

**Achievement of Market-Friendly Initiatives and Results Program
(AMIR 2.0 Program)**

Funded By U.S. Agency for International Development

**Financing Growth in Jordan's
Hotel Industry**

Final Report

**Deliverable for Capital Markets Component Task No. 638.2
Contract No. 278-C-00-02-00201-00**

February 2003

This report was prepared by Ronald Copley, in collaboration with Chemonics International Inc., prime contractor to the U.S. Agency for International Development for the AMIR Program in Jordan.

Table of Contents

Introduction	1
Fundamental Concepts In Finance For Financing Growth And Its Relation To Capital Structure Of Firms	1
A. Equity Valuation Of Firms:	1
1. Projected Dividends (D_1)	2
2. Growth (G)	2
3. Required Return On Equity (K_e)	2
B. Capital Restructuring.....	14
C. Weighted Average Cost Of Capital ($Wacc$).....	17
Hotel Management's Capital Structure Choice	20
A. Equity Financing.	20
B. Short-Term Loans	21
C. Long Term Borrowing- Issuing Long Maturity Bonds.....	22
A Real Life Example Of Sustainable Growth.....	24
Comparing International Hotel Industry's Capital Structure To Airline Industry ..	27
Intermediaries Who Helps Firms To Issue Debt	29
Appendix – References	30
Appendix – Hotel-A Financial Statements	31
Appendix – Power Point Slides	36

INTRODUCTION

The objective of this presentation is to discuss how hotelier should finance its growth. A related issue is the firm's capital structure affects shareholders' wealth. The presentation focuses on factors affecting growth (g) and the optimal capital structure for financing growth. The particular mixture of debt and equity that a firm chooses to employ in financing growth is a managerial decision. Thus, management's choice of financing growth affects risk that in turn, affects shareholder wealth. *(Please refer to Power Point slide 1)*

The following section will be comprised of fundamental concepts on earnings growth and capital structuring and how it affects the cost of capital, value of the firm and shareholders' wealth. *(Please refer to Power Point Slide 2)*

FUNDAMENTAL CONCEPTS IN FINANCE FOR FINANCING GROWTH AND ITS RELATION TO CAPITAL STRUCTURE OF FIRMS

Before discussing what type of financial instruments available to hotel investors and developers, we will discuss the following important fundamental concepts in Finance.

A. Equity Valuation of Firms:

This is an excellent starting point to understand how shareholders' wealth is determined.

Dividend Discount Model *(Please refer to Power Point Slide 3)*

The theoretical basis of equity analysis is the Dividend Discount Model (DDM). Consequently, you should thoroughly understand how this model works, its strengths and its weaknesses. The model is:

$$P = D1 / (k - g) \tag{1}$$

Where

P = intrinsic price of the equity

D1 = dividend next period

k = required rate of return

g = growth rate of dividends.

1. Projected dividends (D_1)

D_1 comes from projected earnings for the next period that, in turn, come from projected sales that, in turn, are generated by assets that, in turn, are financed with liabilities and owners equity. Ratio analysis helps in evaluating these interactions.

2. Growth (g)

" g " is an estimate of sustainable growth in dividends in the projected period; it comes from the sustainable growth model:

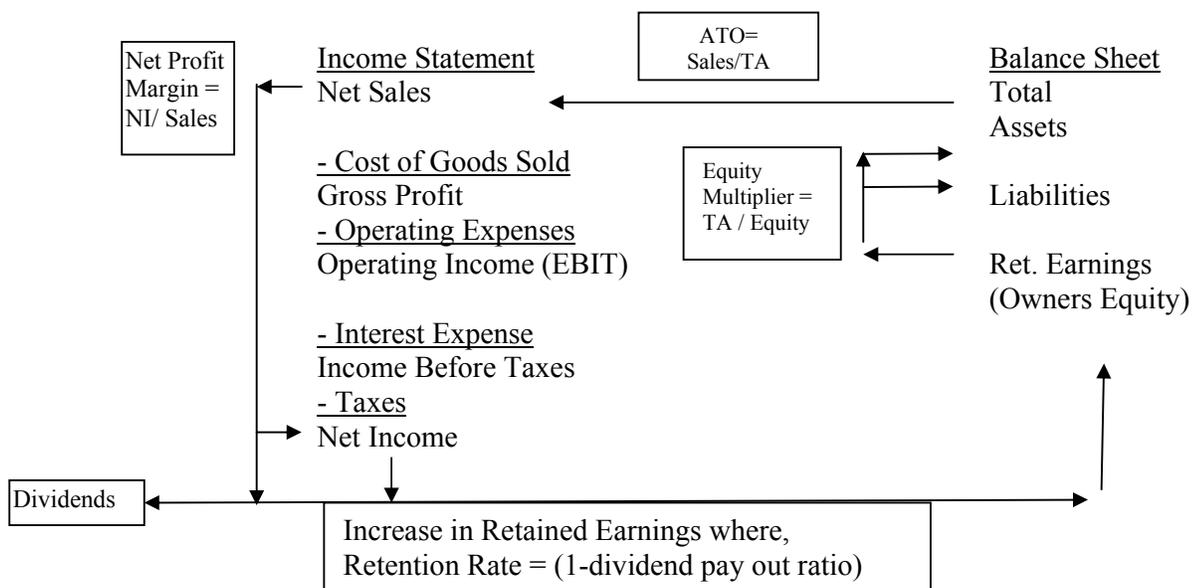
$$g = \text{ROE} \times \text{Rate of Retention} \quad (2)$$

According to this model, the growth rate of dividends also equals the growth rate of sales, the growth rate of assets, the growth rate of retained earnings, and the growth rate of earnings if all the ratios (asset turnover, net profit margin, the rate of retention, the payout ratio, and the debt/equity ratio) remain constant in the projected period. This is why g is referred to as "sustainable." If any of these ratios change, g will likewise change. Sustainable growth is an estimate or a projection of future growth. This does not mean that sustainable growth will equal actual growth. It may or may not, again depending on whether the ratios remain constant. In other words, the estimate of sustainable growth is only as good as the assumptions that all the ratios, which show the income statement and balance sheet interrelationships, will remain constant. If you believe that these interrelationships will change, you would adjust your estimate of g accordingly (*Please refer to Power Point slide 5*).

3. Required return on equity (k_e)

k_e usually comes from the Capital Asset Pricing Model (CAPM). If you are using cash flows available to equity holders, then you must use of the required rate of return to the equity holders. In our presentation we will analyze the how Debt to Equity (Debt/Equity) choice in the capital structure would affect the cost of capital (k), that in turn, affects the value of equity (P)

Let's now take a closer look at where each of the 3 variables on the right-hand side of the equation (2). Be sure to recognize the interaction between the income statement and the balance sheet. The key is retained earnings, which acts as a cumulative scoreboard for the success of the firm since day 1. To keep things as simple as possible, let's assume that retained earnings represent all of the owners equity is accounted for by retained earnings. To see how the firm generates income to pay dividends, we need to understand the interaction of the firm's 2 financial statements: the balance sheet and the income statement. Let's begin with Total Assets on the balance sheet and trace through the process of how the firm uses assets to generate income, earnings, dividends and retained earnings (*Please refer to Power Point slide #6*).



NI: Net Income

TA: Total Assets

Dividend payout ratio = Dividends/NI

t = 0 (current time period)

1. Assets = \$1 million

2. Net Sales = \$1 million
3. Net Profit Margin (NPM) = 10%
4. Payout Ratio (PO) = 50%
5. Equity Multiplier = 2, or Debt/Equity Ratio (D/E) = 1
6. Asset Turnover (ATO) = 1

If the Equity Multiplier = 2, we know that TA = 2 and Equity = 1. Because of this, we further know that Debt (D) must equal 1. Thus, the D/E ratio must equal 1. The firm's balance sheet and income statement appear as follows (*Please refer to Power Point slide #7*):

<u>Income Statement</u>		<u>Balance Sheet</u>	
Net Sales	\$1,000,000	Total Assets	\$1,000,000
		Liabilities	\$500,000
Net Income	\$100,000	Owners Equity	
		Retain. Earnings	\$500,000

At the beginning of $t = 0$, the firm has Total Assets of \$1 million financed with \$500k debt and \$500k equity. At the end of the period, the firm has generated Net Sales of \$1 million and Net Income of \$100,000, which is then divided between dividends of \$50,000 (Payout Ratio = 50%) and Retained Earnings of \$50,000 (Retention Ratio = 1 - Payout Ratio). Because the firm generates \$1 million sales from \$1 million worth of assets, its Asset Turnover (ATO) ratio is 1 (assuming ATO is calculated using ending sales and beginning assets). Note that ATO is a measure of efficiency. More sales generated from the same level of assets means greater efficiency. Another factor affecting ATO is the possibility that the firm has control over the pricing of its products. If this is the case, the firm can raise prices without increasing efficiency and, thus, raise its ATO.

Retaining \$50,000, money that belongs to the stockholders, allows the firm to borrow another \$50,000 since we have assumed a constant D/E ratio of 1:1. Consequently, the firm now has a total of another \$100,000 with which to buy more assets. At the end of period ($t = 0$), total liabilities and equity equals \$1,100,000 and total assets equal the same \$1,100,000 since the ATO equals 1. After that, the process begins again.

In review. Assets generate sales, sales generate net income, net income generates incremental retained earnings, greater retained earnings allows greater borrowing capacity (assuming a constant D/E ratio), greater debt combined with greater equity allows purchase of more assets, greater assets generate greater sales, and so forth. From this model, you can see how the firm grows--again, the key is retained earnings and the assumption is no new external equity financing.

