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Corporate Financial Strategy

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Corporate Financial Strategy

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Corporate Financial Strategy

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The growth of a business depends on many factors. Strong leadership is essential, product demand is critical, and careful financial planning is imperative. In today's economic environment, it is more important than ever for organizations to examine both assets and liabilities, incorporate budget details into a feasible plan, choose the right investments, understand their financial implications, and validate their return. According to the Senior Vice President at Ventana Research, "An organization's financial planning process must provide executives and management across the entire organization with the ability to plan investments and budgets that fit their corporate strategy. Moreover, it's just as important that they are able to change these plans and budgets quickly and easily to adapt when business conditions change."¹

While there are many aspects to sound corporate financial planning, much of the research and conversation in the past five years has been on issues related to sources of capital. In particular, discussion has focused on:

1. Questions about the existence of target debt-to-equity ratio, the so-called capital structure of a firm, and the behavior of managers toward readjusting when capital structure diverges from the target. For example, do firm managers have a debt-to-equity ratio that they would like to obtain, and do they take action when the actual and target ratios differ?

2. Identifying what factors influence the selection of a capital structure. For example, is there a relationship between capital structure and (a) market-timing behavior, (b) macro-economic conditions and business cycles, and (c) behavioral characteristics of managers?
3. Evaluating what are the relative advantages and disadvantages of debt and equity financing. For example, what is the value of additional debt? While the addition of debt increases the tax advantage to firms resulting from the interest tax shield it also increases the risk of bankruptcy and the likelihood of incurring associated costs. Does the value of the interest tax shield compensate for the increase in the default costs of debt? If there is indeed an optimal capital structure, a debt-to-equity ratio at which the cost of additional debt exactly offsets the marginal advantage, what are the costs of operating under sub-optimal capital structures?
4. The identification of the optimal capital structure such that benefits and costs are balanced. For example, if the benefits and costs of debt can be measured, can an optimal capital structure be identified?
5. Financial flexibility and off-balance sheet financing tools such as leases, pensions, and Special Purpose Entities (SPE). For example, are there benefits and costs associated with raising capital using these alternative methods and institutions?

The first part of the chapter examines these issues in detail. We begin with a brief description of traditional theories on the choice between issuing debt or equity to raise capital.

The two dominant schools of thought on the question of capital structure, the Miller and

Modigliani propositions and the pecking order theory are discussed, and traditional empirical evidence regarding these theories is presented. Recent literature suggests that:

- a. Firm characteristics play a role in the choice of capital structure. For example, firms with high market-to-book ratios and high stock returns issue low levels of debt, while firms with significant tangible assets issue high levels of debt.
- b. Macroeconomic conditions have an effect on the choice of capital structure. Debt levels tend to be high when long-term interest rates are perceived to be relatively low. They are also higher during boom periods than during periods of economic contraction.
- c. Capital structure seems to persist over years. Firms with high debt-to-equity ratios in previous years tend to continue to be highly leveraged in subsequent years.
- d. The characteristics of the CEO play a critical role in the firm's capital structure. CEOs with a military background issue more debt, those who have experienced a market downturn as well as female CEOs issue less debt, overconfident managers have an aversion to equity, and black-owned businesses find it difficult to find external funding of any kind.
- e. While firms may use less debt than is optimal, this is probably because the cost of taking on too much debt is higher than the cost of taking on too little debt.

The chapter also addresses issues related to the accurate calculation of the cost to the firm of raising capital, the so-called weighted average cost of capital (WACC). It is critical that the firm accurately determines the WACC, as underestimation will result in the acceptance of

unworthy projects, while an overestimate will lead to the rejection of profitable projects.

Discussion of capital structure relates closely to the issue of accurately calculating the WACC.

Ultimately, the optimal capital structure is one that minimizes the WACC. However, once a firm determines its capital structure, the precise calculation of the WACC requires the correct determination of the cost of issuing debt and equity. A study of the literature, including survey-based studies, related to the calculation of the cost of issuing debt and equity indicates that:

- i. The Capital Asset Pricing Model (CAPM) is the dominant measure of the cost of issuing equity.
- ii. The risk-free rate is an important parameter in the CAPM. The interest rate on treasuries with maturities of ten years or longer is typically used as the risk-free rate.
- iii. The CAPM requires an estimate of the rate of return of the market. Different measures are used as proxies for the market, but the New York Composite Index and the S&P500 Index are the most commonly used.
- iv. The extent to which the firm's equity return is related to market return is measured by the beta coefficient of the firm. Accurate estimates of beta are central to obtaining precise estimates of the firm's cost of equity. Estimates of beta are sensitive to the length of time chosen for estimation purposes, and to whether daily or monthly rates are used to calculate the rate of return.
- v. The difference between the expected rate of return of the market and the risk-free rate is known as the market risk premium. Surveys find large variance in the market risk premium used by managers (4%-6%) and analysts (7%-7.4%).

- vi. Market conditions have little effect on the cost of equity.
- vii. Firms use marginal cost when calculating the pre-tax cost of debt; for new bond issues, the yield to maturity on bonds with equivalent ratings is utilized.
- viii. Firms use marginal or statutory rates to calculate the tax benefit of issuing debt.

After calculating the costs of raising debt and equity, a firm needs to use appropriate weights, the so-called capital structure weights, to calculate the WACC. The chapter concludes with a discussion of how capital structure weights are selected. The weight for equity is observable since the market value of equity is known. The weight for debt is more difficult to observe, especially if the debt is traded in a thin, illiquid market. Recently, some firms have used off-balance sheet instruments such as leases and SPEs to raise capital. These instruments are outlined in some detail, and the implications for calculating the appropriate weights are discussed.

TEXTBOOK CAPITAL STRUCTURE THEORY

Miller and Modigliani (M&M) Theory

Franco Modigliani and Merton Miller were among the first to describe how the capital structure decision affects firm value and the cost of capital.² In its original form, Miller and Modigliani's (M&M) theory operated in a purely frictionless economy. Among other considerations, this economy is free of tax, bankruptcy, agency costs, and information asymmetries. The foundation of the theory is that the left side of the balance sheet - the assets of the firm and the management of those assets - drives firm value. M&M assert that as long as the

firm is able to fund opportunities that create value, it does not matter how those opportunities are funded. Critics however were particularly troubled by the exclusion of tax considerations and the costs of bankruptcy. They claimed that the tax savings due to the deductibility of interest payments to debt holders, added significant value to the firm. They also argued that the costs of financial distress could not be ignored since as debt levels increased, the likelihood of financial distress also increased, causing the value of the firm to decline. M&M revised their theory to include the impact of tax on the cost of capital and the value of the firm.³ M&M Proposition I, which relates to firm value, states that the value of a firm will increase as debt is added to the capital structure. The increase in firm value is equal to the present value of the interest tax shield, the tax savings that result from the tax deductibility of interest expense. M&M Proposition II, which relates to the cost of capital, states that the cost of capital will decrease as leverage is increased. While it is true that as leverage increases, equity becomes more risky and thus requires a higher return, it also means that a greater proportion of the firm is funded with debt. Since debt costs less and has a tax benefit, the cost of capital will decline with increased leverage, reaching a minimum when the capital structure is composed entirely of debt, at which point the WACC is equal to the cost of debt. The theory concludes that firm value is maximized and WACC is minimized with a capital structure of 100% debt.

