to the fact that firms with more stable earnings have higher debt ratios, and these firms can also afford to pay more dividends. In addition, firms with high insider holdings tend to pay out less in dividends than do firms with low insider holdings, and firms with high capital expenditures needs seem to pay less in dividends than firms without these needs.

*divregr.xls*: There is a dataset on the web that summarizes the results of regressing dividend yield and payout ratio against fundamentals for U.S. companies.

#### Illustration 11.7: Analyzing Dividend Payout Using The Cross Sectional Regrssion

To illustrate the applicability of the market regression in analyzing the dividend policy of Disney and Aracruz, we estimate the values of the independent variables in the regressions for the two firms, as shown in Table 11.15.

	Disney	Aracruz ADR
Insider Holdings	2.60%	20.00%
Capital Expenditures/Total Assets	2.10%	2%
Debt/ Capital	21.02%	31%
Expected growth in Earnings	8.00%	23%

Table 11.15: Data for Cross-sectional Regressions

Substituting into the regression equation for the dividend payout ratio, we predicted the following payout ratios for the two firms:

For Disney = 0.3889 - 0.738 (0.021) - 0.214 (0.026) + 0.193 (0.2102) - 0.747 (0.08) = 34.87%

For Aracruz ADR = 0.3889 - 0.738 (0.02)- 0.214 (0.20) + 0.193 (0.31) - 0.747 (0.23) = 21.71%

Substituting into the regression equation for the dividend yield, we predict the following dividend yields for the two firms:

For Disney = 0.0205 - 0.058 (0.021) - 0.012 (0.026) + 0.0200 (0.2102) - 0.047 (0.08) = 1.94%

For Aracruz ADR = 0.0205 - 0.058 (0.02)- 0.012 (0.20)+ 0.0200 (0.31)- 0.047 (0.23) = 1.22%

Based on this analysis, Disney with its dividend yield of 0.91% and a payout ratio of 32.31% is paying too little in dividends. Aracruz with a payout ratio of 37.41% and a dividend yield of 3% provides a mixed finding is paying too much in dividends, though the conclusion has to be tempered by the fact that the company is being compared to companies in the United States.

# **Managing Changes in Dividend Policy**

In chapter 10, we noted the tendency on the part of investors to buy stocks with dividend policies that meet their specific needs. Thus, investors who want high current cash flows and do not care much about the tax consequences migrate to firms that pay high dividends; those who want price appreciation and are concerned about the tax differential hold stock in firms that pay low or no dividends. One consequence of this clientele effect is that changes in dividends, even if entirely justified by the cash flows, may not be well received by stockholders. In particular, a firm with high dividends that cuts its dividends drastically may find itself facing unhappy stockholders. At the other extreme, a firm with a history of not paying dividends that suddenly institutes a large dividend may also find that its stockholders are not pleased.

Is there a way in which firms can announce changes in dividend policy that minimizes the negative fall-out that is likely to occur? In this section, we will examine dividend changes and the market reaction to them and draw broader lessons for all firms that may plan to make such changes.

#### **Empirical Evidence**

Firms may cut dividends for several reasons; some clearly have negative implications for future cash flows and the current value of the firm, while others have more positive implications. In particular, the value of firms that cut dividends because of poor earnings and cash flows should drop, whereas the value of firms that cut dividends because of a dramatic improvement in project choice should increase. At the same time, financial markets tend to be skeptical of the latter claims, especially if the firm making the claims reports lower earnings and has a history of poor project returns. Thus, there is value to examining the actions at the time of dividend cuts and the announcements made by firms that cut dividends, to see if the market reaction changes as a consequence.

Woolridge and Ghosh looked at 408 firms that cut dividends, and the actions taken or information provided by these firms in conjunction with the dividend cuts. In particular, they examined three groups of companies: the first group announced an earnings decline or loss with the dividend cut; the second had made a prior announcement of earnings decline or loss; and the third made a simultaneous announcement of growth opportunities or higher earnings.<sup>10</sup> The results are summarized in Table 11.16.