Now, at time (t = 1), assuming constant relationships between the income statement and the balance sheet, we can calculate growth.

t = 1 (next time period) (Please refer to Power Point slide #8):

1. Net Sales = \$1.1 million (the firm now has \$1.1 million assets since we have assumed a constant ATO)
2. Net Profit Margin (NPM) = 10%, which leads to Net Income of \$110,000
3. Payout Ratio (PO) = 50%, which allows payout of dividends of \$55k and an increase in retained earnings of another \$55k totaling \$550,000
4. Equity Multiplier = 2, or Debt/Equity Ratio (D/E) = 1, which allows debt to increase to \$550,000 and total asset to \$1.1 million
5. Again, the Asset Turnover (ATO) = 1

<u>Income Statement</u>		<u>Balance Sheet</u>	
Net Sales	\$1,100,000	Total Assets	\$1,100,000
		Liabilities	\$550,000
Net Income	\$110,000	Owners Equity (Retained Earnings)	\$550,000

If you continue this process to t = 2, you will have net sales of \$1.21 million, net income of \$121k, retained earnings of \$605k, debt of \$605k, and total assets of \$1.21 million.

Question: What is the growth rate of this firm?

Answer: 10%

Between $t = 0$ and $t = 1$, for example, sales grew from \$1 million to \$1.1 million (growth = 10%), net income grew from \$100k to \$110k (growth = 10%), total assets grew from \$1 million to \$1.1 million (growth = 10%), debt grew from \$500k to \$550k (growth = 10%), retained earnings grew from \$500 to \$550 (growth = 10%), and dividends grew from \$50k to \$55k (growth = 10%). This firm can, therefore, sustain a growth rate in dividends of 10% as long as all of the income statement and balance sheet relationships remain constant (*Please refer to Power Point slide #9*):

	t = 0	t = 1	Growth Rate
Sales	\$1 million	\$1.1 million	10%
Net Income	\$100k	\$110k	10%
Total Assets	\$1 million	\$1.1 million	10%
Liabilities	\$500k	\$550k	10%
Owners Equity (R.E.)	\$500k	\$550k	10%
Dividends	\$50k	\$55k	10%

Now instead of going to all of this trouble in calculating g , we have a much easier method that is based on the rate of retention and the return on equity. Specifically,

$$g = \text{ROE} \times \text{rate of retention}$$

where $\text{ROE} = \text{net income} / \text{equity}$

The above equation is much easier to work with than tracing through all the relationships between the income statement and the balance sheet. The result, however, is the same. Remember that when working with the Dividend Discount Model, you are interested in projecting growth of dividends. It just so happens that growth analysis using the sustainable growth model leads to the assumption of constant growth for sales, net income, total assets, net income and equity (book value) in addition to allowing us to calculate the growth of dividends. The reason this happens is due to the assumption that balance sheet and income statement relationships remain constant.

Let's assume that management changes the debt/equity ratio in (t=1) from 1:1 to 2:1-- meaning the equity multiplier equals 3:1--but keep everything else the same. To get the ball rolling, let's keep the analysis for (t=0) the same also. At (t=1), after paying dividends of \$50k and retaining \$50k of the \$100k net income earned at (t=0), equity will equal \$550k, debt will equal \$1,100k, and total assets will equal \$1,650k. If the ATO remains constant at 1, sales at (t=1) will equal \$1,650k and net income will equal \$165k at a net profit margin of 10%. At a payout ratio of 50%, the firm will pay dividends of \$82.5k and the process begins again for (t=2). Let's stop here and look at the growth rates as illustrated in the following table (*Please refer to Power Point slide #10*).

	t = 0	t = 1	Growth Rate
Sales	\$1 million	\$1.650 million	65%
Net Income	\$100k	\$165k	65%
Total Assets	\$1 million	\$1.650 million	65%
Liabilities	\$500k	\$1,100k	120%
Owners Equity (R.E.)	\$500k	\$550k	10%
Dividends	\$50k	\$82.5k	65%

In this example, management's decision to change the firm's capital structure (liabilities grow by 100%) leads to sales, net income, total assets and dividends all growing by 65% while equity and debt grow by 10% and 120%, respectively. Practically, the assumption of unequal growth rates is not unusual. Quite the contrary, it would be highly unusual for an analyst to expect equal growth rates across the board. The example shows that if any of the financial relationships change from (t=0) to (t=1), the estimate of sustainable growth in (t=0) will not materialize in (t=1). In this case, the sustainable growth rate estimate in (t=0) of 10% growth in dividends did not actually occur in (t=1). In fact, dividends grew by 65% in (t=1) due to the change in the firm's capital structure--it borrowed more money.

This brings us to another question, which is: How can the firm change growth in the future? A quick look at growth equation shows that the firm can change “g” by either changing ROE or by changing the rate of retention. Careful: Changing g does not necessarily mean changing the intrinsic price of the stock, P. Why? Because the interrelationships among all 3 variables on the right hand side of equation (1) cause unknown effects on P. So before we look more closely at ROE and ways we can change it, let’s examine these interrelationships.

Interrelationships

If we assume no interrelationships, an increase in any one of the 3 variables on the right hand side of equation (1) would have the following impact on P (*Please refer to Power Point slide #11*):

Firm Policy	Impact on P (ceteris paribus)
Increase Dividends	Increase P
Increase growth	Increase P
Increase k	Decrease P

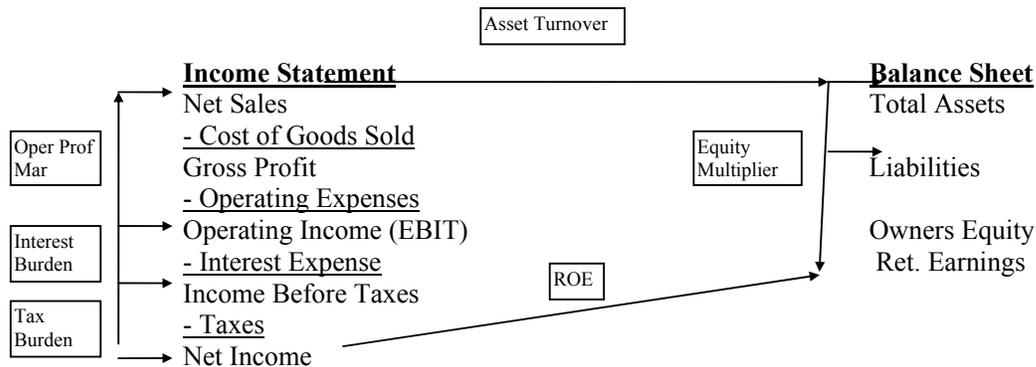
Unfortunately, the assumption of no interrelationships, where each of the 3 variables acts independently of the other variables, is not realistic. For example, an increase in dividends causes a decrease in g, that leads to a decrease in k. The net effect of these interactions is often impossible to determine. This means that all you can do is make your best guess as to what impact a change in one of the 3 variables on the right hand side of the equality sign in the DDM will have on P.

Now, let's look more closely at ROE and its components to see how management can impact growth. By definition,

ROE = Net Income / Equity (*Please refer to Power Point slide #12*)

Alternatively, you can decompose ROE into several components--usually either 3 or 5 components--that, when multiplying all the components together, the produce equals

ROE. An easy way to think about this decomposition model (without relying on memory) is to visualize the income statement and balance sheet side-by-side. Begin with net income and work your way up the income statement to net sales, leap over to total assets on the balance sheet, and finally bounce down to equity as follows (*Please refer to Power Point slide #13*):



This layout allows you to see the components more clearly.

$$ROE = (\text{Net Income} / \text{Income Before Taxes}) \times (\text{Income Before Taxes} / \text{Operating Income}) \times (\text{Operating Income} / \text{Net Sales}) \times (\text{Net Sales} / \text{Total Assets}) \times (\text{Total Assets} / \text{Equity})$$

(Please refer to Power Point slide #14)

Where:

$$\text{Net Income} / \text{Income Before Taxes} = \text{Tax Burden}$$

$$\text{Income Before Taxes} / \text{Operating Income} = \text{Interest Burden}$$

$$\text{Operating Income} / \text{Net Sales} = \text{Operating Profit Margin (OPM)}$$

$$\text{Net Sales} / \text{Total Assets} = \text{Asset Turnover (ATO)}$$

$$\text{Total Assets} / \text{Equity} = \text{Equity Multiplier}$$

Tax Burden. You will note that as taxes increase, the Tax burden becomes smaller (the ratio Net Income / Income Before Taxes approaches zero); and that as taxes

decrease, the Tax Burden become larger (the ratio $\text{Net Income} / \text{Income Before Taxes}$ approaches one).

The same thing happens with the Interest burden. That is, when interest increases, the Interest Burden becomes smaller (the ratio $\text{Income Before Taxes} / \text{Operating Income}$ approaches zero); and when interest decreases, the Interest Burden becomes larger (the ratio $\text{Net Income} / \text{Income Before Taxes}$ approaches one). In other words, a Tax Burden ratio of 1 would indicate that the firm is paying no taxes. Question: Could the Tax Burden ratio be greater than 1? Yes, it could if the firm has tax losses from a prior year that result in a tax refund. It could also be negative if the firm has negative net income and positive Income Before Taxes.

Interest Burden. This model also allows you to see the impact on the income statement from increasing debt in the capital structure of the firm (right hand side of the balance sheet). You may think that increasing debt would lead to a greater interest expense that, in turn, would decrease the Interest Burden (the ratio approaches zero as the interest expense increases). This may or may not happen because interest rates in the economy may be decreasing at the same time the firm is increasing debt. The combination of more debt and lower interest rates could lead to a decline in the Interest expense on the income statement that, in turn, increases the Interest Burden (the ratio approaches 1). My point is that the interest rate the firm pays determines the interest expense on the income statement, and that this rate can be volatile due to market forces. Thus, you cannot say with certainty that increasing debt leads to an increase in the interest expense unless you know more about the direction of interest rates in the overall economy.

Moreover, when a firm increases debt (leverage), the interest rate it must pay depends on the maturity of the debt security it uses. For example, if the firm employs a large amount of short-term debt, whose rates are very volatile, the interest burden could decrease significantly as the firm rolls over maturing debt into new, higher interest rate debt. Alternatively, if the firm employs a large amount of long-term debt, whose rates are not very volatile, the interest burden may not change much at all as the firm increases leverage. An economist would say that the yield curve is sticky on the long end, meaning that short-term rates are more volatile than long-term rates. Remember

the matching principle: *finance short-term assets with short-term debt securities, and long-term assets with long-term debt securities*. By not following the matching principle (i.e., financing long-term assets with short-term debt), the firm exposes itself to the risk that short-term interest rates may increase just as the firm rolls over the short-term debt. This is reinvestment risk. My point is that you cannot determine the impact of increasing debt (balance sheet item) on the firm's interest expense (income statement item) unless you know more about the maturity structure of the debt instruments as well as the direction of interest rates in the economy.