Financial Distress Costs and Trade-off Theory

While the tax benefit of debt will cause the value of a firm to increase as leverage is increased, this will only be true to a point since as leverage increases, so too does the likelihood

of default. The cost of financial distress eventually becomes so great that it erodes the benefits of the tax shield, and firm value begins to decline. The implication is that there is an optimal debt level. Beyond this level, firm value declines because of the increased probability of default.

While the revised M&M theory was an improvement by virtue of it incorporating the tax benefits of debt, it still failed to address the costs of financial distress. Trade-off theory built upon M&M, and addressed the impact of financial distress on the capital structure decision.

The underlying premise of trade-off theory is that a firm will identify an optimal target capital structure that they believe balances the benefits of the tax shield against the costs of financial distress. A number of dynamic trade-off theories emerged in the 1980s to support the empirical findings that despite the appearance of target capital structures, a firm's capital structure varies over time. They maintain that even though capital structure may diverge from a target, firms aim for a capital structure that they believe is optimal. Many forms of dynamic trade-off theories exist. Some attribute deviations from target levels of leverage to various exogenous factors including the accumulation of profits, investment expenditures, and changes in market prices. Others attribute the deviations to deliberate actions taken by managers to time the market. Dynamic trade-off theories often include considerations of transaction costs, and suggest that as capital structure fluctuates, managers will act to move the capital structure back towards a target structure only when the costs of not doing so exceed the transaction costs of rebalancing.

Pecking Order Theory

An opposing theory of capital structure is the pecking order theory. This suggests that the choice of capital structure is not based on a target capital structure nor is it influenced by tax shields or bankruptcy costs. Instead, the choice of capital structure reflects the tendency of firms to prefer financing new projects with internal funds, and issuing debt rather than equity when external financing is necessary. The tendency to avoid external finance is motivated by management's desire to avoid the scrutiny of capital markets and the costs associated with information asymmetries. Management is concerned that the issuance of debt will draw attention to the firm's financial strength and may cause a re-evaluation of its credit rating. Equity is thought to be particularly sensitive to information asymmetries since the market knows that a firm is unlikely to issue equity if it believes its stock to be undervalued. The market thus views the issuance of equity as a signal that the stock is overvalued, and responds by driving the stock price down. This effect is amplified by the fact that the market may be unsure about the firm's future prospects and what the firm plans to do with the newly raised equity capital.

RECENT ACADEMIC FINDINGS

The primary distinction between the trade-off and pecking order theories is that whereas the notion of target capital structure is central to the former, it is entirely rejected by the latter. Not surprisingly, much of the earlier research related to these theories focused on the merits of one theory and sought to criticize the other. However, some of the more recent literature finds

support for components of each. In this section, we examine some of the latest developments in capital structure theory.

Capital Structure Policy and Market Timing

Baker and Wurgler were one of the first authors to introduce a ‘market-timing’ hypothesis for capital structure theory.⁴ In the context of capital structure, market timing refers to management’s effort to take advantage of market conditions to minimize the cost of capital. A manager who is timing the market would choose to issue equity when stock prices are perceived to be overvalued and repurchase equity when stock prices are relatively low. The authors looked at market-to-book ratios as a measure of relative valuation of equity and showed that there is a strong, negative correlation between high levels of leverage and high market-to-book ratios. They interpreted this as evidence that managers do indeed issue stock when prices are relatively high (market-to-book ratios are high) and repurchase stock when prices are relatively low (market-to-book ratios are low). This results in higher levels of debt when stock prices are relatively low and vice versa. This practice of market timing has a persistent impact on long-term capital structure, leading to the conclusion that capital structure is related to historical market values. A comprehensive survey of CFOs supported Baker and Wurgler’s findings.⁵ Two-thirds of respondents said that the perceived over/under-valuation of equity was an important or very important determinant in the decision to issue equity, second only to concerns about the dilution of earnings per share (EPS).

Barry, Mann, Mihov, and Rodriguez explored the relationship between interest rates and the decision to issue debt.⁶ They found that firms issued significantly higher amounts of debt when long-term interest rates were perceived to be low relative to historical values. While refinancing activity can explain some of this activity, non-refinancing activity is also considerably higher when interest rates are relatively low. Baker, Ruback, and Wurgler synthesized the research related to the market-timing of financing activities to determine whether or not these timing strategies payoff.⁷ They concluded that market-timing driven equity issuances seemed to be beneficial because stock prices tended to decline after the equity issuance. This resulted in a lower cost of equity for issuing firms relative to their non-issuing peers. Barry, Mann, Mihov, and Rodriguez found that firms can benefit by selecting the maturity of debt issues based on market conditions.⁸ In particular, a firm that expects interest rates to increase in the future should issue long-term debt. If the firm expects decreases in interest rates, it should issue short-term debt today, and, at maturity, issue longer-term debt at lower rates. Firms that appeared to be successful at anticipating future interest rates experienced a decrease in the overall cost of debt.

Capital Structure, Historical Stock, and Operating Performance

Hovakimian, Hovakimian, and Tehranian examined the relationship between market and operating performance and the external financing decision by focusing on firms that issued both equity and debt.⁹ Their study supported hypotheses that firms with high market-to-book values have low leverage ratios and that high stock returns are related to equity issuance. However, they

did not find evidence that market performance has a bearing on debt issuance. Furthermore, the study found no relationship between operating performance and target capital structure but did find a relationship between profitability and a firm's response to deviations from target capital structure. As losses accumulated, unprofitable firms experienced a decrease in the value of equity, which caused debt ratios to rise above their targets. These firms tended to issue equity to correct these deviations from target levels of leverage. In contrast, profitable firms experienced an increase in equity as profits accumulated, causing their debt ratios to fall below target values. However, these firms did not issue more debt to correct the deviation. Under these circumstances, firms behaved consistently with pecking order theory, whereby they used accumulated profits as a source of internal funding rather than issuing more debt. In summary, firms tend to have a target capital structure, but the preference for internal financing and the appeal of market timing tend to distract them from maintaining these target structures.

