BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

Comprehensive Review of the Revenue Requirements and Rate Stabilization Plan of Southern Bell Telephone & Telegraph Company	Docket No. 920260-TL Filed: November 16, 1992

DIRECT TESTIMONY

OF

JAMES A. ROTHSCHILD

On Behalf of the Citizens of The State of Florida

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1 **SOUTHERN BELL TELEPHONE AND TELEGRAPH**

2 **COMPANY**

3 **TESTIMONY OF JAMES A. ROTHSCHILD**

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5

1 **I. STATEMENT OF QUALIFICATIONS OF JAMES A.**
2 **ROTHSCHILD**

3 Q. Please state your name and business address.
4 A. My name is James A. Rothschild and my address is 115 Scarlet Oak Drive,
5 Wilton, Connecticut 06897.
6
7 Q. What is your occupation?
8 A. I am a financial consultant specializing in utility regulation. I have
9 experience in the regulation of telephone, electric, gas, sewer, and water
10 utilities throughout the United States.
11
12 Q. Please summarize your utility regulatory experience.
13 A. I am president of Rothschild Financial Consulting and have been a
14 consultant since 1972. From 1979 through January 1985 I was President of
15 Georgetown Consulting Group, Inc. From 1976 to 1979 I was the President
16 of J. Rothschild Associates. Both of these firms specialized in utility
17 regulation. From 1972 through 1976 Touche Ross & Co., a major
18 international accounting firm, employed me as a management consultant.
19 Recently, Touche Ross & Co. merged to form Deloite Touche. Much of my
20 consulting work done while at Touche Ross was in utility regulation. While
21 associated with all the above firms, I have worked for various state Utility
22 Commissions, Attorneys General, and Public Advocates on matters relating to
23 regulatory and financial issues. These have included rate of return, financial
24 issues, and accounting issues. (See Appendix A.)
25

1 Q. Please describe consulting work you have done on non-utility matters.
2 A. I consulted in the preparation of bond prospecti for five hospitals, helped a
3 major European chemical company in deciding whether to acquire an
4 American owned chemical plant, served as a consultant to a major corporation
5 after it went into a Chapter XI bankruptcy, and advised the City of New York
6 about procedures and attendant savings on its payroll disbursement systems.
7
8 Q. What is your educational background?
9 A. I received an M.B.A. in Banking and Finance from Case Western
10 University (1971) and a B.S. in Chemical Engineering from the University of
11 Pittsburgh (1967).
12
13

1 **II. SUMMARY OF CONCLUSIONS**

2

3 Q. Please summarize your conclusions on the cost of capital to Southern Bell
4 Telephone and Telegraph company.
5 A. My conclusions are:
6
7 **a) Cost of equity.** The cost of equity to Southern Bell Telephone and
8 Telegraph Company is 11.00%. This estimated cost of equity is only
9 applicable to the capital structure I have used to compute the overall
10 cost of capital. This is in contrast to the 14.60% equity cost rate
11 requested by the company.
12
13 **b) Capital Structure.** This capital structure of Southern Bell
14 Telephone and Telegraph Company, before making Florida Intrastate
15 adjustments, contains 62.34% common equity, 4.07% short-term debt,
16 and 33.59% long-term debt. There is no difference in the capital
17 structure requested by the company and the one that I have used.
18
19 **c) Embedded cost rates.** The embedded cost of long-term debt of
20 Southern Bell Telephone and Telegraph Company is 8.73%, and the
21 cost of short-term debt is 6.05%. There is no difference between the
22 embedded cost rates I have used and those requested by the company
23 in its revised exhibits.
24
25 **d) Overall cost of capital.** Southern Bell Telephone and Telegraph

Co. has an overall cost of capital of 10.04%, or 8.15% on the adjusted 1991 Florida Intrastate capital structure. This 8.15% is in contrast to the 9.96% requested by the company. See Schedule 1, P. 1.

