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SERVICE DATE – FEBRUARY 11, 2008

SURFACE TRANSPORTATION BOARD

DECISION

STB Ex Parte No. 664 (Sub-No. 1)

USE OF A MULTI-STAGE DISCOUNTED CASH FLOW MODEL IN DETERMINING THE
RAILROAD INDUSTRY'S COST OF CAPITAL

AGENCY: Surface Transportation Board.

ACTION: Advance Notice of Proposed Rulemaking.

SUMMARY: The Board is seeking comments on the use of a multi-stage Discounted Cash Flow Model to complement the use of the Capital Asset Pricing Model in determining the railroad industry's cost of capital.

DATES: Comments are due on or before April 14, 2008.

ADDRESSES: Send Comments (an original and 10 copies) referring to [STB Ex Parte No. 664 (Sub-No.1)] to: Surface Transportation Board, 395 E Street, S.W., Washington, DC 20423-0001.

FOR FURTHER INFORMATION CONTACT: Paul Aguiar, (202) 245-0323. [Assistance for the hearing impaired is available through the Federal Information Relay Service (FIRS) at 1-800-877-8339.]

SUPPLEMENTARY INFORMATION: Each year the Board measures the cost of capital for the railroad industry in the prior year. The Board then uses this cost-of-capital figure for a variety of regulatory purposes. It is used to evaluate the adequacy of individual railroads' revenues for that year.¹ It is also employed in cases involving rail rate review, feeder line applications, rail line abandonment proposals, trackage rights compensation cases, and rail merger review, as well as in our Uniform Rail Costing System (URCS).

The Board calculates the cost of capital as the weighted average of the cost of debt and the cost of equity, with the weights determined by the capital structure of the railroad industry (i.e., the proportion of capital from debt or equity on a market-value basis). While the cost of debt is observable and readily available, the cost of equity (the expected return that equity

¹ See 49 U.S.C. 10704(a)(2),(3); Standards for Railroad Revenue Adequacy, 364 I.C.C. 803 (1981), modified, 3 I.C.C.2d 261 (1986), aff'd sub nom. Consolidated Rail Corp. v. United States, 855 F.2d 78 (3d Cir. 1988).

investors require) can only be estimated. How best to calculate the cost of equity is the subject of a vast amount of literature. In each case, however, because the cost of equity cannot be directly observed, estimating the cost of equity requires adopting a finance model and making a variety of simplifying assumptions.

In Methodology to be Employed in Determining the Railroad Industry's Cost of Capital, STB Ex Parte No. 664 (STB served Jan. 17, 2008), the Board changed the methodology that it will use to calculate the railroad industry's cost of equity. We concluded that the time had come to modernize our regulatory process and replace the aging single-stage DCF model that had been employed since 1981. We decided to calculate the cost of equity using a Capital Asset Pricing Model (CAPM). Many parties had urged that the Board use a multi-stage Discounted Cash Flow model (DCF) in conjunction with CAPM. The record in that proceeding did not support adopting any particular DCF model. However, we did not want to foreclose the possibility of augmenting CAPM with a DCF approach. As we explained in the January 2008 decision (footnotes omitted):

There may be merit to the idea of using both models to estimate the cost of equity. While CAPM is a widely accepted tool for estimating the cost of equity, it has certain strengths and weaknesses, and it may be complemented by a DCF model. In theory, both approaches seek to estimate the true cost of equity for a firm, and if applied correctly should produce the same expected result. The two approaches simply take different paths towards the same objective. Therefore, by taking an average of the results from the two approaches, we might be able to obtain a more reliable, less volatile, and ultimately superior estimate than by relying on either model standing alone.

Ultimately, both CAPM and DCF are economic models that seek to measure the same thing. CAPM seeks to do so by estimating the level of expected returns that investors would demand given the perceived risks associated with the company. By contrast, DCF models estimate the expected rate of return based on the present value of the cash flows that the company is expected to generate. Both approaches are plausible and intuitive, but are merely models.

The Federal Reserve Board noted in its testimony in STB Ex Parte No. 664 that “academic studies had demonstrated that using multiple models will improve estimation techniques when each model provides new information”² There is, in fact, robust economic literature confirming that in many cases combining forecasts from different models is more accurate than relying on a single model.³

² February 2007 Hearing Tr. at 18.

³ See generally David F. Hendry & Michael P. Clements, Pooling of Forecasts, VII Econometrics Journal 1 (2004); J.M. Bates & C.W.J. Granger, The Combination of Forecasts in Essays in Econometrics: Collected Papers of Clive W.J. Granger. Vol. I: Spectral Analysis, Seasonality, Nonlinearity, Methodology, and Forecasting 391-410 (Eric Ghysels, Norman R.