Operating Profit Margin. At first blush, you would think that an increasing OPM is the result of cost containment, which is an example of greater efficiency. This may be true, but it does not tell the whole story. An increasing OPM could come from the firm's ability to raise the price of its product quicker than costs are going up. This ability, in turn, is impacted by competitive forces within the industry. If, for example, the firm is in the early stages of growth (Stage I), the firm may be relatively free in setting prices due to the lack of competition. In the mature stage of growth (Stage III), competition has increased meaning that the firm is now facing thin profit margins and is not free in setting prices. My point here is that an increasing OPM may come from either greater efficiency generated from cost containment, or it could come from the firm being a leader in the industry with the ability to set prices, at least in the short run. Over the longer term as the industry matures, that pricing ability may slip as the industry becomes more competitive.

Equity Multiplier. In addition to the interaction between leverage (balance sheet item) and interest expense (income statement item) discussed above, an important factor affecting ROE is the impact of the Equity Multiplier. The key issue is whether the firm can generate a return on the borrowed money greater than the interest rate it must pay. A common sense approach to this concept leads to the conclusion that the firm must earn a before-tax return on the assets it purchases with the borrowed money greater than the after-tax rate it pays for the money. Using more specific finance terms, the After-tax Return on Assets, ROA_{at} , must exceed the interest rate the firm pays its creditors after adjusting for taxes. The equation is: *(Please refer to Power Point slide #15)*

$$ROA_{at} > i (1 - t)$$

where: $ROA_{at} = \text{Operating Income} (1 - \text{tax rate}) / \text{Total Assets}$

i = the interest rate on borrowed money

t = the firm's tax rate

Example. It is easier to see this relationship if you think of a new firm ($t = 0$). Assume a firm purchases \$100 worth of assets by borrowing \$50 (debt) and having the stockholders invest \$50 (equity). If the firm generates Operating Income of \$10 and is in the 40% tax bracket, it has after-tax operating income of \$6 on a \$100 investment, for an ROA_{at} of 6%. In this case, the interest rate after taxes is also 6% [$10\% \times (1 - .4)$] with the income statement and balance sheet appearing as follows:

Example A. With leverage where $ROA_{at} = i (1 - t)$: (Please refer to Power Point slide #16)

<u>Income Statement</u>		<u>Balance Sheet</u>	
Operating Income	\$10	Total Assets	\$100
- Interest (\$50 x 10%)	-\$5		
Income Before Taxes	\$5	Liabilities	\$50
- Taxes (@ 40%)	-\$2		
Net Income	\$3	Owners Equity	\$50

After-tax interest rate = $10\% (1 - .4) = 6\%$

and,

$$ROA_{at} = \$10 (1 - .4) / \$100 = 6\%$$

Since ROA_{AT} equals the after-tax interest rate, the use of leverage does not impact ROE one way or the other. We can see this by observing ROE in Example A is

$$ROE = \$3 / \$50 = 6\%$$

If we had not used any leverage, the income and balance sheet would appear as follows:

Example B. Without leverage where $ROA_{at} = i \times (1 - t)$: (Please refer to Power Point slide #17)

<u>Income Statement</u>		<u>Balance Sheet</u>	
Operating Income	\$10	Total Assets	\$100
- Interest (\$50 x 10%)	<u>-\$0</u>		
Income Before Taxes	\$10	Liabilities	\$0
- Taxes (@ 40%)	<u>-\$4</u>		
Net Income	\$6	Owners Equity	\$100

$$ROE = \$6 / \$100 = 6\%$$

which is the same as with leverage. My point is that unless ROA_{AT} exceeds the after-tax cost of debt, the use of leverage will not increase ROE and, thus, will not increase growth.

One final example: let's see what happens if ROA_{AT} does exceed the after-tax interest rate as follows:

Example C. With leverage $ROA_{at} > i \times (1 - t)$: (Please refer to Power Point slide #18)

<u>Income Statement</u>		<u>Balance Sheet</u>	
Operating Income	\$15	Total Assets	\$100
- Interest (\$50 x 10%)	-\$5		
Income Before Taxes	\$10	Liabilities	\$50
- Taxes (@ 40%)	-\$4		
Net Income	\$6	Owners Equity	\$50

After-tax interest rate = $10\% (1 - .4) = 6\%$

and,

$$ROA_{at} = \$15 (1 - .4) / \$100$$

$$= 9\%$$

Now,

$$ROE = \$6 / \$50$$

$$= 12\%$$

Our conclusion (Please refer to Power Point slide #19) is that the **use of leverage increases ROE** that, in turn, increases “g” (assuming a constant retention rate) as long as the after-tax return on assets exceeds the after-tax interest rate. If , ROA_{at} is less than the after-tax interest rate, ROE would decline and this would negatively impact growth.

B. Capital Restructuring

1. Modigliani and Miller (M&M) Theory (Please refer to Power Point Slide #20)

M&M theory questions a firm's capital structure and how a change of the capital structure of the firm would affect the value of shareholders' wealth.

For example, if the firm pays out the \$1 million as dividends, then it must borrow \$1 million in order to finance the purchase the asset. If, on the other hand, the firm retains the entire \$1 million then it would be able to purchase the assets with equity since retained earnings belong to the stockholders. A third alternative is for the firm to use some combination of equity (retaining earnings) and borrowing.

This restructuring will change the capital structure of the firm with no direct effect on the firm's assets. The immediate effect will be to increase debt and decrease equity. However, what will be the final impact of the restructuring?

- i. According to M&M's theory (**no taxes are assumed**), the value of the firm is unaffected. If the firm uses debt, which is cheaper than equity due to less risk (priority of claims on assets of firm) and the tax deductibility of interest, risk to the stockholders increases causing the cost of equity to rise such that offset the benefits of the cheaper debt. Thus, the weighted average cost of capital stays constant and the value of the firm is unchanged. If the firm uses equity (retained earning), the stockholders incur an opportunity cost of not receiving dividends, the weighted average cost of capital is again unchanged, and the value of the firm is unchanged. In either case, the firm's weighted average cost of capital and the firm's value remain constant. Now we all know that the assumption of no taxes is unrealistic
- ii. M&M further developed their theory of capital structure (**with taxes**), and conclude that the capital structure is important due to the tax deductibility of interest. In fact, M&M go to the other direction from proposition I and say that the

firm should use all debt, or as much debt as possible. Because we can easily see that this conclusion is also unrealistic, why is the M&M theory so important?

- iii. The reason is that it allows us to focus on what the theory ignores--that of **bankruptcy costs**. As the firm uses more and more debt, it increases the chances of bankruptcy. At some point, the chance of bankruptcy and the associated costs (legal and administrative costs, impaired ability to conduct business, and agency costs) offset the benefits of the cheaper debt. When the costs just equal the benefits, the firm is at its optimal capital structure.

Summary of theories of capital structure:

1. M&M (**with NO taxes**) --no optimal capital structure
 - Proposition I--value of firm is independent of capital structure, and the firm's weighted average cost of capital is constant.
 - Proposition II--the cost of equity rises as the firm increases its use of debt
 2. M&M (with taxes)--the firm's optimal capital structure is 100% debt
 - Proposition I--debt financing is highly advantageous due to the tax shield of interest, and the firm's weighted average cost of capital consistently decreases as the firm relies more heavily on debt
 - Proposition II--the cost of equity as the firm relies more heavily on debt (same as Proposition II without taxes).
- iv. Bankruptcy Theory--the firm's optimal capital structure is between 0% debt and 100% debt. The optimal capital structure is where the cost of bankruptcy, which increases with the greater use of debt, equals the benefits of using lower cost debt (think of this as the economic concept of marginal cost equaling marginal revenue).

C. Weighted Average Cost of Capital (WACC)

WACC is the cost of capital for the firm as a whole, and it can be interpreted as the required return on the overall firm. Firms normally raise capital in a variety of ways that have different costs associated with each. Taxes are also important consideration in determining the required rate of return on an investment, which should be at least equal to WACC. When we are finding the value of a firm, we are interested in after tax cash flows. Required return, discount rate and cost of capital are used more or less interchangeably. The key factor to grasp is that the cost of capital associated with an investment depends on the risk of that investment.

WACC calculation can be written as follows (*Please refer to Power Point Slide #21*):

$$\text{WACC} = (E/V) \times R_E + (D/V) \times R_D \times (1-T)$$

E: Market Value of the firm's equity

V: Combined market value of the debt and equity

D: Market value of the firm's debt

T: Tax rate

The primary reason for studying the WACC is that the value of the firm is maximized when the WACC is minimized. Since values and discount rates move in opposite directions, minimizing the WACC will maximize the present value of the firm's cash flows and value of the firm. Thus, we will want to choose the firm's capital structure so that the WACC is minimized. For this reason we will say that one capital structure is better than another if it results in a lower weighted average cost of capital. Further we say that a particular debt/equity ratio represents the optimal capital structure if it results in the lowest possible WACC (*Please refer to Power Point slide #22 and 23*). This is sometimes called the firm's optimal capital structure. A firm also has a target capital structure (*Please refer to Power Point slide #24 and 25*). The difference between target and optimal capital structure is that target capital structure is short-term changes of a firm's capital structure, which will help firm to achieve its long-term objective of operating in with an optimal capital structure.

The following example illustrates how use of long-term debt in the capital structure affects the cost of capital.