Periods Around Announcement Date					
Category	Prior Quarter	Announcement	Quarter After		
		Period			
Simultaneous	-7.23%	-8.17%	+1.80%		
Announcement of					
Earnings					
Decline/Loss					
(N=176)					
Prior	-7.58%	-5.52%	+1.07%		
Announcement of					
Earnings Decline or					
Loss $(N = 208)$					
Simultaneous	-7.69%	-5.16%	+8.79%		
Announcement of					
Investment or					
Growth					
Opportunities					
(N=16)					

Table 11.16: Excess Returns Around Dividend Cut Announcements

We can draw several interesting conclusions from this study. First, the vast number of firms announcing dividend cuts did so in response to earnings declines (384) rather than in conjunction with investment or growth opportunities (16). The market

<sup>&</sup>lt;sup>10</sup> Woolridge, J.R. and C. Ghosh, 1986, *Dividend Cuts: Do they always signal bad news?*, The Revolution in Corporate Finance, Blackwell.

seems to react negatively to all of them, however, suggesting that it does not attach much credibility to the firm's statements. The negative reaction to the dividend cut seems to persist in the case of the firms with the earnings declines, while it is reversed in the case of the firms with earnings increases or better investment opportunities.

Woolridge and Ghosh also found that firms that announced stock dividends or stock repurchases in conjunction with the dividend cuts fared much better than firms that did not. Finally, they noted the tendency across the entire sample for prices to correct themselves, at least partially, in the year following the dividend cut. This would suggest that markets tend to overreact to the initial dividend cut, and the price recovery can be attributed to the subsequent correction.

In an interesting case study, Soter, Brigham and Evanson looked at Florida Power & Light's dividend cut in 1994<sup>11</sup>. FPL was the first healthy utility in the United States to cut dividends by a significant amount (32%). At the same time as it cut dividends, FPL announced that it was buying back 10 million shares over the next 3 years, and emphasized that dividends would be linked more directly to earnings. On the day of the announcement, the stock price dropped 14%, but recovered this amount in the month after the announcement, and earned a return of 23.8% in the year after, significantly more than the S&P 500 over the period (11.2%) and other utilities (14.2%).

#### **Lessons for Firms**

There are several lessons for firms that plan to change dividend policy. First, no matter how good the reasons may be for a firm to cut dividends, it should expect markets to react negatively to the initial announcement for two reasons. The first reason is the well-founded skepticism with which markets greet any statement by the firm about dividend cuts. A second is that large dividend changes typically make the existing investor clientele unhappy. Although other stockholders may be happy with the new dividend policy, the transition will take time, during which stock prices fall. Second, if a firm has good reasons for cutting dividends, such as an increase in project availability, it

<sup>&</sup>lt;sup>11</sup> Soter, D., E. Brigham and P. Evanson, 1996, *The Dividend Cut "Heard 'Round the World": The Case of FPL*, Journal of Applied Corporate Finance, v9, 4-15. This is also a Harvard Business School case study authored by Ben Esty.

will gain at least partial protection by providing information to markets about these projects.

# In Practice: From Fixed to Residual Dividends - Some Ideas

In the United States and Western Europe, firms have locked themselves into a dance with investors where they institute dividends and are then committed to maintaining these dividends, in good times and in bad. In fact, much of what we observe in dividend policy from sticky dividends to the reluctance to increase dividends in the face of good news and to cut dividends in the face of bad news can be traced to this commitment. It is also this commitment that has led companies to increasingly shift to stock buybacks as an alternative to dividends.

Given the change in the tax law in 2003, there should be added incentive for companies to pay dividends now. It would help the cause if we can add flexibility to dividend policy, in effect allowing companies to adjust dividends to changing earnings. There are three ways in which we can do this:

- a. Target a dividend payout ratio rather than a dollar dividend: This is the simplest way to make dividends a function of earnings and it mirrors what is already being done by companies in some markets.
- b. Switch to a policy of paying out whatever is leftover as free cashflows to equity each year as dividends.
- c. Set a fixed dividend based upon the predictable component of earnings and a contingent dividend that is tied to the extent to which earnings exceed the predictable component.

