Stock price estimation of ibm

The stock price obtained from the IBM website is 106. 06 (IBM, 2009). The theoretical price is calculated using the CAPM and CGM models on the basis of risk-free rate derived from the 10 years U. S treasury bonds. This basis affects the estimated theoretical price of the stock in a substantial way. The calculated theoretical price of the share is $11. 33 which is significantly lower than the current price. This huge difference in price is due to the estimated risk-free rate and the market risk premium in CAPM.

If we change interest rates slightly the required rate of return of IBM changes which in turn changes the theoretical price of the stock. If we lower the market risk premium and risk-free rate just by 1 or 2 percentage points the theoretical value would jump to a very higher level.

6. Calculation of stock price with a market risk premium of 10% CAPM

Ks = KRF + (RPM) bi

Ks = 0. 0354 + (0. 1) (1. 64)

Ks = 0. 0354 + 0. 164

Ks = 0. 1994 = 19. 94%

CGM P0 = D1 / Ks – g P0 = 0. 8656 / 0. 1994 – 0. 082 P0 = 0. 8656 / 0. 1174 P0 = $7. 37

The new price of the stock after an increase in the market risk premium is $7. 37 which is lower than the price previously calculated with a market risk premium of 7. 5%. As explained in the answer to the previous question the stock price depends very much on the risk-free rate and market risk

premium. An increase in any of these rates would lower the price of the stock and a decrease in the rates would yield a higher stock price.

7. The P/E ratio is calculated using the following formula:

P/E Ratio = Price per share / Earning per Share

In this model, the industry P/E ratio and EPS of IBM are used as inputs to arrive at the stock price of IBM.

The industry P/E ratio is 23. 2 and IBM's EPS is $4. 87

23. 2 = Price per share / 4. 87

Price per share = 23. 2 * 4. 87

Price per share = $112. 98

The stock price calculated through the P/E ratio model is $113 whereas the price calculated using CGM was $11. 33. This significant change in the price is due to the variation of inputs. The price in CGM was based on the required rate of return calculated through market risk premium and risk-free rate while in the P/E ratio model price is calculated using the earning per share and industry average of price-earnings ratio.

The P/E ratio model does not include any consideration of the market risk whereas the price calculated under CGM involves a certain level of risk.

References

1. Bloomberg. (2009, June 27). Market Snapshot. Retrieved June 27, 2009, from Bloomberg. com: http://www. bloomberg. com/markets/index. html? Intro= intro_markets IBM. (2009, June 26).

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