Example (Please refer to Power Point slide #26).¹:

Total Market value of Long Term Debt and Equity Capital = \$670

Market value of Equity = \$170

Long-term Debt= \$500

Cost of Equity (required return by Equity Investor) = 39.4%

Cost of Debt (required return by Debt provider) = 10%

Corporate Tax rate = 34%

Scenario 1: If the company's capital structure is financed by 100% equity, then

Cost of Capital (WACC) = 39.4%

Scenario 2: If the company's capital structure is financed by both Long-term debt and Equity as given above, then the cost of capital will be calculated as follows:

$$\text{WACC} = (\$170/670) \times 39.4\% + (\$500/670) \times 10\% \times (1-34\%)$$

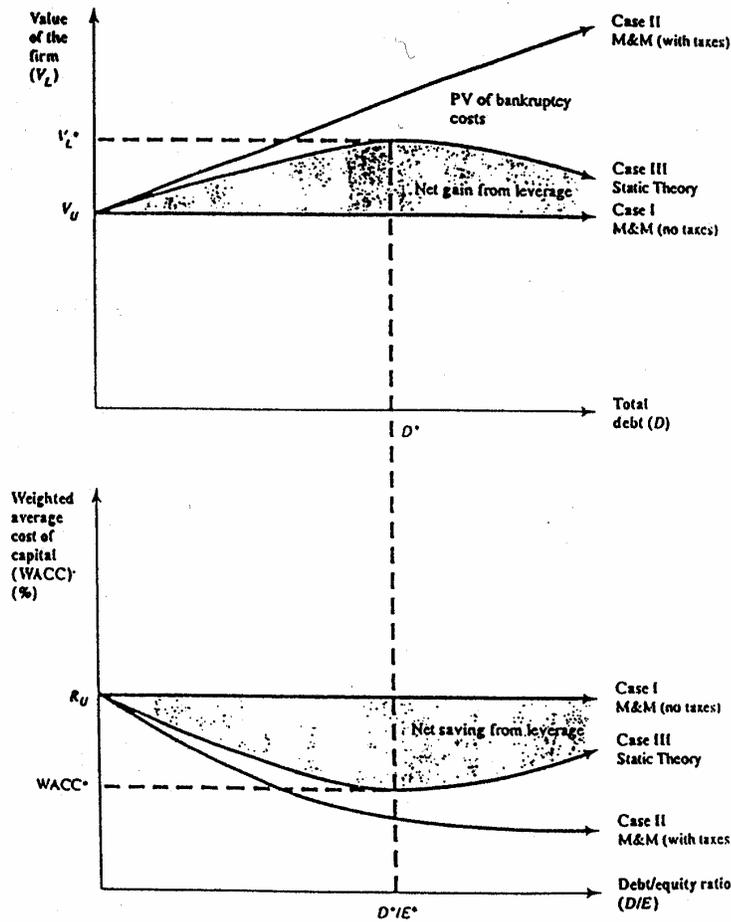
$$\text{WACC} = 14.92\%$$

As it is shown above, including long term-debt in the capital structure will lower the cost of capital and enhance the return on equity. Thus, management should issue long-term bonds.

¹ Fundamental's of Corporate Finance, P. 519, S. A. Ross, R. W. Westerfield, B. D. Jordan, Second Edition, 1993

The following figure illustrates the affect of the choice of capital structure on the value of the firm. (Please refer to Power Point Slide #27):

FIGURE 15.8 | The capital structure question



Case I
With no taxes or bankruptcy costs, the value of the firm and its weighted average cost of capital are not affected by capital structures.

Case II
With corporate taxes and no bankruptcy costs, the value of the firm increases and the weighted average cost of capital decreases as the amount of debt goes up.

Case III
With corporate taxes and bankruptcy costs, the value of the firm V_L^* reaches a maximum at D^* , the optimal amount of borrowing. At the same time, the weighted average cost of capital, $WACC^*$, is minimized at D^*/E^* .

HOTEL MANAGEMENT'S CAPITAL STRUCTURE CHOICE

While a straight refinance or acquisition financing is challenging, trying to finance a new hotel construction might also be very difficult. With the precipitous drop in hotel revenues due to regional political instability and the reality of slower growth numbers facing the industry for the immediate future, the task of projecting revenues and expenses when seeking a construction loan has become more challenging.

Over the past 20 years, the timely introduction of creative financing vehicles has greatly enhanced the hospitality industry's growth needs in the US. Whether these tax-driven limited partnership structures, tapping the public equity markets with a REIT, or introducing large amounts of market liquidity through the Collateralized Mortgage Backed Securities (CMBS) program, the entire market has become accustomed to such capital market creativity.²

In Jordan capital markets are not so well developed. Capital being managed by the country's leading private banks, money managers and other fiduciaries on behalf of individuals, pension accounts and non-profit entities represent an emerging potential source of funds for the hospitality industry. *(Please refer to Power Point Slide #28):* The challenge is to get the money from those who have it to those who need it. To meet this challenge, we first need to understand the advantage and disadvantage of the various methods of financing growth. Let's look closer:

A. Equity Financing.

An investor can fully fund an investment with either

1. Using personal funds

Advantages of using equity markets are as follows *(Please refer to Power Point Slide #29 to 32):*

- a. Shareholders and managers are not at risk of being forced to bankruptcy by outside lenders
- b. If the economy slows down, losses are not magnified by interest payment obligations as in debt financing
- c. Since there is no outside lender, there is no one else but shareholders have priority of claims on assets.

2. Raising money in equity capital market such as Initial Public Offering (IPO)
Advantages of selling stock in equity markets are as follows (Please refer to Power Point Slide #33 to 36)³:
 - a. The existence of a market-determined price would make it easier for the present stockholders to borrow money, using their shares in the firm as collateral;
 - b. The existence of a public market would make it possible for current shareholders to sell some of their shares on the market if they need cash for any reason;
 - c. Having the stock publicly traded would make executive stock option plans more attractive to key employees of the company
 - d. Establishing a market price for the shares would simplify problems of estate tax valuations in the event of the death of one of the current stockholders; and
 - e. Selling stock to the public at the present time would facilitate acquiring additional equity capital in the future.

However, the return requirement of the equity investors is higher than that of the debt providers, which means that 100 percent equity financing is inefficient and results in higher cost of capital. Therefore, managers should seek some other alternatives to lower the cost of capital and enhance shareholders' wealth. The most popular alternative to equity capital is debt financing. That way, firms can lower their cost of capital by using cheaper debt to replace some of the equity capital up to the point the firm's capital structure approximates an optimal capital structure.

B. Short-Term Loans

Managers can choose to finance part or all of their hotel investments with short-term bank loans. (Please refer to Power Point Slide #33 to 36). However, financing a long-term project with a short-term loan is a form of asset/liability-mismatch (Please refer to Power Point Slide #41 to 44). Short-term borrowing to finance a long-term

² The Global Hotel Network® Report, 2002 Global Hospitality Resources, Inc., San Diego, CA USA

³ Cases in Financial Management, Eugene F. Brigham, Louis C. Gapenski, 1994

asset inherently has reinvestment risk, which is the change in the interest rate charged on the short-term loans borrowed when the loan rolls over to new term.

Financial institutions like banks that want to expand credit to difficult borrowers usually do so by borrowing short-term and lend short-term. Such a short-term lending and borrowing practice may result in increased cost of capital for borrowers due to change in interest rates when the loan rolls over to new period. This is called reinvestment risk.

C. Long Term Borrowing- Issuing Long Maturity Bonds

The goal of the management is to maximize the shareholders' wealth. Increased long-term debt up to the optimal capital structure lowers a firm's cost of capital and increases the return on equity because after tax cost of debt is cheaper than the cost of equity. Using long-term debt in the capital structure magnifies the ROE when the economy is booming. On the other hand, if the economy is in recession, debt will shrink ROE due to interest payment obligations (*Please refer to Power Point Slide #44 to 48*).

How much long-term debt in the capital structure is good?

Earlier we showed that M&M theory argues that the firm's value rises with leverage in the presence of corporate taxes. M&M theory is true up to the point firm reaches the optimal capital structure. Because at some point, the cost of debt begins to rise and the fact that debt is cheaper than equity is more than offset by the financial distress costs.

As the debt goes beyond the optimal level, which can be determined by lowest cost of capital level obtained by the firm, bankruptcy claims increase due to increased risk and increased return requirement by debt providers.

The following example illustrates how financial leverage affects a firm's Earning Per Share and Return on Equity⁴:

⁴ Fundamental's of corporate Finance, P. 519, S. A. Ross, R. W. Westerfield, B. D. Jordan, Second Edition, 1993

The Trans Am Corporation currently has no debt in its capital structure. The CFO is considering a restructuring that would involve issuing debt and using the proceeds to buy back some of the outstanding equity.

The following table presents both the current and proposed capital structure (*Please refer to Power Point Slide #49*):

	Current	Proposed
Assets	\$8,000,000	\$8,000,000
Debt	\$.....0	\$4,000,000
Equity	\$8,000,000	\$4,000,000
Debt/Equity Ratio	\$.....0	1
Share price	\$20	\$20
Shares Outstanding	400,000	200,000
Interest Rate	10%	10%

The proposed debt issue will raise \$4 million; the interest rate would be 10 percent. Since the stock sells for \$20 per share, the \$4 million in new debt would be used to repurchase $\$4 \text{ million} / \$20 = 200,000$ shares, leaving 200,000 shares outstanding. After restructuring, Trans Am would have a capital structure that is 50 percent debt and 50 percent equity, so the debt/equity ratio would be 1.

The impact of the proposed restructuring is illustrated in the following tables (**taxes ignored**) (*Please refer to Power Point Slide #50 and #51*):

Current capital Structure: No debt			
	Recession	Expected	Expansion
EBIT	\$500,000	\$1,000,000	\$1,500,000
Interest	0	0	0
Net Income	\$500,000	\$1,000,000	\$1,500,000
ROE	6.25%	12.50%	18.75%
EPS	\$1.25	\$2.50	\$3.75

$E(\text{ROE})=12.50\%$

$E(\text{EPS})=\$2.50$

Proposed Capital Structure: \$4 million			
	Recession	Expected	Expansion
EBIT	\$500,000	\$1,000,000	\$1,500,000
Interest	400,000	400,000	400,000
Net Income	\$100,000	\$600,000	\$1,100,000
ROE	2.50%	15.00%	27.50%
EPS	\$.50	\$3.00	\$5.50

$E(\text{ROE})=150\%$

$E(\text{EPS})=\$3.00$

In this example, both expected ROE and EPS are higher under the proposed restructuring plan. As a consequence, the use of debt would allow Trans Am to grow at a higher rate. But because the risk is also higher due to increased variability in both ROE and EPS, the impact on stockholders' value is unknown. The question is whether the higher risk offsets the benefits of higher expected ROE and EPS. To evaluate this equation, we would have to search back through the dividend discount model.