There may be some resistance on the part of investors to these changes but they will be overcome. There will be enough investors, however, who see the advantages of a flexible dividend policy and buy the stock of companies

# Conclusion

We began this chapter by expanding our definition of cash returned to stockholder to include stock buybacks with dividends. Firms in the United States, especially, have turned to buying back stock and returning cash selectively to those investors who need it. With this expanded definition of cash returned to stockholders, we first used a cash flow based approach to decide whether a firm is paying too much or too little to its stockholders. To form this judgment, we first estimate what the firm has available to pay out to its stockholders; we measure this cash flow by looking at the cash left over after reinvestment needs have been and debt has been serviced, and call it the free cash flow to equity. We then look at the quality of the firm's projects; firms with better projects get more leeway from equity investors to accumulate cash than firms with poor projects. We next consider the effect of wanting to increase or decrease the debt ratio on how much cash is returned to stockholders. Finally, we consider all three factors – the cash flow available for stockholders, the returns on existing investments and the need to increase or decrease debt ratios – in coming up with broad conclusions about dividend policy. Firms with a good track record in investing can pay out less in dividends than is available in cash flows, and not face significant pressure from stockholders to pay out more. When the managers of firms are not trusted by their stockholders to stockholders.

We also analyzed a firm's dividend policy by looking at the dividend policies of comparable firms in the business. In this approach, a firm that is paying out less in dividends than comparable firms would be viewed as paying too little and one that is paying out more would be viewed as paying too much. We use both a narrow definition of comparable firms (firms in the same line of business), and a broader definition (all firms). We control for differences in risk and growth across firms, using a multiple regression.

We closed the chapter by looking at how firms that intend to change their dividend policy can minimize the side-costs of doing so. This is especially true when firms have to reduce their dividends to meet legitimate reinvestment needs. While the initial reaction to the announcement of a dividend cut is likely to be negative, firms can buffer some of the impact by providing information to markets about the investments that they plan to accept with the funds.

# Live Case Study

# A Framework for Analysing Dividends

*Objective:* To determine whether your firm should change its dividend policy, based upon an analysis of its investment opportunities and comparable firms.

# Key Questions:

- How much could this firm have returned to its stockholders over the last few years? How much did it actually return?
- Given this dividend policy and the current cash balance of this firm, would you push the firm to change its dividend policy (return more or less cash to its owners)?
- How does this firm's dividend policy compare to those of its peer group and to the rest of the market?

# Framework for Analysis:

- 1. Cash Return to Stockholders
- How much has the firm paid out in dividends each year for the last few years?
- How much stock has it bought back each year for the last few years?
- Cumulatively, how much cash has been returned to stockholders each year for the last few years?
- 2. Affordable Dividends
  - What were the free cash flows to equity that this firm had over the last few years?
  - What is the current cash balance for this firm?
- 3. Management Trust
  - How well have the managers of the firm picked investments, historically? (Look at the investment return section)
  - Is there any reason to believe that future investments of this firm will be different from the historical record?
- 4. Changing Dividend Policy
  - Given the relationship between dividends and free cash flows to equity, and the trust you have in the management of this firm, would you change this firm's dividend policy?

- 5. Comparing to Sector and Market
  - Relative to the sector to which this firm belongs, does it pay too much or too little in dividends? (Do a regression, if necessary)
  - Relative to the rest of the firms in the market, does it pay too much or too little in dividends? (Use the market regression, if necessary)

# Getting Information on analyzing dividend policy

You can get the information that you need to estimate free cash flows to equity and returns on equity from past financials. You will also need a beta (see risk and return section) and a debt ratio (see risk and return section) to estimate the free cash flows to equity. Finally, you will need stock returns for your stock and the returns on a market index over the period of your analysis.

Online sources of information:

http://www.stern.nyu.edu/~adamodar/cfin2E/project/data.htm

#### Questions

1. Stock buybacks really do not return cash to stockholders, since only those who sell back stock receive the cash. Is this statement true or false? Explain.

