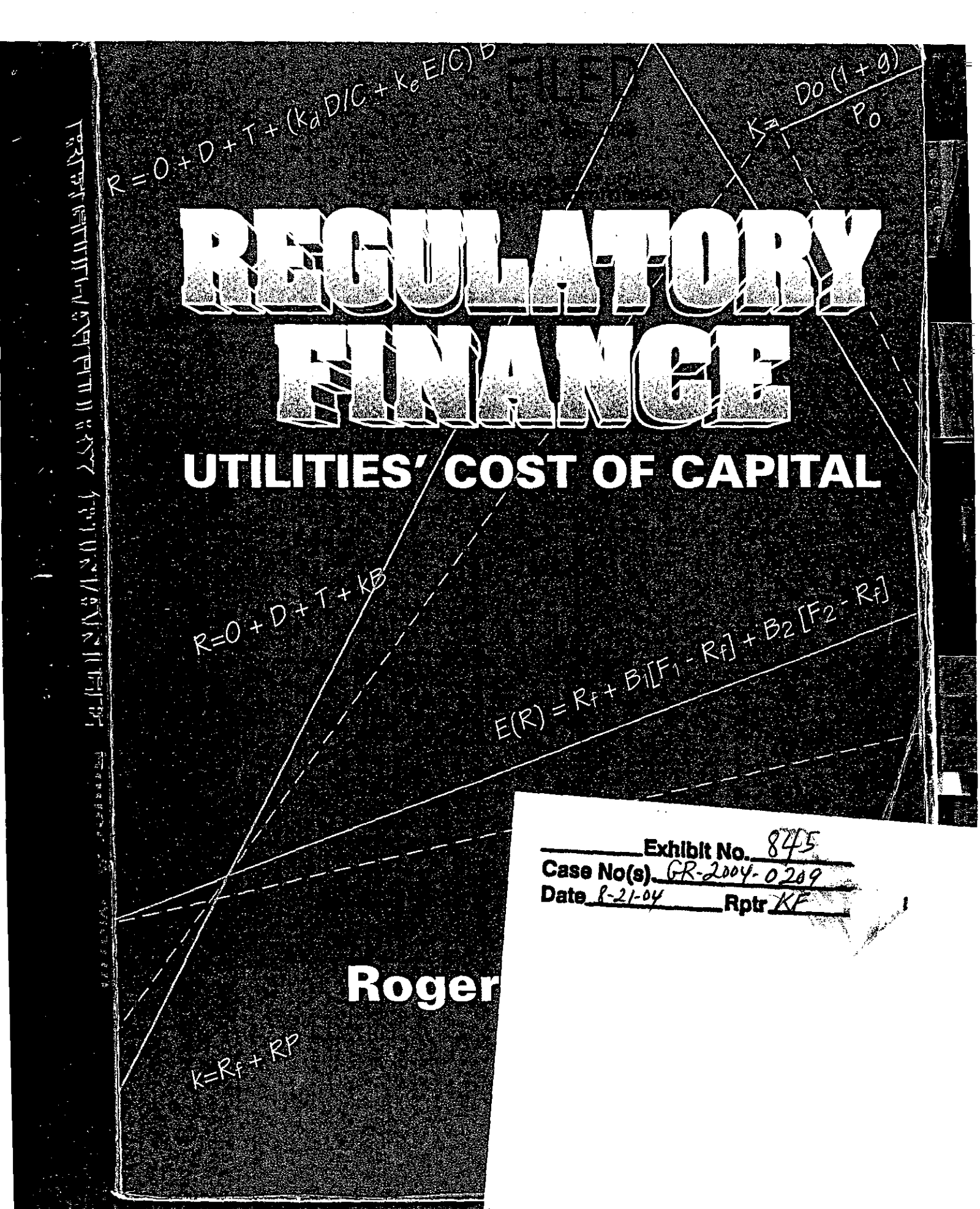

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Roger

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Chapter 11
Risk Premium

The risk premium method of determining the cost of equity, sometimes referred to as the "stock-bond-yield spread method" or the "risk positioning method," or again the "bond-yield plus risk-premium" method, recognizes that common equity capital is more risky than debt from an investor's standpoint, and that investors require higher returns on stocks than on bonds to compensate for the additional risk. The general approach is relatively straightforward: First, determine the historical spread between the return on debt and the return on equity. Second, add this spread to the current debt yield to derive an estimate of current equity return requirements.

The risk premium approach to estimating the cost of equity derives its usefulness from the simple fact that while equity return requirements cannot be readily quantified at any given time, the returns on bonds can be assessed precisely at every instant in time. If the magnitude of the risk premium between stocks and bonds is known, then this information can be used to produce the cost of common equity. This can be accomplished retrospectively using historical risk premiums or prospectively using expected risk premiums.

11.1 Rationale and Issues

The basic idea behind the risk premium approach is portrayed graphically in Figure 11-1. The horizontal axis measures security risk; the further to the right a security lies, the greater its investment risk. U.S. government securities are shown at the origin since they are devoid of default risk. The vertical axis portrays the required returns. The straight line, labeled the capital market line (CML), shows at a point in time the risk return tradeoff in capital markets, that is, the relationship between a security's risk and its required return. The term R_F, which stands for "risk free," designates the rate of interest on default-free securities as measured by the rate of interest on U.S. Treasury bills.

Corporate bonds are riskier than U.S. Treasury securities, so their yields are higher. The risk premiums rise for lower quality corporate bonds. Therefore, the risks on corporate bonds are plotted higher than the risks of U. S. Treasury securities on the Capital Market Line, and their required returns are correspondingly higher. Common stocks are riskier than corporate bonds, and returns on stocks are correspondingly higher.

long-term Treasury bonds instead of corporate bonds. There are a myriad of well-known academic and professional research studies published on the subject, using expected rates of return. Studies by Friend and Blume (1975), Malkiel (1979), Brigham and Shome (1982), and Brennan (1982) are examples.

One potential problem in the above approach is that historical growth may not be reflective of expected growth. Instead, the average 5-year earnings growth forecast of analysts reported by IBES for a large number of publicly-traded stocks can be used as a more suitable proxy for the expected growth on the overall market.

One drawback to this approach is that the Dow Jones Industrials Average may not be representative of the overall equity market, and that a more diversified cross-section of American industry may be preferable. On the other hand, the data requirements for application of the Brigham, Shome, and Vinson approach to each company in a large diversified index are computationally prohibitive.

Risk Adjustments. The risk premium estimate derived from a composite market index must be adjusted for any risk differences between the equity market index employed in deriving the risk premium and a specified utility common stock. Several methods can be used to effect the proper risk adjustment.

First, the beta risk measure for the subject utility or the beta of a group of equivalent risk companies can serve as an adjustment device. The market risk premium, RP_M, is multiplied by the beta of the utility, β_i, to find the utility's own risk premium, RP_i:

$$RP_i = \beta_i \, RP_M$$

and the beta-adjusted risk premium is added to the bond yield to arrive at the utility's own cost of equity capital. For example, if the risk premium on the average stock is 5% over the bond yield, based on a broad-based index such as Value Line's Composite Market Index, and if the subject utility has a beta of 0.60, the adjusted risk premium is 5% x 0.60 = 3%. This method is very similar to the Empirical Capital Asset Pricing Model approach discussed in Chapter 13.

A second risk adjustment approach is to scale the risk premium up or down based on a comparison of the utility's risk relative to that of the overall market. Any of the objective quantitative measures of risk described in Chapter 3 are adequate for this purpose. For example, the ratio of the utility's standard deviation of returns to the average standard