Welch explored the relationship between historical stock prices and capital structure.¹⁰ Sometimes referred to as 'inertia theory', Welch hypothesized that firms behave as though they have a target capital structure but are slow to act to reverse diversions from the target. In an analysis of all publicly traded firms between 1962 and 2000, the study found evidence that firms had target debt ratios. In particular, a firm's capital structure was highly correlated to the capital structure in the prior year. Testing the hypothesis over a 5-year period, the research found that correlation effects were long-standing, providing further evidence that firms had target debt ratios. However, as stock prices caused a firm's capital structure to move away from its target, firms did not counteract this divergence despite frequent debt and equity issuing activity. Welch

found that 60% of capital structure was explained by such issuing activity but that this activity was not intended to readjust capital structure when debt ratios changed. In fact, over the long-term, 40% of firms' capital structure was determined by debt ratio changes resulting from stock price movements and that these changes did not seem to be followed by management actions to readjust capital structure.

Flannery and Rangan studied the capital structure trends of non-financial firms between 1966 and 2001.¹¹ While conceding that there are many factors that influence a firm's capital structure, for example historical stock prices, pecking orders, and market-timing tendencies, they disagreed with Welch's assertion that firms do not readily take action to reverse divergences from the target capital structures due to stock price movements. They suggested that pecking order and market-timing theories tend to explain about 10% of capital structure changes while restructuring toward target levels of leverage explained more than half. When capital structure moves away from the target, firms take actions to move the capital structure back towards the target structure at a rate of more than 30% per year -- three times more than what other research suggests.

Capital Structure and Firm Characteristics

Firms that seemed to be under-levered shared common characteristics.^{12,13} Under-levered firms were typically larger, more mature, and more profitable than those that were not. They also had large intangible assets, greater growth opportunities, and higher earnings volatility. Blouin et al. suggested that these firms may also have other immeasurable characteristics that

explain the apparent under-leverage, including higher agency costs than otherwise comparable firms.¹⁴ Agency costs can reflect a tendency for managers to engage in risky projects or to reject potentially profitable projects as debt increases in the capital structure.

Kayhan and Titman examined whether a firm's capital structure is driven more by its history or by a target capital structure.¹⁵ They found that variables such as past profitability, financial deficits, past stock returns, market timing, leverage deficit, and change in target capital structure will at times cause capital structure to deviate significantly from targets, and that these deviations can be longstanding. The reason for these deviations persisting may be that the transaction costs associated with adjusting the capital structure are large relative to the perceived cost of a sub-optimal capital structure. Financial deficits and past stock returns had the greatest and most enduring impact on capital structure. These variables continue to affect capital structure over a 10-year period. However, while the influence of financial deficits is partially reversed over a 5-year period, the impact of past stock returns is not. The latter may indicate a change in target capital structure if the stock price increase is due to increased growth opportunities. While these effects persist, firms still tend to behave as though they have target debt ratios, and act to move slowly back to their target capital structure.

Capital Structure Policy, Business Cycles, and Macro-Economic Conditions

Trade-off theories suggest that the choice of capital structure is based on achieving a balance between tax benefits and the costs of bankruptcy. The value of the tax benefit depends on the cash flows of the firm, which in turn depend on the business cycle. This suggests that

there should be a relationship between capital structure and macro-economic conditions. Trade-off theories suggest that when cash flows are high, firms should issue more debt to take advantage of the tax shield. Furthermore, when bankruptcy costs are low, firms can afford to bear more debt. Trade-off theories would thus suggest that debt should be higher during expansions because cash flows are higher and bankruptcy is less likely. An empirical relationship between business cycles and capital structure has indeed been observed. However, the relationship is not what trade-off theory would predict.

Korajczyk and Levy examined how firm-specific traits and macro-economic conditions play a role in the capital structure decision.¹⁶ Their research supports components of both the trade-off and pecking order theories. Trade-off theory states that firms balance the tax benefit of debt against bankruptcy costs. The more a firm can benefit from the tax shield (firms that are profitable and have high tax rates) and the lower the cost of bankruptcy (firms that have a high credit rating and substantial collateral), the more debt they will be able to assume. The findings were consistent with this. Firms with large tangible assets had relatively more debt (large tangible assets serve as collateral and therefore decrease bankruptcy costs) than firms with unique or intangible assets that tended to have less debt.

The authors added another dimension to the analysis by dividing firms into two categories, constrained and unconstrained. Constrained firms were those with inadequate internal funding and that faced high information costs in external markets. Unconstrained firms were those with adequate internal funds. High information costs arise from information asymmetries whereby the market may be uncertain about a firm's prospects while management,

with access to all the information, sees a promising future. Findings showed a significant difference in choices of capital structure between constrained and unconstrained firms. Target leverage is pro-cyclical for constrained firms and counter-cyclical for unconstrained firms. In other words, constrained firms were more leveraged in times of expansion and less leveraged during downturns. In contrast, unconstrained firms were less leveraged during expansions and more leveraged during downturns. Whereas the findings for constrained firms are consistent with trade-off theories, the findings for unconstrained firms are not. Instead, they are consistent with pecking order theory that would suggest that during an expansion, when there is greater availability of internal funding, firms can avoid external financing. Overall, the authors found that the capital structure of unconstrained firms was closely related to the macroeconomic environment, but that of constrained firms was largely driven by deviations from target capital structure. It seems that constrained firms do not have the luxury of timing the market, and that the choice to issue more debt is not a choice at all, but firms take what they can get. Finally, it seems that the pecking order theory works well for unconstrained firms, whereas constrained firms tend to behave as though they have a target capital structure.

Hackbarth, Miao, and Morellec also explored the relationship between capital structure and macroeconomic conditions and found that leverage is counter-cyclical, a firm's debt structure being 40% larger during booms than during periods of contraction.¹⁷ In a related paper, Chen explained that the capital structure decision has more to do with business cycles and macro-economic conditions than trade-off theories suggest.¹⁸ By modeling firms' behavior under various economic conditions, he found that the capital structure of firms that are more

sensitive to systematic (market) risk should be counter-cyclical. The explanation for this is that cash flows and required returns will be very sensitive to macro-economic conditions. Chen also related the expected growth rate and volatility of cash flows to the likelihood of default and managements decision to issue debt. He found that low expected growth rates cause a firm to wait to issue additional debt and lead a firm to default sooner.