2. In the last decade, we have seen an increase in the percent of cash returned to stockholders in the form of dividends. Why?

3. Lube Oil, a chain of automobile service stations, reports net income of \$ 100 million, after depreciation of \$ 50 million. The firm has capital expenditures of \$ 80 million, and the non-cash working capital increased from \$ 25 to \$ 40 million. Estimate the firm's free cash flow to equity, assuming that the firm is all equity financed.

4. Lube Oil, in question 3, paid a dividend of \$ 20 million, and bought back \$ 25 million in stock. Estimate how much the cash balance of the firm changed during the year.

5. How would your answers to the last two problems change if you were told that Lube Oil started the year with \$120 million in debt and ended the year with \$135 million?

6. Now assume that Lube Oil, in questions 3-5, has a return on equity of 5% and a cost of equity of 10%. As a stockholder in Lube Oil, would you want the firm to change its dividend policy. Why or why not?

7. Tech Products reported a net loss of \$ 80 million for the latest financial year. In addition, the firm reported a net capital expenditure of \$ 70 million, and a change in non-cash working capital of \$ 10 million. Finally, the firm had \$ 10 million in debt at the start of the year that it paid off during the year. Estimate the free cash flow to equity.

8. Tech Products, from problem 7, pays a dividend of \$ 40 million. Assuming that the firm started the period with no cash, how did it raise the funding for the dividend payment?

9. New Age Telecomm is a young, high-growth telecommunications firm. It pays no dividends, though the average dividend payout for other firms in the telecommunications sector is 40%. Is New Age paying too little in dividends? Why or why not?

capitalization: in millions) of chemical firms:

Dividend Payout ratio = 0.14 + 0.05 (ln (Market Capitalization)) - 0.1 (Beta)

Harman Chemicals has a market capitalization of \$ 1.5 billion and a beta of 1.2. It pays out 22% of its earnings as dividends. How does this dividend payout compare to the industry?

# **Problems**

1. JLChem Corporation, a chemical manufacturing firm with changing investment opportunities, is considering a major change in dividend policy. It currently has 50 million shares outstanding and pays an annual dividend of \$2 per share. The firm current and projected income statement are provided below (in millions):

	Current	Projected for	next
EBITDA	1200	1350	
- Depreciation	n 200	250	
EBIT	1000	1100	
- Interest Exp	ense 200	200	
EBT	800	900	
- Taxes	320	360	
Net Income	480	540	

The firm's current capital expenditure is \$ 500 million. It is considering five projects for the next year:

Project	Investment	Beta	IRR (using cashflows to equity)
А	\$190 mil	0.6	12.0%
В	\$200 mil	0.8	12.0%
С	\$200 mil	1.0	14.5%
D	\$200 mil	1.2	15.0%
Е	\$100 mil	1.5	20.0%

The firm's current beta is 1.0, and the current T. Bill rate is 5.5%. The firm expects working capital to increase \$50 million both this year and next. The firm plans to finance its net capital expenditures and working capital needs with 30% debt.

a. What is the firm's current payout ratio?

year

b. What proportion of its current free cash flow to equity is it paying out as dividends?

c. What would your projected capital expenditure be for next year (i.e Which of the five projects would you accept and why)?

d. How much cash will the company have available to pay out as dividends next year?(What is the maximum amount the company can pay out as dividends?)

e. Would you pay out this maximum amount as dividends? Why or why not? What other considerations would you bring to this decision?

f. JKL Corporation currently has a cash balance of \$100 million (after paying the current year's dividends). If it pays out \$125 million as dividends next year, what will its projected cash balance be at the end of the next year?

2. GL Corporation, a retail firm, is making a decision on how much it should pay out to its stockholders. It has \$100 million in investible funds. The following information is provided about the firm:

(a) It has 100 million shares outstanding, each share selling for \$15. The beta of the stock is 1.25 and the riskfree rate is 8%. The expected return on the market is 16%.

