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Marriott Corporation: The Cost of Capital (abridged) Analysis

The Vice President of Finance of Marriott Corporation, Dan Cohrs, must make annual recommendations on hurdle rates for the restaurant, lodging, and contract services divisions as well as Marriott Corporation as a whole. It is important that Mr. Cohrs makes an appropriate recommendation for each division because hurdle rates influence project investment decisions, repurchase decisions for the firm. Given the information that Mr. Cohrs has, he is faced with two major problems in determining the hurdle rates. The first problem is that he must decide which data he will use to calculate the rates. There are future, present, and past numbers that are available for his use in the calculations. The second problem is that there is little information given about the contract division and Marriott Corporation as a whole, making it difficult to calculate the weighted average cost of capital (WACC) for the contract division and Marriott as a whole. Mr. Cohrs has comparable data for the lodging and restaurant divisions but not the contract services or the corporation as a whole. In calculating WACC, the cost of capital for the corporation as a whole should be different from the divisions because investments made in each division would have different risk levels than the average risk of Marriott assets. A modified version of WACC should be used to determine whether or not the divisions should go ahead on projects or not. To modify the WACC, first an appropriate level of WACC should be set on each division. Subsequently, each project within each division should be analyzed to determine the risk level. If the project is high in risk compared to others in the division, then the WACC should be increased due to the risk. If the project is lower in risk compared to other projects in the division, then WACC should be lowered to account for the lower risk. If the risk is at the same level as the other investments in the firm, then the divisional WACC can be used.

The first step in formulating the new hurdle rates is to determine the appropriate tax rate. The average of the tax rates from 1926-1987 can be used as the tax rate for the corporation and its divisions. Each year's tax rate can be calculated using the tax amount divided by each year's income before tax (given in Exhibit 1) and then average all the values. The average rate is 41.62%. (See Appendix 1 for Tax Rate Calculations) The historical rates are a good measure of the tax rate because it gives a stable and realistic view of the actual tax rate. This might not be a good tax rate however if there is an unexpected event that changes corporate tax rates.

The next step is to establish the debt weights. The target debt weights are suitable because Marriott is changing its capital structure and therefore the historical weights would not be appropriate. The target debt levels are given to Mr. Cohrs in Table A and are used in the calculations of WACC as seen in Appendix 2. Next, the cost of debt is calculated. The cost of debt will be the sum of the 1988 government interest rates (Given in Table B of the case) and the debt rate premium above government. The 30-year government rate was used for Marriott Corporation and the Lodging division because they have been established for the longest time. Since the lifetime of the contract services and the restaurant services is shorter, the 10-year government rate was used for those divisions.

The third step in calculating the WACC is to calculate the level of equity. The equity level is the debt level subtracted from the value of the firm. These equity levels are used in Appendix 2. Then the cost of equity is calculated. CAPM is used to calculate this value. Due to the limited information given, the best number to use for the risk premium is the arithmetic average of the spread between the S&P 500 Returns (Exhibit 5). The Short Term Treasury Bill Returns for the S&P 500 was used for the restaurant and contract services division and the long term government bond returns was

used for the lodging and Marriott Corporation as a whole. Next, the risk free rates that corresponded to the risk premiums from Exhibit 4 were used. The long term U.S. Government Bond Returns were used for the lodging division and the short term Treasury Bills were used for the restaurant and the contract services division. The values for the risk premium as well as the values used for the risk free rates might not be accurate because they are arithmetic averages and are based on the past and we are trying to look for future rates. Using the arithmetic average assumes that the rates will remain the same in the future and this is not always true. The next step to complete the calculation is to un-lever and re-lever the equity betas.

First, we un-lever the beta to represent an all equity firm. Mr. Cohrs would need the comparable data for each division but only comparable data for the lodging and restaurant divisions are given in Exhibit 3. This is where Mr. Cohrs must estimate the data or do more research for the values needed. The target debt to equity ratio is then used to re-lever the beta. The calculations for this can be seen in Appendix 3. After the new Beta is calculated, the WACC can be calculated for each division and the corporation as a whole. Since the contract services division has the lower debt to equity ratio, it would have the highest WACC. The lodging division will have the lowest WACC because it has the highest D/E ratio. After WACC is calculated, division managers should be aware that they should adjust each project for the risk levels to correctly come to a conclusion about the projects at hand.

Appendix 1- Tax Rate Calculations

Year	Tax Rate	Year	Tax Rate
1978	42.39%	1983	41.40%
1979	41.47%	1984	42.70%
1980	39.22%	1985	43.38%
1981	37.26%	1986	46.77%
1982	37.54%	1987	44.10%
Average Tax Rate:		41.62%	

Appendix 2- WACC

$$\text{WACC} = (1 - \text{Tax}) \times (D/V) \times (\text{Cost of Debt}) + (E/V) \times (\text{Cost of Equity})$$

	(1-.4162)	0.6	(.013+.0895)	+	0.4	Cost computed in Appendix 3
WACC(Marriott)	(1-.4162)	0.4	(.014+.0872)	+	0.6	Appendix 3
WACC(Contract Services)	(1-.4162)	0.42	(.018+.0872)	+	0.58	Appendix 3
WACC(Restaurant)	(1-.4162)	0.74	(.011+.0895)	+	0.26	Appendix 3

Appendix 3- Cost of Equity- CAPM

$$\text{CAPM} = (\text{Risk Free} + \text{Risk Adjusted Beta} \times (\text{Risk Premium}))$$

CAPM Marriott	(4.58 + (Risk Adjusted Beta with target D/E of 1.50)(7.43)
CAPM Contract Services	(3.52 + (Risk Adjusted Beta with target D/E of 0.66)(8.47)
CAPM Restaurant	(3.54 + (Risk Adjusted Beta with target D/E of .72)(8.47)
CAPM Lodging	(4.58 + (Risk Adjusted Beta with target D/E of 2.85)(7.43)

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