A REAL LIFE EXAMPLE OF SUSTAINABLE GROWTH

For this purpose, we used actual 1998 financial statements of Hotel- A Investment Company ("Hotel -A"), a Jordanian hotel company. The actual historical 1998 and 1999 financial statements can be seen in Appendix-**Exhibit I and II**. In order to calculate sustainable growth, we decompose the 1998 Return on Equity (ROE) of Hotel-A. The result is as follows:

Sustainable Growth Calculation			
Hotel-A Investment Company			
	1998	1999	1999
	Actual	Actual	Projected
Tax Burden	56.92%	101.83%	56.92%
x Interest Burden	37.09%	-819.74%	37.09%
x Operating Profit Margin	15.47%	5.99%	15.47%
x Asset Turnover	0.10	0.09	0.10
x Financial Leverage	1.89	2.04	1.89
= ROE	0.65%	-9.35%	0.65%
x Retention Rate (1-Pay Out)	0.091	NMF	0.091
= Sustainable Growth	0.059%	NMF	0.059%

(Please refer to Power Point slide # 52)

Once we calculated sustainable growth rate based on the 1998 financial statements, we projected financial statements of Hotel-A according to sustainable growth rate. Please See Table III and IV. Thus, the ROE and sustainable growth rate in projected financial statements for 1999 is similar to 1998 actual numbers. Then we calculated the components of the ROE from actual 1999 financial statements. We discuss the discrepancies between actual and projected ROE and Sustainable growth rate in 1999 as follows:

1. Return on Equity (ROE): Actual ROE was -9.35% in 1999, where as projected ROE for the same period is 0.65%. The reasons of the difference between actual and projected ROE can be explained by looking at the components of ROE.
2. Operating Margin: Actual operating margin in 1999 was 5.99% where as projected operating margin in 1999 is 15.47%. This low operating margin in 1999 shows that Hotel-A's operating expenses grew faster than that of sales. This lowered the operating margin in 1999.
3. Interest Burden: Actual interest burden in 1999 was -819.74% whereas projected interest burden for the same period is 37.09%. This negative interest burden in 1999 indicates that Hotel's interest bearing debt increased significantly and Hotel-A could not generate enough operating profit to cover the interest payments.

4. Tax Burden: Actual tax burden in 1999 was 101.83% whereas projected tax burden is 56.92%. Actual tax burden is higher than 100% in 1999. This is because Hotel-A has a negative pretax income and this increases the tax burden.
5. Asset Turnover: This ratio shows that how efficiently management utilized its assets to generate sales. Actual Asset Turnover in 1999 was 0.09x where as projected Asset Turnover is 0.10x. This shows that actual Asset Turnover is not that far off from the projected asset turnover. This is because Hotel-A utilized its assets efficiently to generate relatively similar amounts of revenues in both years. This also indicates that the problem with lower ROE in 1999 is not because of inefficient utilization of assets but higher operating expenses and debt with high interest rate in the capital structure are major contributors to weak ROE in 1999.

Next, we analyzed the Return on Assets (ROA) and Interest Rate paid on the funds to see if Hotel-A was able to generate higher ROA to cover its interest payments. This can be seen in the following table

	1998	1999
	<u>Actual</u>	<u>Actual</u>
ROA (after Tax)	0.92%	0.56%
Interest rate (after Tax)	1.03%	6.38%

(Please refer to Power Point slide # 53)

In 1998, Hotel-A's after tax ROA of 0.92% was slightly below its interest rate of 1.03% on debt. This had a slight negative affect on the ROE in 1998. However, Hotel-A increased its debt more in 1999. Hotel-A' after tax ROA went down due to lower operating profit margin and after tax interest rate paid on assets increased significantly to 6.38% in 1999. Because Hotel-A could not generate enough operating income to cover its interest payments, high interest rate reduced its ROE significantly and generated negative actual growth in 1999 instead of achieving sustainable growth.

Options available for Hotel-A to achieve its sustainable growth

1. Lower its interest rate on short term loans by issuing longer term notes than what they have currently in their capital structure
2. Replacing debt with equity capital by increasing their equity capital by going IPO

COMPARING INTERNATIONAL HOTEL INDUSTRY'S CAPITAL STRUCTURE TO AIRLINE INDUSTRY (*Please refer to Power Point slide # 54 and #55*)

1. **Airlines:** Airlines often use lease and hire purchase financing as an alternative to the outright purchase or debt financing of assets, ranging from major pieces of machinery or equipment to small office products such as computers and photocopiers. Leasing provides certain advantages over traditional financing sources for Airline companies such as borrowing, the primary benefits being:
 - A lease will provide '100 per cent financing' of the cost of the asset, whereas a bank or finance company may not be prepared to lend the full purchase price of the asset or may require significant guarantees or security to be provided to support such financing. This difference reflects the fact that a lessor has the security of legal ownership of the leased asset and is, therefore, in a better position than a secured lender in the event of default.
 - The full purchase price of the asset is not required up-front, and cash flows generated from use of the asset can be used to meet the required lease payments.
 - Lease agreements for major assets often include maintenance clauses, where ongoing maintenance work or required repairs on the asset are the responsibility of the owner of the asset (which may also be the manufacturer of the asset).

Leasing is better suited to particular companies and industries whose activities require a significant number of similar assets (such as motor vehicles or computers) or assets that are very expensive and beyond the funding capacity of new or emerging companies. Leasing is also better suited to general use assets with a ready second-hand market rather than to company-specific assets. A predominant user of lease financing are airline companies, who lease many of the planes used within their operations from aircraft manufacturers such as Boeing and Airbus, other airline

companies and through financing and investment companies. Major airlines, lease planes for use from these manufacturing companies, or through complex leverage or cross-border leasing arrangements involving banks, finance companies or superannuation funds.

The use of leasing, and particularly cancelable lease agreements, can provide significant flexibility to businesses, where assets leases can be cancelled if there is a change in strategy or operating capacity of a business. Alternatively a company could use a short-term cancelable lease to meet increased demand for their product or service, such as during seasonal or peak operating periods.

Leasing is not only attractive from the perspective of the leasing company (asset user). There must also be benefits to asset manufacturers or financial institutions to offer leasing as a financing product. From the perspective of aircraft assets, they are durable, long-life and "general use" assets which have an active secondary market. As such, they are assets that will usually be in demand and are easily transferable to other airlines in the case of airline failure or default. This lowers the potential costs of financial distress for the manufacturer or financier and provides very good security. They also provide returns that are at least comparable to traditional loan products and other forms of financing.

2. **Hotel Companies:** When we compare hotel companies to Airline companies, we see that hotel investments are longer term and usually one-time investments. The secondary market for hotels is not readily available as airplanes. Airline industry usually finances its assets with long-term leases which acts like a long-term debt. Manufacturers and financiers of airplanes are usually willing to extend 100% lease financing to airline companies. Conversely, financiers of hotel companies do not provide 100% lease financing, and thus hotel companies uses more traditional financing such as mixture of long-term debt and equity financing.

According to our research of major international hotel holding companies, we obtained the average Debt-to Equity ratios for hotel industry. The average Long-Term Debt to Equity ratio of the chosen international hotel holding companies is 1 times or approximately 100%, which means 50% debt and 50% equity in the

capital structure. We did the same analysis for major international airline companies and found that their Long-term debt to Equity ratio is 2.6 times or 260%, which means 72% debt in the capital structure.

The following table illustrates the summary of our findings (*Please refer to Power Point slide # 56*):

	Major International Airlines	Major International Companies
Long Term Debt / Equity	2.6 times	1.0 times
Long Term Debt / (Long-term Debt +Equity)	72%	50%

INTERMEDIARIES WHO HELPS FIRMS TO ISSUE DEBT

Company management usually seeks help from professionals to restructure issuance of debt. This is mostly conducted through:

- Investment bankers
- Credit rating agencies such as Moodys, Standard & Poors, and Fitch
- Willing and knowledgeable investors can help firm management to structure such instruments.

(Please refer to Power Point slide #57).

APPENDIX – References

1. Fundamentals of Corporate Finance, Ross, Westerfield, Jordan, Second Edition, 1992-1993
2. Corporate Finance, Ross, Westerfield, Jaffe, Third Edition, 1993
3. Bonds and Derivatives, Livingston, 1999
4. Financial Statement Analysis, Fridson, Second Edition, 1995-1996
5. The Hand Book of Fixed Income Securities, Fabozi, Fourth Edition, 1995
6. Bond Markets, Analysis and Strategies, Fabozi, 1989
7. Intermediate Financial Management, Brigham and Gapenski, fourth Edition, 1993
8. Cases in Financial Management, Brigham and Gapenski, 1994
9. Marketguide.com for Financial Data of International Hotel Companies
10. Marketguide.com for Financial Data of International Airline Companies
11. Jordan Ministry of Tourism web site
12. The Global Hotel Network® Report, 2002 Global Hospitality Resources, Inc., San Diego, CA USA
13. Hotel-A Investment Company 1998 and 1999 Audited Financial Statements