Capital Structure Policy and Behavioral Influences

Malmendier, Tate, and Yan claimed that early life experience can play a large role in corporate finance decision-making.¹⁹ They examined the capital structure policies of CEOs who had served in the military and those who had experienced an economic downturn early in their lifetime. They found that World War II veterans were more aggressive than other CEOs. In combat, soldiers manage stressful and risky situations that build their confidence in risk-management. As a result, veterans tend to be willing to bear more risk. In contrast, CEOs who have experienced economic downturns tend to be more conservative. Experiencing an economic depression can have a deep and long-lasting impact that causes an aversion to financial risk-taking. The study also looked at the effect of over-confidence on capital structure policy. CEOs who thought their firms were undervalued perceived external financing to be prohibitively expensive. When external financing was needed, these CEOs exhibited a marked aversion to equity. When issuing debt to finance a deficit, overconfident CEOs also tended to issue about 33% more debt than needed.

Robb and Robinson's examination of the capital structure decisions of new firms provides useful insight into behavioral characteristics and the capital structure choice.²⁰ In

particular, the study found that women were less likely to issue debt, and black-owned businesses and businesses started by people without high school degrees were less likely to obtain external financing of any kind. However, the authors also found that firms that obtained formal external financing were more successful, and that those that did not were more likely to fail within 3 years. This is presumably due to the additional management oversight provided by external stakeholders and financial markets.

Estimating the Costs and Benefits of Debt

Trade-off theory suggests that there is an optimal level of debt that balances the costs and benefits of debt. Various models suggest that the optimal capital structure consists of about 65% debt, whereas observed debt levels have been, on average, about 30%. Only recently however has the research begun to adequately quantify the costs and benefits of debt.

The Value of the Tax Shield

Graham examined the value of the tax shield and found that the aggregate tax benefits of the shield were significant. At their highest, tax benefits of debt for a sample of 6,087 firms totaled \$114 billion in 1990.²¹ He also created a model to measure the value of the interest tax shield at the firm level and found that the tax benefits of debt amounted to 9.7% of firm value. However, despite the significant benefits of debt financing, even large, well-established firms tended to have conservative debt policies. More than 44% of the firms examined under-utilized debt despite the fact that even after taking into account the costs of bankruptcy, firms could still

benefit from the debt tax shield if they were to double their debt. Blouin, Core, and Guay claimed that Graham's study overestimated the tax benefits of debt, and that estimates of future tax-related cash flows were flawed since other tax benefits such as tax loss carry-forwards and carry-backs had been ignored.²² Using an improved method to estimate marginal tax rates, they showed that while firms were not as underleveraged as previously thought, between 18.5% and 29.2% of them were underleveraged, and that an increase in leverage could have added 1-3% of value to the firm.²³

The Costs of Debt

Studies of the cost of debt have historically focused on small samples of bankrupt firms. These studies estimated bankruptcy costs to be between 3.1% and 20% of firm value. Building on Graham's work, Van Binsbergen, Graham, and Yang developed a model to analyze the costs and benefits of debt.²⁴ They used a model to develop an optimal capital structure, and compared the costs and benefits of this optimal (equilibrium) capital structure to observed capital structures. Their findings suggested that default costs amounted to 6% of book value for investment-grade firms and 17% for low-grade firms. The average benefit of debt at the equilibrium level was 10.4% compared to an observed benefit of 9.0%. The cost of debt at the equilibrium level was 6.9% compared to an observed level of 7.9%. The equilibrium net benefit of debt was 3.5% compared to an observed benefit of 1.1%, which suggests that firms are underleveraged.

Costs of Sub-Optimal Capital Structure

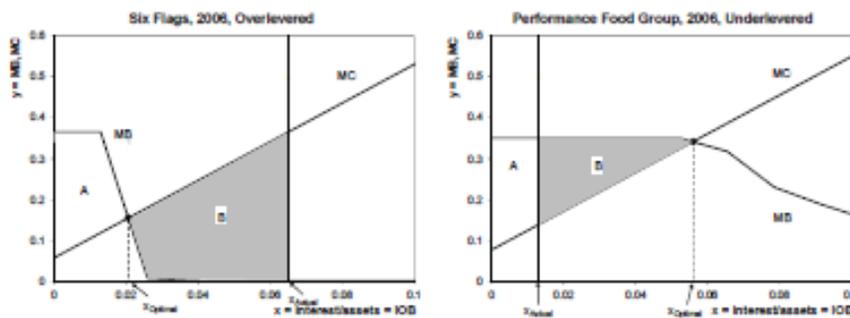
Van Binsbergen, Graham, and Yang quantified the costs of operating with sub-optimal capital structures.²⁵ Their results showed that the cost of having too much debt was disproportionately higher than the cost of having too little debt. If the average firms with equilibrium capital structures were to double their leverage, they would lose about 6.7% of firm value, whereas if the same firms were to eliminate their debt they would lose 4.5% of their value.

Using Cost-Benefit Analysis to Identify the Optimal Capital Structure

The measurement of the costs and benefits of debt represents a significant advance in capital structure research. In an upcoming paper, Van Binsbergen, Graham, and Yang take these measurements further, using them to identify an optimal level of debt for individual firms.²⁶ The foundation of this new model is that capital structure is optimized when the marginal benefit of debt is equal to the marginal cost of debt. By modeling the characteristics and behavior of firms who seem to operate under optimal capital structures, the authors built a general model to estimate both the benefits (tax shield and reduction in agency costs) and costs (financial distress costs) of debt that can work for any firm. In addition to consideration of the marginal tax rate, the model accounts for tax-loss carry-forwards and carry-backs. The model incorporates several variables in modeling the costs of debt, including collateral (physical assets plus inventory divided by total books assets), book-to-market equity ratio, intangible asset ratio, and cash flows to book asset ratio. The model also considers whether a firm pays dividends. Outcomes from the model are consistent with empirical studies and common-sense inferences. For example, the

model predicts that firms with a low collateral ratio will have higher costs of debt than those with a high collateral ratio. Figure 1 depicts the cost and benefit curves for Six Flags and Performance Food Groups. Relative to the optimal capital structures determined by the model, Six Flags was over-levered and Performance Food Group was under-levered. The shaded areas depict the net benefit (cost) of debt. For Six Flags, it indicates a net cost of debt since the firm's actual debt level is greater than the optimal level; the costs of debt exceed the benefits of debt. In contrast, Performance Food Group uses too little debt. The shaded area depicts the amount by which the benefit of debt exceeds its costs. Note that at the optimal level, the marginal benefit of debt equals the marginal cost of debt, and debt levels beyond this point will have a net cost. The model can also measure how the cost of debt and firm value are affected by operating with a sub-optimal capital structure.