Q. How did you arrive at your recommended cost of equity?

A. I relied upon the Discounted Cash Flow, or DCF, method to quantify the cost of equity. This testimony presents two versions of the DCF method. One is the simplified, or D/P + g version of the method.

The simplified version is useful when expectations are:

- for the same future growth rate estimate in stock price, earnings per share, dividends per share, and book value per share,

  and

- when that growth rate is best expressed as a constant future growth rate. This does not necessarily mean that future growth is expected to be constant. It means that no reason exists to expect future growth to be higher or lower than average in any one specific future year.

I implemented the full, or complex, version of the DCF method by separately discounting each annual cash flow. This version permits the cost of equity to be properly quantified whether or not constant growth is expected

1 for the future. This more complex version of the DCF does not require a
2 consistency of growth assumption. This is because it separately discounts each
3 expected future cash flow.
4 Both versions of the DCF were applied to a comparative group of
5 telephone companies consisting of the former AT&T regional holding
6 companies and directly to Bell South, the parent of Southern Bell.
7
8 Q. Is it your contention that each of these companies in the two comparative
9 groups is the same as Southern Bell?
10 A. No. All companies have certain unique characteristics that make them, in
11 one way or another, different from Southern Bell. However, the factors of
12 primary import that influence the cost of equity are the same: their business
13 consists primarily of regulated public utilities that obtain most of their income
14 by providing regulated telephone service. To the extent that the comparative
15 companies include the impact of some unregulated activities, this will tend to
16 cause my equity cost result to be slightly higher than is appropriate for the
17 regulated telephone utility operations of Southern Bell. This is because the
18 unregulated activities tend to have more business risk than the regulated
19 operations. In response to Citizen's 12th Interrogatories, Item No. 311, Dr.
20 Billingsley acknowledges that "... the RBHC's are, as a group, riskier than the
21 regulated operations of Southern Bell."
22
23 Q. Do you present a schedule which summarizes your DCF findings?
24 A. Yes. Summarized results of the DCF methods I present are on Schedule 1,
25 P. 2. The indicated results vary from a low of 10.55% to a high of 11.25%.

1

2 Q. What cost of equity is indicated, on average, for the regional holding
3 companies?
4 A. 11.20%. I reached this conclusion by observing that the simplified DCF
5 method applied to the regional holding companies indicated a cost of equity of
6 10.55% to 11.10%, based upon a dividend yield of 5.29% to 5.69%, [1] and a
7 future expected growth rate of 5.39% to 5.41%. See Schedule 3, P. 1. The
8 growth computation for the regional holding companies equals the expected
9 internal growth from the retention of earnings calculated through the use of "b
10 x r" which provides a measure of the sustainable growth available for retention
11 by a retention rate ("b," of 32.03% to 29.31% times "r" of 16.00%), plus
12 external growth of 0.24% to 0.26% from the sale of common equity above
13 book value.
14 As discussed in detail later in the testimony, I examined analysts'
15 forecasts of "r," historic actual levels of allowed returns on book equity, and
16 historic actual earned returns on book equity to formulate my estimate of the
17 value of "r" expected by investors.
18 The actual dividend rate, and the future expected value for "r" are the
19 inputs I used to derive the value of "b."
20 The dividend yield is from the average of both the spot dividend yield
21 as of 9/30/92, and the average yield over the twelve months ended 9/30/92.
22 In determining the dividend yield I considered both the results of the spot and

1 The dividend yields are obtained from Schedule JAR 2, Page 1 by summing up the dividend yield on market price from line 1 of that schedule with the increment to dividend yield for growth to next year as shown on line 6 of the same schedule.

1 average data.