(continued . . .)

Though the record before us in STB Ex Parte No. 664 was insufficient for us to adopt a DCF model, it did illuminate a number of criteria to guide us in this effort. First, and foremost, the DCF model should be a *multi-stage model*. From 1981 through 2005, the agency relied on a single-stage DCF. That model required few inputs and few judgment calls, permitting the agency to promptly develop an estimate of the cost-of-equity component of the cost of capital. The simplicity of this model, however, was due in part to an assumption that the 5-year growth rate would remain constant thereafter. That assumption proved problematic. In recent years, railroad earnings have grown at a very rapid pace, exceeding the long-run growth rate of the economy as a whole. While it is certainly possible that railroad earnings will continue to grow rapidly for many years, they cannot do so *forever* as the single-stage DCF model assumes. Thus, in years when the 5-year growth rate is very high, this model may overstate the cost of equity. Similarly, in years when the railroads experience a downturn and the predicted 5-year growth rate is very low, the model may understate the cost of equity.

Second, the DCF model should not focus on dividend payments only. Finance theory suggests that the value of a firm should be independent of its dividend policy.⁴ Certainly, changes in dividends do influence stock prices, but only because these changes are “news” to which the market responds in valuing the stock; it is the “news,” not the dividend distribution itself, that drives the change in prices. Moreover, companies return profits to their shareholders in ways other than increasing dividends, including buying back shares. As a result, we no longer think that a simple dividend distribution model is an acceptable framework for valuing firms. Rather, broader measures of cash flow or shareholder returns should be incorporated.

Third, the DCF model should be limited to those firms that pass the screening criteria we set forth in Railroad Cost of Capital – 1984, 1 I.C.C.2d 989 (1985).⁵ Thus, while the general approach used in the Morningstar/Ibbotson multi-stage DCF model might prove satisfactory, we cannot consider the model as it applies to firms that do not meet our screening criteria.

(. . . continued)

Swanson, & Mark W. Watson, eds., 2001); Spyros Makridakis and Robert L. Windler, Averages of Forecasts: Some Empirical Results, XXIX Management Science 987 (1983).

⁴ See, e.g., Franco Modigliani & Merton H. Miller, The Cost of Capital, Corporation Finance, and the Theory of Investment, 48 Am. Econ. Rev., 261-97 (1958). By integrating tax- and information-related considerations on capital structure and dividend policy choices, Modigliani and Miller greatly influenced subsequent developments in the field of finance. See Sudipto Bhattacharya, Corporate Finance and the Legacy of Miller and Modigliani, 2 J. Econ. Perspectives 135-47 (1988).

⁵ Under those criteria, we include in the analysis only those Class I carriers that: (1) had rail assets greater than 50% of their total assets; (2) had a debt rating of at least BBB (Standard & Poors) and Baa (Moody’s); (3) are listed on either the New York or American Stock Exchange; and (4) paid dividends throughout the year. A Class I railroad is one having annual carrier operating revenues of at least \$250 million in 1991 dollars. 49 CFR 1201.1-1.

Fourth, we must be satisfied that any multi-stage DCF we might adopt would, when used in combination with the CAPM model, enhance the precision of the resulting cost-of-equity estimate. In other words, we must be persuaded that, over a sufficiently lengthy historical analysis period, the combination forecast would result in a lower variance than reliance on the CAPM approach alone.

In addition to these four criteria, interested parties are invited to identify and address any other criteria the Board should consider in evaluating a multi-stage DCF. For example, parties to STB Ex Parte No. 664 indicated that atypically large capital investment by the railroads could affect the results of a DCF analysis. Parties should address this concern and show how a multi-stage DCF would account for such investments.

Finally, all interested parties are invited to submit comments on an appropriate multi-stage DCF for use in the Board's cost-of-equity determination. Parties should include any workpapers needed to demonstrate that their proposal combining CAPM and DCF is more precise than the Board's CAPM methodology alone. Comments and workpapers are due to the Board on April 14, 2008. If we are not ultimately persuaded that use of a particular multi-stage DCF model would improve the Board's cost-of-equity calculation, we will terminate this proceeding.

This action will not significantly affect either the quality of the human environment or the conservation of energy resources.

Board decisions and notices are available on our website at "WWW.STB.DOT.GOV."

Decided: February 7, 2008.

By the Board, Chairman Nottingham, Vice Chairman Mulvey, and Commissioner Buttrey.

Anne K. Quinlan
Acting Secretary