Figure 1. Benefit of Debt for Six Flags and Performance Food Group²⁷



A) Net benefit of debt for Six Flags in 2006 is the difference between areas A and B. Six Flag faces a negative benefit of debt due to overlevering. B) Net benefit of debt for Performance Food Group in 2006 is the sum of areas A and B. Performance Food Group leaves money on the table by not taking advantage of area B when underleverng.

The Cost of Capital

Capital structure policies are put in place in an effort to maximize shareholder returns. Managers do this by maximizing cash flows and minimizing the cost of capital. The calculation of the cost of capital is important in part because it represents an important parameter in a firm's capital budgeting decisions. According to the Census Bureau, capital expenditures on property and equipment in 2010 were over \$1 trillion for U.S. non-farm businesses. Without a question, the cost of capital estimate was a key determinant in these spending decisions. Miscalculating the cost of capital can lead a firm to reject a potentially valuable project if the cost of capital is overestimated, or accept a project that fails to meet investors' required return if the cost of capital is underestimated. Here we look at the considerations in estimating the cost of capital. The components of the cost of capital include the required returns on equity and debt, and the relative weighting of equity and debt in the capital structure. While there are different types of equity and debt (e.g., preferred equity and convertible debt), we focus on common shares and straight debt. Off-balance sheet items are also a source of capital thus we discuss their impact.

The Cost of Equity

According to a study by Bruner, Eades, Harris, and Higgins, the Capital Asset Pricing Model (CAPM) is the dominant measure of cost of equity.²⁸ They reported that 80% of corporations and advisors and 100% of textbooks use CAPM as the primary measure of the cost of equity. A more recent survey by Graham and Harvey found that 75% of corporations use some form of the CAPM to measure the cost of equity.²⁹ Some corporations and advisors may

also use multi-factor models that consider not only market risk but sensitivity to other factors such as firm size and book-to-market value.

The return on a risky asset must provide compensation for the time value of money and a risk premium based on the asset's level of risk. The CAPM recognizes two sources of risk, systematic risk and unsystematic risk. Systematic (market) risk affects all assets in the market and reflects sensitivity to variables including GDP, inflation, interest rates, and other macro-economic factors. Unsystematic risks are specific to a firm and reflect variables that can include lay-offs, strikes, supply shortages, upper-management changes, and other firm-level factors. There are two underlying assumptions of the model; market prices are efficient (i.e., they are fair and reflect all available information), and all investors hold a well-diversified portfolio (i.e., they are free of unsystematic risk exposure. Since poor returns on some stocks will be offset by good returns on others, the total risk exposure of a well-diversified portfolio is due only to market risk). Accordingly, the CAPM states that investors should only be rewarded for systematic risk. This depends on the market risk premium and the firm's sensitivity to movements in the market. We examine different proxies for the risk-free rate, the market risk premium, and the measure of systematic risk (Beta).

Risk-free Rate

Theoretically, the risk-free rate should be a default-free return that represents compensation for the pure time value of money. Textbooks often use an average of historical T-bill rates as a proxy for the risk-free rate. Firms and analysts tend to use current interest rates on

long-term treasuries to match the time horizon of their investments. Bruner, Eades, Harris, and Higgins reported that 70% of firms use treasury maturities of 10 years or longer.³⁰ The spread between short-term and longer-term yields has averaged about 1.5% and is currently 3.21%³¹, so the choice of maturities can have a significant impact on the cost of equity estimate.

Beta

Since the 'market portfolio' is not directly observable³², providers of beta use stock market indices to estimate the performance of the market portfolio. The value of beta is calculated by regressing a stock's historical price movements against those of the market proxy over the same period. If the value of a stock's beta is one, the riskiness of the stock is the same as that of the market portfolio. A value of greater than one means that the stock is more sensitive to market risk factors than the overall market proxy, and a value of less than one means that the stock is less sensitive to market risk factors than the market proxy. Note that when using beta to calculate expected returns, the implicit assumption is that future returns are expected to behave like past returns.

- Providers of beta differ in their estimates for many reasons. First, they vary in their choice of market proxies. Some use the S&P 500 index while others use the NYSE composite index. Additionally, the length of time (e.g., 2 years or 5 years), and the periodicity of returns (e.g., daily or weekly) used in computing beta may vary. These variations can result in a range of beta estimates, which, in turn, will cause a range of estimates for the cost of equity. Below are the parameters and beta estimate for

Caterpillar (CAT) from some of the most common beta sources. Value Line: NYSE composite, 5 years of weekly prices, CAT beta = 1.30

- Bloomberg: S&P 500, 2 years of weekly prices in its default mode³³, CAT beta = 1.53
- Capital IQ (Yahoo)³⁴: S&P 500, 5 years of monthly data, CAT beta = 1.71

Using the current 10-year T-bond rate of 3.568%³⁵ for the risk-free proxy and the historical market risk premium of 8.5%, the CAPM yields a cost of equity for Caterpillar (CAT) of 14.61% using the Value Line estimate of beta, 16.57% (Bloomberg), or 19.55% (Capital IQ). The cost of equity thus varies from by nearly 5% depending on the source of beta.

Because estimates of beta are based on historical returns, they will change over time. Fernandez demonstrated that beta estimates can change dramatically over even short periods of time.³⁶ For example, on a daily basis over a two-month period, the value of AT&T's beta varied from a low of 0.32 (January 14, 2002) to a high of 1.02 (December 27, 2001). Over a 10-day period between January 20th and January 30th, 2002, the value of Boeing's beta varied between 0.57 and 1.22. During that same period, AT&T's beta was greater than Boeing's 32% of the time, which shows that, at times, beta estimates can even be unreliable as measures of relative risk. Many corporations and analysts understand that the estimate of beta has its limitations. It is thus common for practitioners to adjust published estimates according to the perceived level of risk to provide a more appropriate measure of the asset's systematic risk exposure. Blume observed that the value of beta seems to regress towards a value of one over time and offered an adjustment to reflect this phenomenon.³⁷ He suggested using a weighted average of the equity

beta and 1, where the weight of the equity beta is two-thirds. This adjustment is widely accepted and is used by many practitioners.

Market Risk Premium

In theory, the market risk premium is the additional return above the risk-free rate that investors require for bearing the risk of the market portfolio. Surveys have found a wide range of estimates for the market risk premium. Bruner, Eades, Harris, and Higgins found that most corporations use risk premiums between 4% and 6%, while 50% of analysts use estimates between 7% and 7.4%.³⁸ Graham and Harvey reported that the market risk premium used by U.S. CFOs between June 2000 and November 2006 ranged from 2.39% (November 2005) to 4.65% (September 2000).³⁹ The average of 3.47% is notably lower than Bruner et al.'s earlier findings. Fernandez and del Campo found that the average market risk premium used by analysts in the U.S. and Canada in 2010 was 5.1% and ranged from 2.9% to 10%.⁴⁰ The corresponding figures for corporations were 5.3% and 1.9% to 11.2%. Textbooks tend to use the historical average risk premium over T-bills, which is usually between 8% and 8.5%.

