Problem 1									
a. Annual tax savings from debt = $ 40 million * .09 * .35 =					$ 1.26				
b. PV of Savings assuming savings are permanent = $ 40 million * .35 =					$ 14.00				
c. PV of Savings assuming savings occur for 10 years = $ 1.26 (PVA,9%,10) =						$ 8.09			
d. PV of Savings will increase									
	If savings are permanent = 1.26/.07 =				$ 18.00				
	If savings are for 10 years = $1.26 (PVA,7%,10) =				$ 8.85				
Problem 2									
a. After tax Interest Rate = 10% (1-.45) =				5.50%					
b. If only half the interest is allowed = 10% (1-.225) =				7.75%					
c. Yes. The tax savings will be much lower since the tax savings will not occur until three years from now. The after-									
tax interest rate will therefore be the same as the pre-tax rate (10%) for the first three years.									
Problem 3									
a. Ignoring the net operating loss,									
	PV of Tax Savings = $ 5 billion (.36) =			1.8					
b. Yes. The net operating loss will mean that this tax savings will not occur for a while. For instance, if it will									
be 5 years before Westinghouse will have enough taxable income to claim the interest deduction, this $ 1.8 billion									
should be discounted back 5 years to arrive at the present value.									
Problem 4									
a. False. There may be non-discretionary capital expenditures/working capital needs that drain cash flows.									
b. False. Capital expenditures may be discretionary.									
c. Partially true. The commitment to pay dividends is a much weaker one than the one to pay interest expenses.									
d. True.									
e. False. This is true only if management is not concerned about wealth maximization.									
Problem 5									
a. Moderate. The low leverage may provide an opening.									
b. Moderate to High. The poor projects and the low leverage may make them susceptible; the poor earnings may act as impediment.									
c. Low.									
d. Low.									
e. Highest.									
Problem 6									
a. Cost of Equity = 9% + 6% =			15%						
Since it is an all-equity financed firm, the cost of capital is equal to the cost of equity.									
b.		Marginal	Marginal						
Value of Debt	Increase in Deb	Tax Benefits	Exp. Bankruptcy Cost						
2500000	2500000	1000000	0						

5000000	2500000	1000000	640000						
7500000	2500000	1000000	1000000						
8000000	500000	200000	760000						
9000000	1000000	400000	1200000						
10000000	1000000	400000	600000						
12500000	2500000	1000000	1400000						
Every marginal increment past $ 7.5 million has expected cost > expected tax benefits!									
Optimal debt is between $ 5 million and $ 7.5 million.									
c. Value of Firm at Optimal = Current Firm Value + Sum of Marginal Tax Benefits - Sum of marginal costs									
		$ 13,360,000							
Problem 7									
That is not true. Due to the agency conflicts between stockholders and bondholders, bondholders charge higher interest									
rates or write in much stronger covenants, either of which impose real costs on the firm.									
Problem 8									
The second firm should borrow more because									
1. It has lower bankruptcy costs due to more predictable cash flows.									
2. It does not have as much of a need for flexibility because its future needs are known.									
Problem 9									
That is also not true. There is a cost to maintaning flexibility - opportunity costs associated with maintaining excess									
debt capacity and large cash balances. These costs may outweigh the benefits for some firms, especially those with mediocre investment prospects.									
Problem 10									
a. In the Miller-Modigliani world with no taxes, the value of the firm will be $ 100 million no matter what the debt ratio.									
b. The cost of capital will always be 11%.									
c. With taxes, the value of the firm will increase as the debt is increased (because of the tax benefits of debt) and the cost									
of capital will go down (due to the interest tax savings again).									
Problem 11									
a. The past policy of not using debt can be justified by noting that returns on projects were high (increasing the need for									
flexibility) and that earnings in the future were likely to be volatile (because of the growth).									
b. Given that returns on projects are declining, I would argue for a greater use for debt.									
Problem 12									
When stockholders take on riskier projects than bondholders anticipated, or take on additional leverage (especially more									
senior debt) or increase dividends, they increase the riskiness of the firm from the perspective of bondholders. To the									
extent that bondholders did not protect themselves or anticipate these actions, they will lose wealth to stockholders.									

Problem 13

Bond covenants have a real cost to firms because they reduce their flexibility. These covenants might prevent firms from taking good projects (if the covenants restrict investment policy), repurchasing stock or taking fresh debt for new projects.

Problem 14

a. Not borrowing debt that you have the capacity to borrow preserves this debt capacity for future project or other unspecified contingencies that may arise.

b. The tradeoff will be between the loss in value associated with not being at your optimal debt ratio and the gain in value from the increased flexibility.

Problem 15

a. An electric utility is regulated (reducing agency costs) has stable and predictable cash flows (reducing bankruptcy needs) and knows its future investment needs with some precision (reducing the need for flexibility). All of these factors will increase its capacity to carry debt.

b. Yes. Both the "regulation" and the "monopoly characteristics" reduce the agency costs and bankruptcy costs, increasing debt capacity.

Problem 16

I would expect a decline in the optimal debt ratios of firms because the tax benefit of borrowing is significantly lower. If the tax deductibility of interest were removed, I would expect a similar effect.

Problem 17

I would expect the debt ratios of large firms to increase because governments will then bear a portion of the bankruptcy costs.

Problem 18

Debt is irrelevant when there are tax differences in the treatment of debt and equity and there are no agency costs. If debt is irrelevant, the cost of capital will not be affected by changing the debt ratio.

Problem 19

I would expect strong firms to issue straight debt and financially weak firms to issue preferred or convertible preferred.

Problem 20

Private firms are much more exposed to bankruptcy risk and have much less access to external capital (leading to an increased need for flexibility). I would therefore expect them to use debt less.

Problem 21

The fact that the stock price goes to zero in a bankruptcy is not caused by the bankruptcy but by the actions that the firm has taken in the years prior that reduced cash flows and value. In other words, it is not caused by the bankruptcy and should not be viewed as cost occuring as a consequence of it.

Problem 22

The direct cost of bankruptcy usually refers to the legal and other deadweight costs that drain assets away from the legitimate claimholders in the firm.

The indirect costs refer to the costs associated with the perception that you might be in financial trouble - lost sales, employee defections, less generous supplier credit etc. These costs are likely to be largest for firms that manufacture products that have a long life span and need parts/service.

Problem 23

It is in the interests of incumbent managers to keep leverage low. By doing so they minimize the chances that the firm will go bankrupt (which might affect their personal value) substantially and they also reduce the oversight that might come with higher debt ratios. Thus, you would expect firms to be underlevered if stockholders do not have much power.

Problem 25

This is not true. While debt is always cheaper than equity, taking on more debt will make you a riskier firm - this, in turn, will push up the costs of both debt and equity. This negative effect may offset the positive effect of replcing more expensive equity with less expensive debt.