2 The indicated cost of equity from the complex version of the DCF
3 method applied to the regional holding companies is 10.64% to 11.25%. The
4 computation of this result is from a separate estimate of the expected dividend
5 rate and final proceeds from the sale of the common stock 40 years into the
6 future. Under this model, the discount rate is determined to equate the
7 current stock price to the sum of all future expected cash flows. Cash flows
8 are from future expected dividends and future proceeds from the sale of the
9 stock. This version of the model, which I term the complex version,
10 essentially serves as a check to the simplified model if, as is generally the case
11 for public utilities, constant future growth is expected. However, the complex
12 model can become critically important in making an independent evaluation of
13 the cost of equity, if conditions are such that the best estimate of future
14 growth expectations of earnings, dividends, and stock price are not constant.

15 A straight average of the results obtained from application of both the
16 simplified and complex DCF methods to the regional holding companies is
17 10.76% to 11.18%. A similar straight average of the Bell South results only
18 shows a cost of equity range of 10.60% to 11.13%.

19 My recommended cost of equity is equal to 11.20% less a -0.20%
20 increment . The increment allows for the lower financial risk in the capital
21 structure of Southern Bell as compared to the average telephone utility
22 represented by the comparative groups. The company requested capital
23 structure contains 62.34% common equity in its capital structure (before
24 making Florida Intrastate adjustments), which is 4.23% lower than the
25 58.11% average level of common equity in the regional holding companies.

1 The data on Schedule JAR 7 shows that the allowed return on equity has to
2 drop by up to about 0.04% to .09% for each 1% increase in the level of
3 common equity in order to economically justify a more equity rich capital
4 structure Also, a higher level of common equity in the capital structure
5 reduces the financial risk experienced by a company, which causes investors to
6 demand a lower cost of equity. This justifies a decrease to the cost of equity
7 for application to the Southern Bell capital structure. This is why I subtracted
8 a 0.20% capital structure cost differential from the 11.20% cost of equity
9 indicated for the regional holding companies.
10 In addition to the above analyses, I studied the relationship between
11 future expected returns on equity and market-to-book ratios and examined the
12 long-term historic returns on equity earned by the Dow Jones Industrials.
13 The analysis of these factors confirm that my DCF result is appropriate.
14
15 Q. Your recommended cost of equity IS 3.60% less than the 14.60% level
16 recommended by company witness Billingsley. why does this difference
17 exist?
18 A. Dr. Billingsley computed the cost of equity for Southern Bell based upon
19 applying a version of the DCF method a group of 20 non-utility companies
20 that he felt were of comparable risk to Southern Bell. These companies are:
21
22 Mobil Corp.
23 Amoco Corp.
24 McDonalds Corp.
25 Exxon Corp.

1 Kimberly-Clark Corp.
2 Du Pont (E.I.) de nemours
3 Super Valu Stores, Inc.
4 Anheuser-Busch Cos., Inc.
5 Chevron Corp.
6 Emerson Electric Corp.
7 Sara Lee Corp.
8 Air Products Chemicals, Inc.
9 Hershey Foods Corp.
10 Lincoln Telecommunications
11 Raytheon Co.
12 Pfizer, Inc.
13 Yellow Freight Systems
14 Armstrong World Inds., Inc.
15 Pitney Bowes, Inc.
16 K Mart Corp.
17
18 Dr. Billingsley applied the DCF method by merely assuming that the
19 earnings per share growth rate forecast to occur from 1991 out to a normal
20 1996 year would be indicative of what investors would expect for a sustained
21 growth rate substantially beyond the initial five-year period. This is an
22 especially serious error in the current case because, for many companies,
23 earnings in 1991 were atypically low due to the recession. Growth from a
24 recessionary low out to a future period when earnings are expected to be
25 normal will be extraordinarily high. Dr. Billingsley acknowledges, on page 31