During the most recent financial crisis, managers have become particularly concerned about how increases in risk aversion may affect the cost and availability of capital. Dobbs, Jiang, and Koller found that economic conditions have little influence on the cost of equity.⁴¹ For example, a 20% drop in share price and a 7.5% decline in profits would amount to a 0.6% change in the cost of equity (Table 1). They also pointed out that stock price changes are affected more by the revision of earnings estimates than by changes in the cost of capital.

Table 1. Percent Change in Cost of Equity Given Changes in Sales Price and Earnings

	% Change in Earnings					
		-10	-7.5	-5.0	-2.5	0
% Change in Sales Price	-25	0.8	0.9	1.1	1.2	1.3
	-20	0.5	0.6*	0.7	0.9	1.0
	-15	0.2	0.4	0.5	0.6	0.7
	-10	0.0	0.1	0.0	0.1	0.2
	-5	-0.2	-0.1	0.0	0.1	0.2
	0	-0.4	-0.3	-0.2	-0.1	0

*A 7.5% decrease in earnings combined with a 20% decrease in price results in a 0.6% increase in the cost of equity.

The Cost of Debt

The cost of debt is relatively easier to estimate than the cost of equity since market yields on bonds are directly observable. Fifty-two percent of firms tend to use their marginal cost when calculating the pre-tax cost of debt.⁴² For new bond issues, firms observe the yield to maturity on bonds with equivalent credit ratings. Thirty-two percent of firms use the weighted average of each of their outstanding bond issues, the method that most textbooks and financial advisers endorse. To adjust for the tax benefit of debt, 52% of firms calculate their after-tax cost of debt using marginal or statutory tax rates. The majority of financial advisers and textbooks recommend using marginal tax rates. A minority of corporations and financial advisers use the historical average tax rate to estimate the cost of debt.

Weights on Debt and Equity in Estimating Cost of Capital

The weighted average cost of capital (WACC) depends on the percentages of debt and equity in the capital structure. It is recommended that market values be used in estimating these percentages since book values on the balance sheet are historical and do not reflect current values. The market value of equity can be calculated by multiplying the closing price of a firm's stock by the number of shares outstanding. It is not generally easy to directly obtain the market value of debt. While some bonds are traded, many firms have debt that is not traded. While the firms themselves have access to their current loan balances, this information is often unavailable to the public. In this case, it becomes necessary to rely on the book value of the debt instead.

Another issue is the choice between target and actual capital structure. Since debt and equity costs depend on the proportions of each source of financing in the capital structure, this suggests that the current, actual proportions of each should be used in computing the WACC. However, if a firm's target weights are publicly known and investors anticipate the firm changing the weights, the observed costs of debt and equity may reflect the target capital structure. The weights for debt and equity are complicated when firms have off-balance sheet financing instruments. These are hidden debts, thus if they are not incorporated in estimating the WACC, this estimate will not be accurate. The implications of off-balance sheet financing instruments will be discussed in a later section.

Implications for Decision Makers

The chosen risk-free proxy, market risk premium or value of beta can result in dramatic differences in estimates of the WACC, thus it is important to consider how the WACC is to be used. If it is used to gauge past performance, one should use parameters that reflect past circumstances. In contrast, if it to be used for capital budgeting purposes, one should use parameters that reflect expectations for the future with the corresponding project's time horizon in mind. It is also imperative that the value of beta used in capital budgeting reflect the risk of the project, not the risk of the overall firm. Using the overall equity beta when a project has lower risk than the company as a whole will lead to an over-estimate of the cost of equity and thus the rejection of a potentially profitable project and vice versa. If new debt is to be issued to fund a project, it is appropriate to use the yield to maturity on the new bond issues in computing the cost of debt. Finally, the weights used to compute the WACC should reflect the expected capital structure weights.

Financial Flexibility and the Use of Other Financing Tools

The primary concern of financial managers when facing long-term financing decisions is how a financing decision today might impact future financing options. Sixty percent of respondents to a survey cited financial flexibility as the primary concern when making debt policy decisions.⁴³ In particular, firms wanted to protect their credit rating and to preserve unused debt capacity to finance future investment opportunities. It is thus no surprise that financial managers consider off-balance sheet financing tools to meet their capital funding needs.

It is increasingly important for firms to remain flexible and to be able to adapt quickly to a changing environment. This means that the old, physical asset-intensive model may not work as well as it did in the past. Firms need to raise capital to purchase long-term physical assets that may be hard to sell in a timely manner. Raising capital is costly because debt financing increases the leverage ratio and equity financing can dilute shareholder value. However, some financing tools do not have to be classified as either debt or equity, and can thus be kept off a firm's balance sheet, thereby preserving the leverage ratio. Examples include operating leases and off-balance sheet entities for joint ventures, or research and development partnerships. Off-balance sheet financing has been attractive to many firms especially when the addition of a large amount of new financing would break their debt covenants. However, firms should be fully aware of both the positive and negative consequences of using these instruments. While they can have a positive effect when used to improve leverage ratios or financial flexibility, they can also lead to legal consequences if used to artificially manipulate financial reports as was the case with Enron. Enron created several off-balance sheet entities known as special purpose entities, whose financial statements did not have to be consolidated with Enron's own statements. Unprofitable assets were then transferred to these entities to hide losses and make the company look financially healthy. After several accounting scandals in the early 2000s, both the Securities and Exchange Commission and the Financial Accounting Standards Board increased disclosure requirements for off-balance sheet financing instruments. Two commonly used off-balance sheet instruments, leases and special purpose entities, will be explained in detail in the following sections.