APPENDIX – Hotel-A Financial Statements

**Hotel-A Investment
Company
HISTORICAL BALANCE SHEETS**

<u>Assets</u>	<u>1/1/1998</u> (JD)	<u>12/31/1998</u> (JD)	<u>12/31/1999</u> (JD)
Cash & Equivalents	85,505,841	3,989,015	3,540,342
Accounts Receivable		4,683,952	8,621,713
Inventory		609,185	1,323,206
Prepaid Exp. & Other			
Total Current Assets	85,505,841	9,282,152	13,485,261
Property & Equip.		63,345,182	135,161,578
Accumulated Deprec.			
Net Fixed Assets	0	63,345,182	135,161,578
Other Assets		89,445,170	54,132,327
TOTAL ASSETS	85,505,841	162,072,504	202,779,166
<u>Liabilities</u>			
Notes Payable		6,604,980	17,672,365
Accounts Payable		8,693,835	9,224,657
Accrued Exp. & Other		3,061,384	6,933,094
Total Current Liab.	0	18,360,199	33,830,116
Long-Term Debt		52,390,591	63,296,799
Other Liabilities		5,777,567	6,440,547
Total Liabilities	0	76,528,357	103,567,462
<u>Shareholders' Equity</u>			
Common Stock			
Paid-In Capital	85,505,841	84,869,847	106,494,543
Retained Earnings		674,300	(7,282,839)
Total Equity	85,505,841	85,544,147	99,211,704
TOTAL LIAB. & EQUITY	85,505,841	162,072,504	202,779,166

Source of Information

Federal Income Tax Returns
Audited Annual Financial
Statements

**Hotel-A Investment
Company
HISTORICAL INCOME STATEMENTS**

	<u>12/31/1998</u>	<u>12/31/1999</u>
	<u>(JD)</u>	<u>(JD)</u>
Sales	12,943,338	16,683,041
Cost of Sales	-	-
Gross Profit	12,943,338	16,683,041
Op Exp (excl Officer Comp)	8,072,064	11,123,601
Officers Compensation	-	-
Operating Expenses (1)	8,072,064	11,123,601
Depreciation & Amort.	2,869,546	4,559,408
Operating Inc/(Loss)	2,001,728	1,000,032
Other Income/(Expense)		
Interest Income	1,098,786	1,336,105
Interest Expense	(1,069,131)	(5,072,673)
Other	(1,288,866)	(5,461,123)
Total Other Income/(Expense)	(1,259,211)	(9,197,691)
Pre-Tax Income/(Loss)	742,517	(8,197,659)
Income Tax Expense/(Benefit)	319,856	150,427
Net Income/(Loss)	422,661	(8,348,086)
Minority Interest	384,355	390,947
Retained Income/(Loss)	38,306	(8,739,033)

Hotel-A Investment Company
Projected Balance Sheet Using Sustainable Growth Rate

<u>Assets</u>	<u>12/31/1998</u> Actual (JD)	<u>12/31/1999</u> Projected (JD)
Cash & Equivalents	3,989,015	
Accounts Receivable	4,683,952	
Inventory	609,185	
Prepaid Exp. & Other	0	
Total Current Assets	9,282,152	
Property & Equip.	63,345,182	
Accumulated Deprec.	0	
Net Fixed Assets	63,345,182	
Other Assets	89,445,170	
TOTAL ASSETS	162,072,504	162,167,523
 <u>Liabilities</u>		
Notes Payable	6,604,980	
Accounts Payable	8,693,835	
Accrued Exp. & Other	3,061,384	
Total Current Liab.	18,360,199	
Long-Term Debt	52,390,591	
Other Liabilities	5,777,567	
Total Liabilities	76,528,357	76,573,224
 <u>Shareholders' Equity</u>		
Paid-In Capital	84,869,847	84,869,847
Retained Earnings	674,300	724,453
Treasury Stock	0	
Total Equity	85,544,147	85,594,300
TOTAL LIAB. & EQUITY	162,072,504	162,167,523

Hotel-A Investment Company
Projected Income Statement Using Sustainable Growth Rate

	1998 Actual (JD)	1999 Actual (JD)	1999 Projected (JD)
Sales	12,943,338	16,683,041	16,946,225
Cost of Sales	-	-	
Gross Profit	<u>12,943,338</u>	<u>16,683,041</u>	
Operating Expenses (1)	8,072,064	11,123,601	
Depreciation & Amort.	<u>2,869,546</u>	<u>4,559,408</u>	
Operating Inc/(Loss)	2,001,728	1,000,032	2,620,787
Other Income/(Expense)	-	-	
Interest Income	1,098,786	1,336,105	
Interest Expense	(1,069,131)	(5,072,673)	
Other	<u>(1,288,866)</u>	<u>(5,461,123)</u>	
Total Other Income/(Expense)	<u>(1,259,211)</u>	<u>(9,197,691)</u>	
Pre-Tax Income/(Loss)	742,517	(8,197,659)	972,150
Income Tax Expense/(Benefit)	<u>319,856</u>	<u>150,427</u>	
Net Income/(Loss)	<u><u>422,661</u></u>	<u><u>(8,348,086)</u></u>	<u><u>553,374</u></u>
Minority Interest Payment	384,355	390,947	503,222
Retained Income/(Loss)	<u><u>38,306</u></u>	<u><u>\$ (8,739,033)</u></u>	<u><u>50,153</u></u>

APPENDIX – Power Point Slides



Financing Growth in Jordan's Hotel Industry

Presented by

Ronald E. Copley, Ph. D., CFA

Provided by

Achievement of Market Friendly Initiatives and Results
Program (AMIR)

Funded by U.S. Agency for International Development



What is the objective of hotel management?

- Maximize Sales
- Minimize Expenses
- Maximize Earnings
- Maximize the Value of the Firm
- Maximize the Shareholders' Wealth
- Visit the beach

Fundamental Concepts in Finance

Equity Valuation of a Firm

- Dividends (D_1)
- Growth (g)
- Required Return

Capital Structure

- Weighted Average Cost of Capital (WACC)
- Modigliani Miller (M&M)

Equity Valuation of Firm

Dividend Discount Model

$$\text{Price of Stock} = \frac{\text{Next Year's Dividend}}{(\text{Cost of Equity} - \text{Earnings Growth})}$$

Cost of Equity = Required Return by shareholder

$k = \text{Risk free} + \text{Beta}[(\text{Expected Return on Market}) - \text{Risk free}]$

What drives growth:

- Expanding Market
- Cost control
- Management efficiency
- Jetta

Growth (g) and Its components

- Sustainable growth is an estimate of future growth

$$g = \text{Return on Equity} \times \text{Rate of Retention}$$

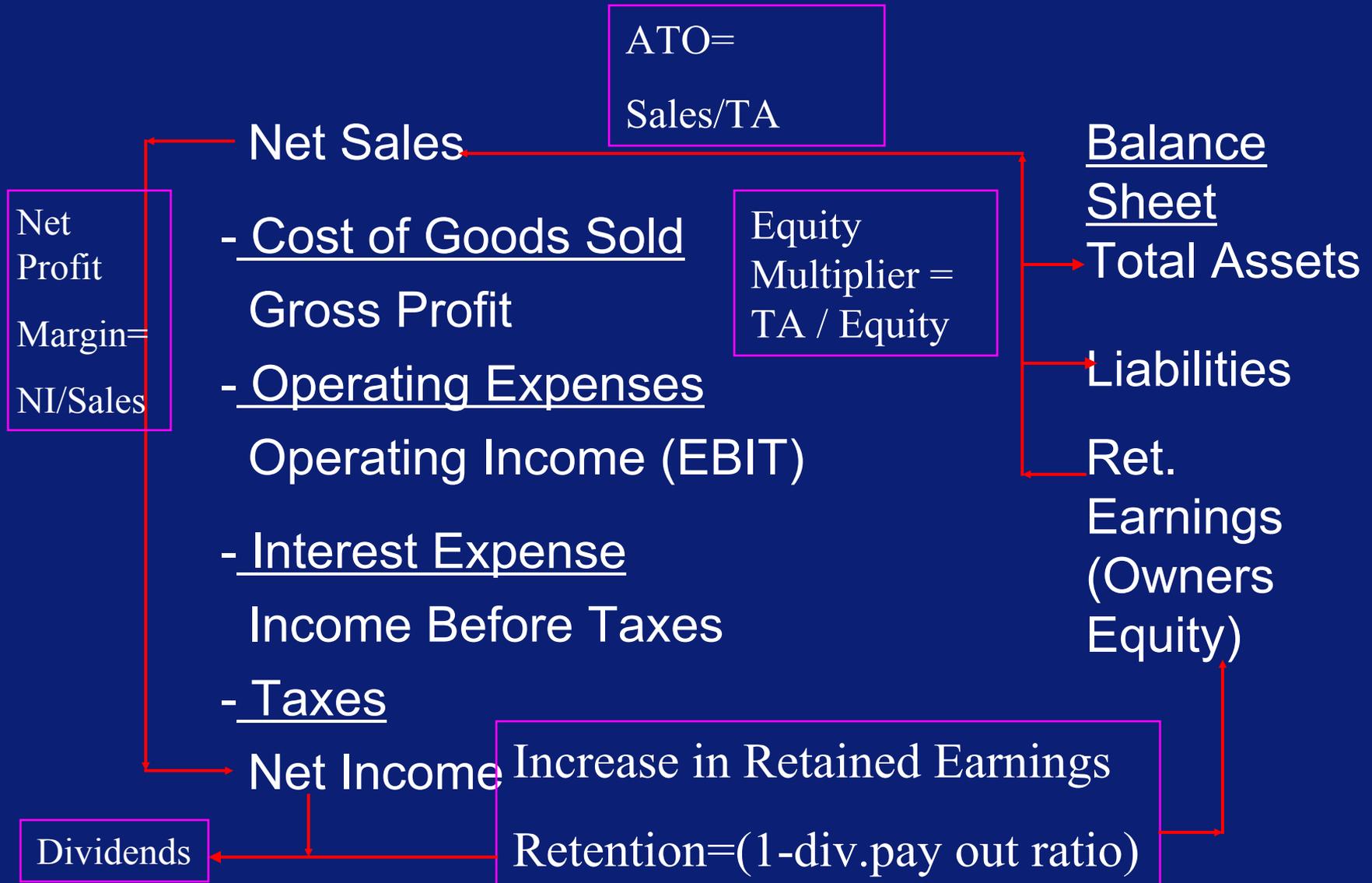
➤ ROE

- net profit margin
- the rate of retention
- the payout ratio
- the debt/equity ratio