(b) The firm has \$ 500 million of debt outstanding. The marginal interest rate on the debt is 12%.

(c) The corporation's tax rate is 50%.

(e) The firm has the following investment projects:

Project	Investment	After-Tax Return on capita		
	Requirement			
А	15 million	27%		
В	10 million	20%		
С	25 million	16%		
D	20 million	14%		
E	30 million	12%		

The firm plans to finance all its investment needs at its current debt ratio.

(i) Should the company return money to its stockholders?

(ii) If so, how much should be returned to stockholders?

3. InTech Corporation, a computer software firm which has never paid dividends before, is considering whether it should start doing so. This firm has a cost of equity of 22% and a cost of debt of 10% (the tax rate is 40%). The firm has \$100 million in debt outstanding and 50 million shares outstanding, selling for \$10 per share. The firm currently has net

income of \$90 million and depreciation charges of \$10 million. It also has the following projects available:

Project	Initial Investment	Annual		Lifetime	Salvage
		EBIT	Depreciation		
1	\$10 million	\$ 1 mil	\$500,000	5 years	\$2.5 mil
2	\$40 million	\$ 5 mil	\$ 1 million	10 years	\$10 mil
3	\$50 million	\$ 5 mil	\$1 million	10 years	\$10 mil

The firm plans to finances its future capital investment needs using 20% debt.

a. Which of these projects should the firm accept?

b. How much (if any) should the firm pay out as dividends?

4. LimeAde Corporation, a large soft drink manufacturing firm, is faced with the decision of how much to pay out as dividends to its stockholders. It expects to have a net income of \$ 1000 (after depreciation of \$500), and it has the following projects:

Project	Initial Investment	Beta	IRR (to equity investors)
А	\$ 500	2.0	21%
В	\$600	1.5	20%
С	\$ 500	1.0	12%

The firm's beta is 1.5 and the current risk-free rate is 6%. The firm plans to finance net capital expenditures (cap ex -depreciation) and working capital with 20% debt. The firm also has current revenues of \$5000, which it expects to grow at 8%. Working capital will be maintained at 25% of revenues. How much should the firm return to its stockholders as a dividend?

5. NoLone Corporation, an all-equity manufacturing firm, has net income of \$100 million currently and expects this number to grow at 10% a year for the next three years. The firm's working capital increased by \$10 million this year and is expected to increase by the same dollar amount each of the next three years. The depreciation is \$50 million and is expected to grow 8% a year for the next three years. Finally, the firm plans to invest \$60 million in capital expenditure for each of the next three years. The firm pays 60% of its earnings as dividends each year. RYBR has a cash balance currently of \$50. Assuming

that the cash does not earn any interest, how much would you expect to have as a cash balance at the end of the third year?

6. Boston Turkey is a publicly traded firm, with the following income statement and balance sheet from its most recent financial year:

	Income Statement
Revenues	\$ 1,000,000
- Expenses	\$ 400,000
- Depreciation	<u>\$ 100,000</u>
EBIT	\$ 500,000
- Interest Expense	<u>\$ 100,000</u>
Taxable Income	\$ 400,000
- Tax	<u>\$ 160,000</u>
Net Income	\$ 240,000

# **Balance Sheet**

Assets		Liabilities	
Property, Plant & Equipment	\$ 1,500,000	Accounts Payable	\$ 500,000
Land & Buildings	\$ 500,000	Long Term Debt	\$ 1,000,000
Current Assets <u>\$ 1,000,000</u>	Equity (100,0	00 shares)	<u>\$ 1,500,000</u>
Total	\$ 3,000,000	Total	\$ 3,000,000

Boston Turkey expects its revenues to grow 10% next year and its expenses to remain at 40% of revenues. The depreciation and interest expenses will remain unchanged at \$100,000 next year. The working capital, as a percentage of revenue, will also remain unchanged next year.