Leases

A recent SEC study estimated that total (undiscounted) cash flows associated with off-balance sheet operating leases for active U.S. issuers may approach \$1.25 trillion. This is 28 times more than the \$45 billion of on-balance sheet capital leases.⁴⁴ For companies in the S&P 500 stock index, off-balance sheet operating lease commitments, as revealed in the footnotes to their financial statements, totaled \$482 billion.⁴⁵ From a financial viewpoint, the purpose of operating leases is to lower the conventional way of reporting debt. Under current U.S. accounting rules (GAAP), there are two types of leases, operating leases and capital leases. For a company to record a lease as a capital lease, the lease must meet one or more of the following four criteria:^{46,47}

1. **Transfer of Ownership Test:** The lease transfers ownership of the property to the lessee by the end of the lease term.
2. **Bargain-Purchase Option Test:** The lease contains a bargain purchase option. A bargain purchase option allows the lessee to purchase the leased property for a price which is significantly lower than the expected fair value of the property at the date the option becomes exercisable.
3. **Economic Life Test:** The lease term is equal to 75 percent or more of the estimated economic life of the leased property. However, if the beginning of the lease term falls within the last 25 percent of the total estimated economic life of the leased property, including earlier years of use, this criterion shall not be used for purposes of classifying the lease. If the lease period equals or exceeds 75% of the asset's economic life, the lessor transfers most of the risks and rewards of ownership to the lessee. Capitalization is therefore appropriate.
4. **Recovery of Investment Test:** The present value at the beginning of the lease term of the minimum lease payments, excluding that portion of the payments representing executory costs such as insurance, maintenance, and taxes to be paid by the lessor, equals or exceeds 90 percent of the fair market value of the leased property, then a lessee should capitalize the leased asset. Because if the

present value of the minimum lease payments is reasonably close to the market price of the asset, the lessee is effectively purchasing the asset.

If the lease qualifies as a capital lease, it is reported as a leased asset on the asset side of the balance sheet and a lease liability on the liability side, and the effect is the same as a purchase with borrowing. This will in turn affect the total amount of debt and the calculation of the leverage ratio, cost of debt, and cost of equity. As a result, firms with a high level of debt would prefer not to have a capital lease and may prefer to have an operating lease instead.

For an operating lease, the lessee records only periodic rental expenses but not any liabilities, thus helping to maintain a lower debt level. This makes the balance sheet and leverage ratios appear more favorable. Many airlines make extensive use of lease arrangements to acquire aircraft rather than purchasing them. According to 2009 company reports, between 16% (Southwest) and 42% (Republic) of the total fleet of airlines was leased using operating leases.⁴⁸ This resulted in considerable off-balance sheet financing, thus decision makers including analysts, investors, and managers should adjust reported debt levels to account for the effects of the leases.

The following examples illustrate the financial impact of operating leases:⁴⁹

- US Airways Group Inc., which filed for Chapter 11 bankruptcy protection, showed only \$3.15 billion in long-term debt on its most recently audited balance sheet, for 2003, and didn't include the \$7.39 billion in operating-lease commitments it had on its fleet of passenger jets.
- Drugstore chain Walgreen Co. shows no debt on its balance sheet, but it is responsible for \$19.3 billion of operating-lease payments mainly on stores over the next 25 years.

- When UAL Corp., filed for Chapter 11 bankruptcy protection in December 2002, its audited balance sheet showed \$25.2 billion of assets and \$22.2 billion of liabilities. Not included: \$24.5 billion in non-cancellable operating-lease commitments, mostly for aircraft.
- Winn-Dixie Stores Inc.'s reported debt of about \$300 million is just 30% of its shareholder equity. The footnotes show a far more leveraged company. Its off-balance-sheet obligations at June 30 included about \$4.1 billion of non-cancellable commitments over several years to lease the buildings for its stores.

In addition to the effect on debt levels/financial reporting, other reasons exist for leasing. Graham, Lemmon, and Schallheim documented a negative relationship between a firm's use of operating leases and its marginal tax rates, and a positive relationship between debt levels and tax rates, supporting the hypothesis that firms with low tax rates lease more and have lower debt levels than firms with high tax rates.⁵⁰ Krishnan and Moyer also found that leases become more attractive than secured debt as the potential for bankruptcy increases.⁵¹ Leases have lower associated bankruptcy costs than debt due to the superior claim of lessors over lenders. Since the lessee (borrower) must compensate the lessor (lender) for expected bankruptcy costs, a firm with significant bankruptcy potential will find leases to be available at a lower cost than borrowing.

One popular example of how a lease can be used for both tax incentives and financial reporting purposes is a synthetic lease, a hybrid that takes advantage of the benefits of both capital and operating leases. Synthetic leases allow a lease to be treated as an operating lease for financial reporting purposes to lower debt levels, while treating the lease as a loan arrangement for tax purposes by claiming ownership of the property. A firm can thus deduct payments for the property as interest payments on debt (rather than a rent expense) for tax reporting purposes.

Specifically, investment bankers, in consultation with lawyers, structure the terms and covenants

of the lease so that they can obtain favorable treatment for tax and financial reporting purposes. At the end of the lease term, the lessee has the option of either renewing the lease, purchasing the property (for a predetermined price), or selling the property in the market. If it sells the property with a gain or loss, tax authorities usually consider the firm to be the virtual owner of the property as it assumed the risks and rewards from the property. As a result, the lessee can take depreciation and interest deductions available to owners and borrowers. However, for financial reporting purposes, it can design the lease terms so that it does not meet any of the four capitalization criteria for capital leases. The lease contract is thus accounted for as an operating lease, which in turn will not be recorded as a liability on the balance sheet.

Implication of Leases on Corporate Financial Strategy

Leasing is a gray area in capital structure. The exclusion of leases may result in an incorrect assessment of a firm's financial strength and creditworthiness since operating leases are off balance sheet and not therefore considered as part of debt. In addition, payments for operating leases are reported as operating expenses while interest expenses on debt financing are not typically reported as operating expenses but under other expenses. Consequently, managers and investors should adjust ratios that are based on operating income accordingly. Damodaran suggested the following adjustment procedure be used to convert operating leases to debt:⁵²

SFAS No. 13 requires that companies disclose future required minimum rental payments as of the date of the latest balance sheet presented, in the aggregate and for each of the five succeeding fiscal years, and cumulated amounts thereafter in the footnotes to

financial statements.⁵³ Discount these payments back to the present using a pre-tax cost of unsecured debt since the lease commitments are pre-tax and the claims of lessees are similar to the claims of unsecured debt holders.

Special Purpose Entity (SPE)

A special purpose entity (SPE) is a separate legal entity created by a firm to perform particular activities related to the intended ‘special purpose’. SPEs have been used since the 1970s, mainly for securitization purposes. The original intent was to isolate financial risk and provide lower cost financing. By creating an SPE, a firm (sponsor) could insulate itself from risk when financing large project by separating the project from itself. The cost of financing was also typically lower for an SPE than for the sponsor since as the business activities of the SPE were restricted only to their intended purpose. Nowadays, objectives of firms in creating SPEs relate to off-balance sheet debt, securitization, and tax-free exchanges.⁵⁴ Securitization represents the most common use of SPEs. In a typical securitization, a sponsor company establishes an SPE and sells a bundle of assets, such as loans, receivables, and patents to the SPE. The SPE then issues debt securities for cash and uses the cash to pay the sponsor for the assets. Through this process, the sponsor successfully securitizes the assets and turns them into debt instruments. However, this debt is not recorded on the sponsor’s balance sheet if the sponsor does not have to consolidate financial statements.