➤ Rate of Retention

- dividend policy

Drivers of g



Growth Example

$t = 0$

Income Statement		Balance Sheet	
Net Sales	\$1,000,000	Total Assets	\$1,000,000
		Liabilities	\$500,000
Net Income	\$100,000	Owners Equity	
		Retained Earnings	\$500,000

Growth Example -continued-

$t = 1$

Income Statement		Balance Sheet	
Net Sales	\$1,100,000	Total Assets	\$1,100,000
		Liabilities	\$550,000
Net Income	\$110,000	Owners Equity (Retained Earnings)	\$550,000

Growth Example -continued-

	t = 0	t = 1	Growth Rate
Sales	\$1 million	\$1.1 million	10%
Net Income	\$100k	\$110k	10%
Total Assets	\$1 million	\$1.1 million	10%
Liabilities	\$500k	\$550k	10%
Owners Equity (R.E.)	\$500k	\$550k	10%
Dividends	\$50k	\$55k	10%

Growth Example -continued-

	t = 0	t = 1	Growth Rate
Sales	\$1 mil.	\$1.650 mil.	65%
Net Income	\$100k	\$165k	65%
Total Assets	\$1 mil.	\$1.650 mil.	65%
Liabilities	\$500k	\$1,100k	120%
Owners Equity (R.E.)	\$500k	\$550k	10%
Dividends	\$50k	\$82.5k	65%

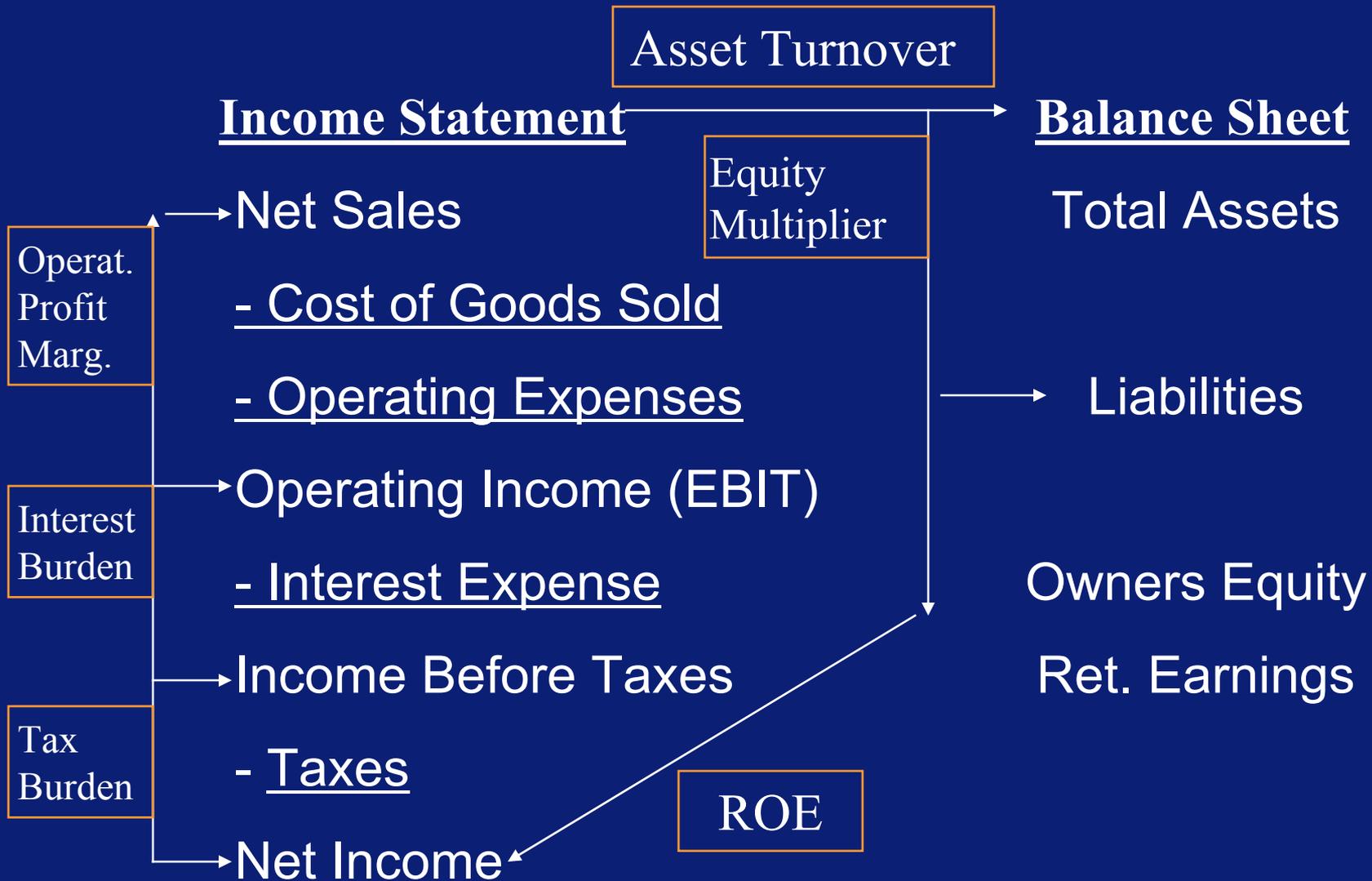
Interrelationships among Price (P), Dividends, Cost of Equity (k), and Growth (g)

Firm Policy	Impact on P (ceteris paribus)
Increase Expected Dividends	Increase P
Increase Expected growth	Increase P
Increase k	Decrease P

Return On Equity (ROE)

$$\text{ROE} = \frac{\text{Net Income}}{\text{Equity}}$$

ROE Decomposition Model



ROE Decompositions

$$\text{ROE} = \frac{\text{Net Income}}{\text{Income Before Tax}} \times \frac{\text{Income Before Tax}}{\text{Operating Income}} \times \frac{\text{Operating Income}}{\text{Net Sales}} \times \frac{\text{Net Sales}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Equity}}$$

How would use of long term debt affect ROE and sustainable growth?

- Debt does not impact on ROE and growth
- More debt in firm's capital structure reduces ROE and growth
- More debt increases ROE when leverage is positive*
- Debt is for creditors and ROE is for Equity holders, there is no relation
- More debt increases time at beach for lenders

* Positive leverage is when return on borrowed money (ROA_{at}) exceeds after tax cost of borrowed money $[i \times (1-t)]$

Example of impact of Interest on ROA

With Leverage

Income Statement		Balance Sheet	
Operating Income	\$10	Total Assets	\$100
- Interest (\$50 x10%)	<u>-\$5</u>		
Income Before Taxes	\$5	Liabilities	\$50
- Taxes (@ 40%)	<u>-\$2</u>		
Net Income	\$3	Owners Equity	\$50

Example of impact of Interest on ROA

–continued–

Income Statement		Balance Sheet	
Operating Income	\$10	Total Assets	\$100
- Interest (\$50 x10%)	<u>-\$0</u>		
Income Before Taxes	\$10	Liabilities	\$0
- Taxes (@ 40%)	<u>-\$4</u>		
Net Income	\$6	Owners Equity	\$100

Example of impact of Interest on ROA

–continued–

Income Statement		Balance Sheet	
Operating Income	\$15	Total Assets	\$100
- Interest (\$50 x10%)	<u>-\$5</u>		
Income Before Taxes	\$10	Liabilities	\$50
- Taxes (@ 40%)	<u>-\$4</u>		
Net Income	\$6	Owners Equity	\$50

Relationship of long-term debt in capital structure and ROE

Conclusion:

Use of long-term debt increases ROE if
 $ROA_{AT} > \text{Interest Rate}_{AT}$

(assuming positive leverage and a constant retention rate)

Modigliani and Miller M&M Capital Structure Theory

M&M with no tax case

- WACC stays constant
- Debt doesn't matter
- The value of firm is unaffected

M&M with taxes

- WACC decreases
- Debt matters
- The value of firm is affected

Bankruptcy case

- More debt increases possibility risk of bankruptcy
- Firm can use debt until reaching the optimal capital structure

Weighted Average Cost of Capital

$$WACC = (E/V) \times R_e + (D/V) \times R_d \times (1-T)$$

E: Market Value of the firm's equity

V: Combined market value of the debt and equity

D: Market value of the firm's debt

T: Tax rate

What is a hotel's optimal capital structure?

- 100% Equity
- 100% Long-Term Debt
- Capital structure that allows control to management

Optimal Capital Structure

- The point where the cost of capital is minimized
- The point where the shareholders wealth is maximized
- The target capital structure in long-term
- Strategic

What is the target capital structure?

- Long-term capital structure
- 100% short term debt
- 100% equity

Target Capital Structure

- **Near term capital structure of hotel**
- **Tactical**
- **Not necessarily the optimal capital structure**
- **Higher cost of capital than that at optimal capital structure**