The managers of Boston Turkey claim to have several projects available to choose from next year, in whichthey plan to invest the funds from operations, and they suggest that the firm really should not be paying dividends. The projects have the following characteristics:

Project	Equity Investment	Expected Annual CF to Equity	Beta
А	\$ 100,000	12,500	1.00
В	\$ 100,000	14,000	1.50
С	\$ 50,000	8,000	1.80

D \$	50,000	12,000	2.00
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The treasury bill rate is 3%, and the treasury bond rate is 6.25%. The firm plans to finance 40% of its future net capital expenditures (Cap Ex - Depreciation) and working capital needs with debt.

a. How much can the company afford to pay in dividends next year?

b. Now assume that the firm actually pays out \$1.00 per share in dividends next year. The current cash balance of the firm is \$150,000. How much will the cash balance of the firm be at the end of next year, after the payment of the dividend?

7. Z-Tec Corporation, a firm providing Internet services, reported net income of \$ 10 million in the most recent year, while making \$ 25 million in capital expenditures (depreciation was \$ 5 million). The firm had no working capital needs and uses no debt.

a. Can the firm afford to pay out dividends right now? Why or why not?

b. Assuming net income grows 40% a year and that net capital expenditures grow 10% a year, when will the firm be in a position to pay dividends?

8. You are analyzing the dividend policy of Conrail, a major railroad, and you have collected the following information from the last 5 years –

Year	Net	Income	Capital	Expenditure	Dep	reciation	Non-	cash	Working	; Capita	1	Div	idends
1991	\$	240	\$	314	\$	307	\$			3	5	\$	70
1992	\$	282	\$	466	\$	295	\$			(110	))	\$	80
1993	\$	320	\$	566	\$	284	\$			21	5	\$	95
1994	\$	375	\$	490	\$	278	\$			17	5	\$	110
1995	\$	441	\$	494	\$	293	\$			25	0	\$	124

The average debt ratio during this period was 40% and the total non-cash working capital at the end of 1990 was \$ 10 million.

a. Estimate how much Conrail could have paid in dividends during this period.

b. If the average return on equity during the period was 13.5%, and Conrail had a beta of 1.25, what conclusions would you draw about Conrail's dividend policy? (The average T.Bond rate during the period was 7%, and the average return on the market was 12.5% during the period)

9. Assume now that you have been asked to forecast cash flows that you will have available to repurchase stock and pay dividends during the next 5 years for Conrail (from problem 8). In making these forecasts, you can assume the following –

- Net Income is anticipated to grow 10% a year from 1995 levels for the next 5 years
- Capital expenditures and depreciation are expected to grow 8% a year from 1995 levels
- The revenues in 1995 were \$ 3.75 billion, and are expected to grow 5% each year for the next 5 years. The working capital as a percent of revenues is expected to remain at 1995 levels
- The proportion of net capital expenditures and depreciation that will be financed with debt will drop to 30%

a. Estimate how much cash Conrail will have available to pay dividends or repurchase stocks over the next 5 years.

b. How will the perceived uncertainty associated with these cash flows affect your decision on dividends and equity repurchases?

10. Cracker Barrel, which operates restauarants and gift stores, is reexamining its policy of paying minimal dividends. In 1995, Cracker Barrel reported net income of \$ 66 million; it had capital expenditures of \$ 150 million in that year and claimed depreciation of only \$ 50 million. The working capital in 1995 was \$ 43 million on sales of \$ 783 million. Looking forward, Cracker Barrel expects the following:

- Net Income is expected to grow 17% a year for the next 5 years
- During the 5 years, capital expenditures are expected to grow 10% a year and depreciation is expected to grow 15% a year
- The working capital as a percent of revenues is expected to remain at 1995 levels, and revenues are expected to grow 10% a year during the period
- The company has not used debt to finance its net capital expenditures and does not plan to use any for the next 5 years

a. Estimate how much cash Cracker Barrel would have available to pay out to its stockholders over the next 5 years

b. How would your answer change, if the firm plans to increase its leverage by borrowing 25% of its net capital expenditure and working capital needs?