Accounting Guidelines for SPEs

Sponsors did not have to consolidate the assets and liabilities of SPEs as long as the equity interest of a third-party owner is at least 3% of the SPE's total capitalization (the 3% rule).⁵⁵ However, after various corporate scandals in the early 2000s, FASB tried to bring off-balance sheet entities back onto the balance sheet. In 2003, FASB increased the 3% threshold to 10%, saying that "an equity investment shall be presumed *insufficient* to allow the entity to finance its activities without relying on financial support from variable interest holders unless the investment is equal to at least 10 percent of the entity's total assets".⁵⁶ FASB also classified SPEs as 'Variable Interest Entities' (VIEs), and if they lacked the ability to make decisions, the obligation to absorb losses, or the right to receive returns, then financial statements of the VIEs must be consolidated with those of the sponsor who was the primary beneficiary of the VIEs. However, if a sponsor structured a VIE such that it had no legal control over it, the sponsor could still keep the liabilities of the VIE off the balance sheet.

Implications of SPEs on Corporate Financial Strategy

Many firms still use financial engineering to make them look better capitalized and less risky than they really are. Without transparent disclosure of off-balance sheet financing instruments, investors and regulators can no longer accurately assess risk. Only managers have accurate information about the amount of off-balance sheet debt. They should thus be aware of the liabilities not reported on the balance sheets and consider them when making financial decisions. For example, managers should include the hidden debt when calculating the cost of

equity and the weighted average cost of capital to be used in capital budgeting decisions. While significant liabilities may be omitted from the balance sheets, they still exist somewhere.

Other Issues – Pensions

While pension liabilities or pension assets are not tools of corporate finance, the implications of pension plans on capital structure are similar. Under the current U.S. GAAP, there are two types of pension plans, the defined contribution plan (e.g., a 401k plan) and the defined benefit plan. The former involves the employer, and at times, employees contributing specific sums of cash into a pension fund, the size and timing of which are usually mutually determined. The cash benefits to be secured upon retirement will depend on the size of contributions and the efficiency of the pension fund in managing its investments. The corporation assumes no long-term obligations of the retirees' benefits, the latter bearing the risks should a shortfall occur. In contrast, the defined benefit plans involves the employer having to assume long-term obligations for the amount retirees will receive. Employers thus bear the risk of plans having inadequate assets to pay.

In 2005, FASB Statement No. 158, *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans* required that firms report whether their pension fund is overfunded or underfunded on the balance sheet. When projected benefit obligations (PBO) are larger (smaller) than the fair value of the plan assets, the pension is underfunded (overfunded) and reported as a pension liability (asset). Market participants criticized previous standards for not adequately communicating pension fund status in the financial statements, requiring only that

details be included in the footnotes. The nature and size of the pension deficit problem probably explains why some companies sought to understate the depth of their pension funding problems. For example, in 2004, 26 of the 30 firms included in the Dow Jones Index had defined benefit plans, with 22 of the 26 reporting total net pension assets of \$119 billion. The 22 pension funds were underfunded by a total of \$46.9 billion or \$1.8 billion per firm.⁵⁷ This represents \$165.9 billion of off-balance sheet obligations. For the entire population of 10,100 active U.S. firms in 2005, it was estimated that a total of approximately \$414 billion in net pension liability may have remained off-balance sheet (net assets of \$213 billion less an underfunded amount of \$201 billion).⁵⁸

Implications of Pensions on Corporate Financial Strategy

Merton pointed out that the conventional WACC does not fully reflect the riskiness of a firm's operating assets since it includes only on-balance sheet debt when estimating asset risk.⁵⁹ He argued that pension funds generally have different risk characteristics than other operating assets, thus investors and managers should adjust the WACC accordingly. Jin, Merton, and Bodie calculated the standard cost of capital (WACC) for four large companies, Boeing, Du Pont, Eastman Kodak, and Textron for 2001 and then adjusted them for pension risks.⁶⁰ They claimed that pension assets invested in equities had significantly higher beta risk than firm debt, whereas the risks of pension liabilities and firm debt were similar. After estimating pension asset and liability betas, they adjusted the cost of capital by the pension values and their weights relative to those of operational assets. Of the four companies, the pension plans of Boeing,

Eastman Kodak, and Textron were overfunded whereas Du Pont had a small pension deficit. The results (Table 2) of their analysis revealed that the failure to incorporate pension plan risks could materially overestimate discount rates for operating projects. For example, the correct cost of capital for Boeing was 6.59% while the standard approach yielded 8.80%, an overestimate of about 34%. This shows that the managers of these companies could have applied higher discount rates for evaluating new projects, which would have led them to rejecting potentially profitable projects. It should be noted that the overfunding of the pension funds was the result of a bullish stock market in late 1990s and early 2000s. As the stock market started to drop in 2002, the pension status of many firms changed to underfunded, thus the effects illustrated analyzed in Table 2 would have been different. Shivdasani and Stefanescu also examined the capital structure implications of pension plans, and showed that the leverage ratios for firms with pension plans were about 35% higher when pension assets and liabilities were incorporated in the capital structure.⁶¹

Table 2. Estimating Cost of Capital for 2001⁶²

	Pension assets (\$bil.)	Pension liabilities (\$bil.)	Pension surplus (deficit) (\$bil.)	Market cap. (\$bil.)	Book value of debt (\$bil.)	Correct cost of capital estimate*	Cost of capital estimate error 1*	Percent over-estimate for error 1
Boeing	33.8	32.7	1.1	30.9	12.3	6.59%	8.80%	34%
DuPont	17.9	18.8	(0.9)	42.6	6.8	8.37%	9.44%	13%
Eastman Kodak	7.9	7.4	0.5	8.6	3.2	7.91%	9.75%	23%
Textron	4.5	3.9	0.6	5.9	7.1	7.04%	7.98%	13%

*cost of capital numbers are based on a risk-free rate of 5% and a market risk premium of 7%.

CONCLUSION

In corporate financial strategy, the capital structure question requires thoughtful consideration. A firm's choice of capital structure can help an ailing business through tough times, or can mean financial ruin for once-promising, successful businesses. The academic literature has come close to identifying a firm's optimal capital structure. However, empirical evidence suggests that for various reasons, many firms operate with sub-optimal capital structures. This could be due to behavioral influences that cause firms to have a bias against debt, or market fluctuations that cause managers to move away from targets. In the coming years, there will likely be new financial innovations that provide funding for business ventures, thus further progress and refinement in capital structure theory will be needed.

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