WACC Example

LT Debt + Equity = \$670

Market value of Equity = \$170

Long-term Debt = \$500

$k_e = 39.4%$, $k_d = 10%$, Tax rate = 34%

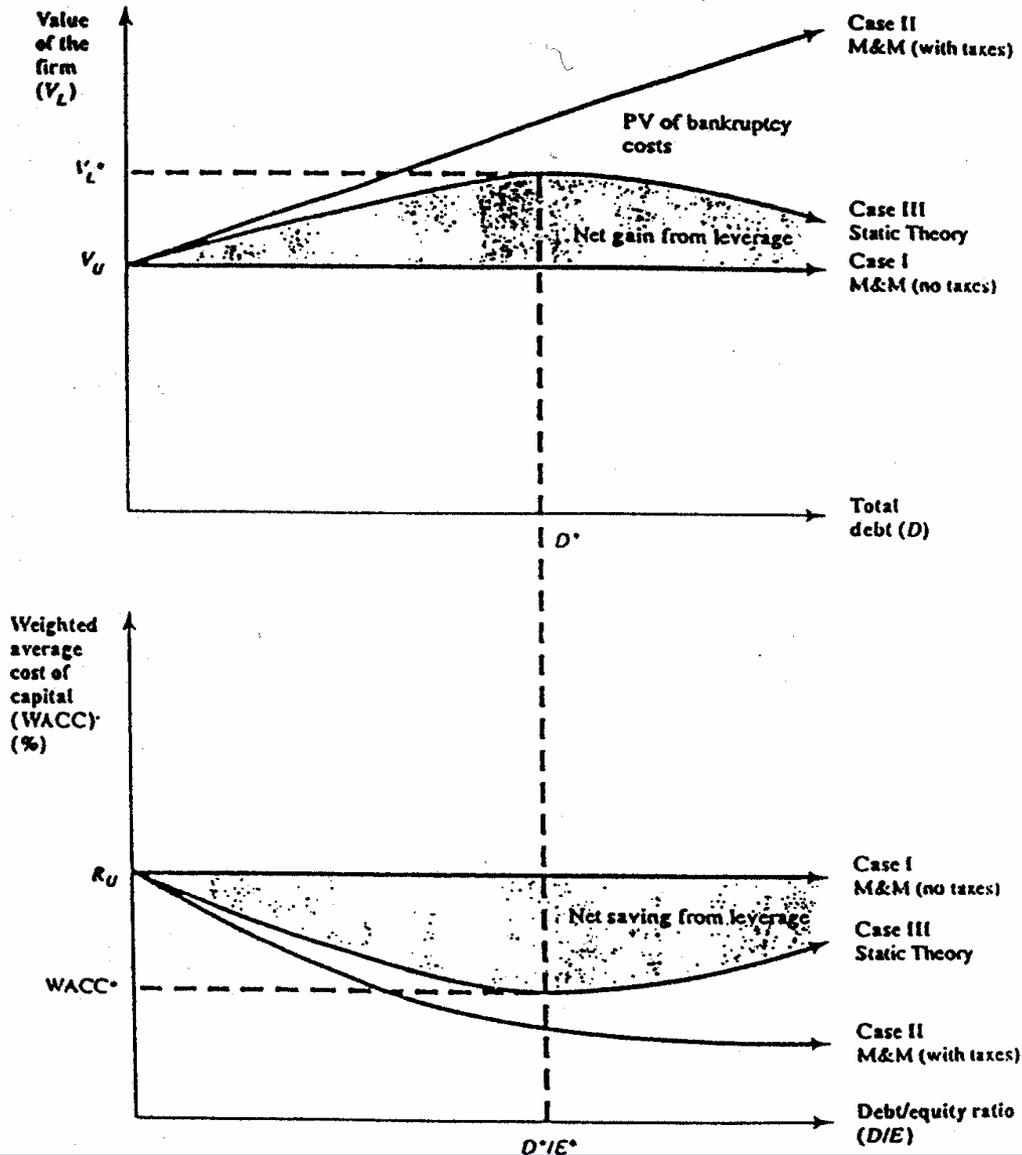
Scenario 1: 100% Equity financing

WACC = 39.4%

Scenario 2: Both Equity and LT Debt as given above

WACC = 14.92%

Cost of Capital, Capital Structure and Value of Firm



What are the alternatives for financing growth for a hotelier?

Source of Money

- Private Investors
- Pension Funds
- Insurance Companies
- Banks

Financial Instruments

➤ Equity

- 100% Equity from Private Investors

- IPO

➤ Debt

- Short-Term
- Long-Term

- ## Use of Money
- Hotel Sector

What are the advantages of employing equity?

- Free money
- Best way of increasing ROE
- No pressure on management from investors
- Cheap capital

Advantages of Using Equity

- **No outside lender, no claim on assets by outside lenders**
- **Losses are not magnified due to interest payments when the economy slows down**
- **No pressure for bankruptcy by creditors since there are none**

What are the disadvantages of using equity?

- No change on cost of capital
- No disadvantage at all
- No effect on sales growth
- Increases ROE
- Any kind of growth capital is good for business

The Disadvantages of Using Equity

- Higher cost of capital
- When the economy is good, does not amplify ROE
- Opportunity cost of investing in better investments with higher ROE

What are the advantages of an IPO?

- No advantage
- Lowers cost of capital
- No loss of control of the firm
- Free money for spending
- Looks good

The Advantages of an IPO

- **Creating a market for the firm's stock**
- **Creating liquidity for shareholders**
- **More attractive executive stock options**
- **Easier to raise additional equity capital in the future**

What are the disadvantages of an IPO?

- No disadvantage
- Risky
- Difficult
- Costly

The Disadvantages of an IPO

- **Floataion costs**
- **May loose control of the firm**
- **Susceptibility to market related fluctuations**
- **Increasing equity capital increases cost of capital**

What are the advantages of using short-term debt?

- Better than long-term debt
- Firm does not have to deal with many creditors as in long-term bond issuance
- Easier to manage
- I know what will be my interest payment when the loan rolls over to a new period

The Advantages of Using Short-Term Debt

- Short term predictability of interest rates
- Lower short-term borrowing rates than long-term rates

What are the disadvantages of using short-term debt?

- No disadvantage
- Difficult to find all the money needed
- Shareholders do not like it
- Mafia may come after us

The Disadvantages of Using Short-Term Debt

- **Asset liability mismatching**
- **Cost of capital may increase due to reinvestment risk for borrowers**
- **Unpredictability of interest rates in long-run**

What is the Matching Principle?

- **Financing long term assets with short-term Loans**
- **Financing short-term assets with long term debt**
- **Matching expenses of hotel with its cash flows**
- **Looking through personal ads for a date**

Matching Principle

- **Short Term Assets with Short-Term Debt**
- **Long-Term Assets with Long Term Debt**
- **Is a hotel investment short term or long term?**

What happens if mismatching of assets and liabilities occurs?

- Nothing happens
- Lower cost of capital
- Increased shareholder wealth
- Borrow more short term

Mismatching of Assets and Liabilities

Reinvestment Risk

- Uncertainty of not getting the same interest rate in prior period
- May lock in higher interest rate for loans in new term

Increasing Cost of Capital

- Lenders may ask higher interest rates in new term due to short term negative effects of political instability on economy

What are the advantages of using long-term debt?

- The higher amount of debt used, the lower the cost of capital
- Unlimited amount of debt can be used without any problem
- Lenders do not apply pressure on management as shareholders do
- No bankruptcy risk occurs

The Advantages of Using Long Term Debt

- **Lowers cost of capital up to point of the optimal capital structure**
- **Magnifies ROE when the economy is good**
- **Shareholders can look at other investment opportunities with returned capital**

What are the disadvantages of using long-term debt?

- Long-term debt is always good and there is no disadvantages
- Increases cost of capital always
- Creditors are more at risk than shareholders
- Mafia may come after us

Disadvantages of Using Long-Term Debt

Increase in financial distress

- Possibility of bankruptcy increases due to increased risk to creditors

Magnify the losses to shareholders

- When the economy slows down, interest payments would magnify the firm's losses

Example: Trans Am Corp

	Current	Proposed
Assets	\$8,000,000	\$8,000,000
Debt	\$.....0	\$4,000,000
Equity	\$8,000,000	\$4,000,000
Debt/Equity Ratio	\$.....0	1
Share price	\$20	\$20
Shares Outstanding	400,000	200,000
Interest Rate	10%	10%

Example -continued- taxes ignored

Current capital Structure: No debt

	Recession	Expected	Expansion
EBIT	\$500,000	\$1,000,000	\$1,500,000
Interest	0	0	0
Net Income	\$500,000	\$1,000,000	\$1,500,000
ROE	6.25%	12.50%	18.75%
EPS	\$1.25	\$2.50	\$3.75

Example -continued- taxes ignored

Proposed Capital Structure: \$4 million

	Recession	Expected	Expansion
EBIT	\$500,000	\$1,000,000	\$1,500,000
Interest	400,000	400,000	400,000
Net Income	\$100,000	\$600,000	\$1,100,000
ROE	2.50%	15.00%	27.50%
EPS	\$.50	\$3.00	\$5.50

Hotel-A Sustainable Growth

	1998	1999	1999
	Actual	Actual	Projected
Tax Burden	56.92%	101.83%	56.92%
x Interest Burden	37.09%	-819.74%	37.09%
x Operating Profit Margin	15.47%	5.99%	15.47%
x Asset Turnover	0.10	0.09	0.10
x Financial Leverage	1.89	2.04	1.89
= ROE	0.65%	-9.35%	0.65%
x Retention Rate (1-Pay Out)	0.09	NMF	0.09
= Sustainable Growth	0.059%	NMF	0.059%

Hotel-A ROA vs. Interest Rate

	1998	1999
	Actual	Actual
ROA (after tax)	0.92%	0.56%
Interest Rate (after tax)	1.03%	6.38%

How does a hotel's capital structure differ from an airline's?

- No difference because both have short-term guests
- No difference because both are long-term investments
- Airlines invest more short-term than hotels
- Banks like airlines more than hotels and lend to them longer term loans

Capital Structure of Hotels vs. Airlines

Airlines uses long-term lease financing that acts like a long-term debt

- This allows 100% financing of the cost of the asset
- Lessor has the security of legal ownership
- Full purchase price is not required up front
- Leasing is better suited for assets with a ready second hand market such as airplanes as opposed to hotels that are not easily transferable
- Lease agreements can be cancelable that allows operational flexibility to an airline co.
- Leasing allows airlines flexibility to update their fleet , whereas a hotel is built only once

Comparison of international hotel industry capital structure to airline industry?

	Major International Airlines	Major International Hotels
Long Term Debt / Equity	2.6 times	1 times
Long Term Debt / (Long Term Debt +Equity)	72%	50%

Who in the market helps management issue debt?

- **Investment Bankers**
- **Credit Rating Agencies**
 - **Moody's**
 - **S&P**
 - **Fitch**
- **Willing and knowledgeable Investors**
- **Mom and Dad**

Where do we go from here?

- Management's objective is to maximize the shareholders' wealth
- Lowering the cost of capital enhances shareholders' wealth
- Adding long-term debt to a firm's capital structure lowers the cost of capital to a limit
- Debt beyond optimal capital structure increases cost of capital
- Do not mismatch long term hotel investment with short term loans
- Optimal capital structure is a long term strategic objective, not a short term tactical goal