11. Assume that Cracker Barrel, from problem 10, wants to continue with its policy of not paying dividends. You are the CEO of Cracker Barrel and have been confronted by dissident stockholders, demanding to know why you are not paying out your FCFE (estimated in the previous problem) to your stockholders. How would you defend your decision? How receptive will stockholders be to your defense? Would it make any difference that Cracker Barrel has earned a return on equity of 25% over the previous five years, and that its beta is only 1.2?

12. Manpower Corporation, which provides non-government emplyments services in the United States, reported net income of \$ 128 million in 1995. It had capital expenditures of \$ 50 million and depreciation of \$ 24 million in 1995, and its working capital was \$ 500 million (on revenues of \$ 5 billion). The firm has a debt ratio of 10%, and plans to maintain this debt ratio.

a. Estimate how much Manpower Corporation will have available to pay out as dividends next year.

b. The current cash balance is \$ 143 million. If Manpower Corporation is expected to pay \$ 12 million in dividends next year and repurchase no stock, estimate the expected cash balance at the end of the next year.

13. How would your answers to the previous problem change if Manpower Corporation in problem 12 plans to pay off its outstanding debt of \$ 100 million next year and become a debt-free company?

14. You are an institutional investor and have the collected the following information on five maritime firms in order to assess their dividend policies:

Company	FCFE	Dividends Paid	ROE	Beta
Alexander & Brown	\$ 55	\$ 35	8%	0.80
American President	\$ 60	\$ 12	14.5%	1.30
OMI Corporation	- \$ 15	\$ 5	4.0%	1.25
Overseas Shipholding	\$ 20	\$ 12	1.5 %	0.90
Sea Containers	- \$ 5	\$ 8	14%	1.05

The average riskfree rate during the period was 7% and the average return on the market was 12%.

a. Assess which of these firms you would pressure to pay more in dividends.

b. Which of the firms would you encourage to pay less in dividends?

c. How would you modify this analysis to reflect your expectations about the future of the entire sector?

15. You are analyzing the dividend policy of Black and Decker, a manufacturer of tools and appliances. The following table summarizes the dividend payout ratios, yields and expected growth rates of other firms in the waste disposal business.

Company	Payout Ratio	Dividend Yield	Ex. Growth
Fedders Corporation	11%	1.2%	11.0%
Maytag Corporation	37%	2.8%	23.0%
National Presto	67%	4.9%	13.5%
Toro Corporation	15%	1.5%	16.5%
Whirlpool Corp.	30%	2.5%	20.5%
Black & Decker	24%	1.3%	23.0%

a. Compare Black and Decker's dividend policy to those of its peers, using the average dividend payout ratios and yields.

b. Do the same comparison, controlling for differences in expected growth.

16. The following regression was run using all NYSE firms in 1995

YIELD = 0.0478 - 0.0157 BETA + 0.0000008 MKTCAP + 0.6797 DBTRATIO + 0.0002

ROE - 0.09 NCEX/TA

 $R^2 = 12.88\%$ 

where BETA = Beta of the stock

MKTCAP = Market Value of Equity + Book Value of Debt

DBTRATIO = Book Value of Debt / MKTCAP

ROE = Return on Equity in 1994

NCEX/TA = (Capital Expenditures - Depreciation) / Total Assets

The corresponding values for Black and Decker, in 1995, were as follows:

Beta = 1.30 MKTCAP = \$ 5,500 million DBTRATIO = 35% ROE = 14.5%

#### NCEX/TA = 4.00%

Black and Decker had a dividend yield of 1.3% and a dividend payout ratio of 24% in 1995.

a. Estimate the dividend yield for Allwaste, based upon the regression.

b. Why might your answer be different, using this approach, than the answer to the prior question, where you used only the comparable firms?

17. Handy and Harman, a leading fabricator of precious metal alloys, pays out only 23% of its earnings as dividends. The average dividend payout ratio for metal fabricating firms is 45%. The average growth rate in earnings for the entire sector is 10% (Handy and Harman is expected to grow 23%). Should Handy and Harman pay more in dividends just to get closer to the average payout ratio? Why or why not?