

# Cost of equity capital case study example

Business, Company



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## **Cost of Equity Capital**

Cost of equity can be defined as the opportunity cost of raising finances through equity. Equity comprises of ordinary share capital and retained earnings of a company. The rate of return expected by investors is the same as the cost of equity. Cost of equity is therefore important in valuation of shares. However, unlike debt securities, which have fixed interest, dividend paid on equity securities fluctuate over time. It is in the discretion of the management of any company to determine how much dividend to pay in case they decide to pay dividend. This makes it hard to estimate the cost of equity. Numerous models have been designed to estimate the cost of equity for any given company. Some of the models include; dividend growth model, capital asset pricing model (CAPM) and arbitrage pricing theory (ATP). This paper discusses these three models and proposes the best model that the board of directors of McDonald's corporation should use in estimating McDonald's cost of equity.

Dividend growth model is based on the premise that the value of any given asset is based on the expected future discounted cash flows from the asset. The dividend growth model assumes that expected future dividend will grow

at a predetermined constant rate. In other words, the growth rate of dividend will remain unaltered during the entire period of analysis. However, this is hardly the case in the real world. Most companies dividend depending on their financial performance in a given financial year. The advantages of the dividend growth model are that it is comparatively simple to understand and compute. It is also less costly since it requires only the current dividend data and an approximation of the dividend growth rate which is fixed for the entire period under consideration.

Although dividend growth model is simple to understand and compute, the accuracy of the resultant cost of equity depends entirely on the accuracy of the forecasted future dividend. Making accurate forecast in a rapidly changing environment and environmental factors is not easy. Despite the sophistication of modern forecasting technology, today's world is full of uncertainties which are impossible to factor in when making forecasts. Financial performance keeps changing because of the dynamic external environment and internal factors. This model does not also fit companies that do not pay dividend or experiencing swift growth as in the case of McDonald's Corporation. Therefore, this model cannot be applied across all firms. The assumptions discussed above of the dividend growth model are unrealistic and do not hold in practice. Therefore, the resultant cost of equity computed using this model is highly inaccurate. This model also ignores the aspect of risk in determining the cost of equity. Risk is an important determinant of the cost of equity.

Capital Asset Pricing Model (CAPM) is another cost of equity estimation model that is superior to dividend growth model since it factors in risk in

determining the cost of capital. Under this model, the cost of equity is given by adding risk free rate of return to the product of a share's beta and the market risk premium. Risk free rate of return is the rate of return on risk free investments. A share beta is the market risk which is a measure of individual share responsiveness to overall security market's fluctuations. Beta coefficient is represented by the Greek letter  $\beta$ . Risk premium is the difference between investor's expected market return and the expected risk free return rate. This model measures the return expected by investors on their investments when they factor in risk. The higher the risk of a company, the higher will be the cost of equity. This is logical because investors will expect higher returns for higher risk investments to compensate them for assuming extra risk. CAPM provides an estimation framework that is both logical and rational. This method is relatively easy to understand and use once the values of beta have been computed.

One of the major shortcomings of capital asset pricing model is that it assumes market risk is the only risk that investors evaluate in making their investment decisions. Investors consider several risk factors that affect their investments. Investors today are more sophisticated and have access to a lot of information concerning risk other than market risk. Therefore, using market risk as the only determinate of cost of equity is likely to result in an inaccurate estimate. Secondly, CAPM utilizes past data and is prone to several errors that result from using historical data. Empirical studies show that the beta of a company does vary greatly between various periods. This model also assumes that risk free rate of return can be determined with accuracy. Risk free rate of return on investment is hypothetical and based on

estimates because there are no investments that are risk free in the real world. The assumptions that cost of equity is only determined by the market risk and that risk free rate can be determined with reasonable accuracy are unrealistic.

Arbitrage Pricing Theory (ATP) was developed as an improvement on the capital asset pricing model in determining the cost of equity. Capital asset pricing model is a single factor model. It uses beta as the factor that determiners risk. Arbitrage Pricing Theory gives a framework that can accommodate several risk factors. The resultant cost of capital is, therefore, a function of a multiplicity of risk factors that sophisticated investors use in making their investment decisions. Factor analysis is used to develop arbitrage price theory parameters. ATP permits numerous economic factors that that influences the returns on shares into the framework. Such factors include; inflation, term structure, interest rate spreads and economic business cycles. Arbitrage Pricing Theory therefore, results in the most accurate cost of equity.

The only short coming of the Arbitrage Pricing Theory is that it is difficult to understand and compute. It requires one to be conversant with quantitative techniques and statistical tools to accurately determine the cost of equity using this model. Statistical tools and soft wares are used in performing factor analysis to develop arbitrage price theory parameters for estimating the cost of equity. This model is also costly when used to determining the cost of capital. This is because it requires a lot of information that maybe costly to acquire and it requires highly experienced and trained personnel, which will increase the staffing cost of a firm.

I would propose that McDonald's board of directors should adopt the Arbitrage Pricing Theory (ATP). Although ATP is the mostly costly model in determining the cost of capital, the benefits far outweigh the costs. Arbitrage pricing model will result in the most accurate estimate off the cost of equity for McDonald's corporation. Arbitrage pricing theory overcomes the shortcoming of both the dividend growth model and Capital Asset pricing model. Unlike dividend growth model, arbitrage pricing theory, factors in risk in determining the cost of equity. ATP eliminates the problems of forecasting future dividend which is the basis of dividend growth model. This is because ATP does not require future dividend in determining the cost of equity. ATP will, therefore, result in a more accurate cost of equity for McDonald's corporation.

On the other hand, capital asset pricing model also overcomes the shortcomings associated with dividend growth model; it has its own shortcomings. CAPM is a single factor model. It uses beta as the only determinant of risk. The beta coefficient measures market risk of a share. Therefore, capital asset pricing model assumes that investors only consider market risk when making their investment decision which is not always the case. There other risk factors that investors today consider when making their investment decisions such as; inflation, term structure, interest rate spreads and economic business cycles. Arbitrage Pricing Theory gives a framework that can accommodate several risk factors. The resultant cost of capital is therefore a function of a multiplicity of risk factors that sophisticated investors use in making their investment decisions. In conclusion, Arbitrage pricing Model would be the best model McDonald

cooperation should adopt. Arbitrage pricing model overcomes all the shortcomings associated with dividend growth model and capital asset pricing model. It will result in the most accurate estimate of the cost of equity when compared to dividend growth model and capital asset pricing model.

## PART II

Cost of equity using the CAPM model;

$$E(r_j) = RRF + \beta(RM - RRF)$$

Nike Inc.

$$E(r_j) = 0.2 + 0.79(4.49 - 0.2) = 3.5891\%$$

Sony Corporation

$$E(r_j) = 0.2 + 1.98(6.83 - 0.2) = 13.3274\%$$

McDonald's Corporation

$$E(r_j) = 0.2 + 0.29(2.94 - 0.2) = 2.94\%$$

Sony Corporation has the highest cost of equity. This is because it has the highest beta implying that it has the highest market risk. Investors will therefore require higher returns to compensate them for assuming higher risks.

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