1 of his testimony, that a five-year forecasted growth rate is invalid for use with
2 the regional holding companies. What he has failed to recognize that, due to
3 the recession, these five year growth rates are equally invalid for use with the
4 "cluster" companies he has selected.
5 Other problems with Dr. Billingsley's use of the DCF method include
6 his overstatement of the dividend yield through the incomplete use of the
7 quarterly dividend effect and an overstatement of financing costs.
8 In addition to the DCF method, Dr. Billingsley presents a risk premium
9 method. His risk premium method was implemented by applying his version
10 of the DCF method to the aggregate data for the S&P 500 companies for each
11 month from 10/87 through 5/92. From his DCF result, he subtracted the
12 interest rate being earned on Moody's Aaa utility bonds. He concluded that
13 the average risk premium was 6.16%. Without making any adjustment for any
14 risk differential between that experienced by the S&P 500 and that of
15 Southern Bell, Dr. Billingsley merely added this 6.16% average risk premium
16 to the average 3 month level of interest rates being obtained by Moody's Aaa
17 rated utility bonds. In addition to Dr. Billingsley's failure to make a risk
18 adjustment, other serious problems with his risk premium approach include
19 the fact that this method was based upon a DCF model that overstates the
20 dividend rate by inconsistently applying the quarterly dividend model, and
21 contains inaccuracies to the extent that the five-year projected earnings per
22 share are not indicative of earnings expectations beyond the initial five year
23 period.
24 An entire section of this testimony provides a detailed explanation of
25 the very serious problems embedded in the equity costing techniques

1 presented by Dr. Billingsley. No one can compute the cost of equity with
2 absolute precision. However, consideration of generally accepted financial
3 theories as supported in financial textbooks and direct observations of the
4 financial markets conclusively show that Dr. Billingsley' equity cost
5 presentation is invalid and has resulted in a serious overstatement of the cost
6 of equity.
7

1 **III . CAPITAL STRUCTURE**

2

3 Q. How have you determined the capital structure in this case?

4 A. I have adopted the capital structure proposed by the company.

5

6

7

8

9

1 **IV. COST OF FIXED CAPITAL**

2

3 Q. What costs of fixed capital have you utilized?

4 A. I have adopted the fixed cost of capital as proposed by the company.

5

6

1 V. COST OF COMMON EQUITY

2

3 **A. Summary of Conclusions on Cost of Equity**

4

5 Q. You said that the cost of equity to Southern Bell telephone and Telegraph
6 co. is 11.00%. Please explain how you arrived at this result.
7 A. As indicated previously, my 11.00% cost of equity recommendation is
8 from the findings of both the simplified and complex versions of the DCF
9 analysis. Additionally, the result recognizes the lower financial risk contained
10 in the capital structure being used by Southern Bell. Southern Bell has a test
11 year capital structure consisting of 62.34% common equity, before making
12 Florida intrastate adjustments. This compares to a 58.11% average level of
13 common equity for the regional holding companies. See Schedule 4, P. 3.
14 10.55% to 11.10% is the DCF indicated cost of equity range from
15 applying the simplified DCF model to the regional holding companies.
16 10.64% to 11.25% is the range indicated by the complex DCF model for the
17 same companies.
18

19 Q, What were the results of the simplified version of the DCF method?
20 A. Summarized in the following table are the results of my
21 implementation of the simplified version of the DCF model:
22
23
24
25

1

	Dividend Yield	Increment to Dividend Yield to Allow for Growth for the Next 12 Months	Future Expected Growth Rate	DCF Indicated Cost of Equity
Based Upon the Average of the High and Low Stock Prices for the Year Ended High for				
COMPARATIVE TELEPHONE COMPANIES	5.54% +	0.15% +	5.41% =	11.10%
BELLSOUTH	5.58% +	0.15% +	5.35% =	11.08%
Based Upon Stock Prices as of High for				
COMPARATIVE TELEPHONE COMPANIES	5.15% +	0.14% +	5.39% =	10.68%
BELLSOUTH	5.24% +	0.14% +	5.17% =	10.55%

Note: Addition differences due to rounding.

2

3 Q. What were the results you obtained from the complex version of the DCF

4 method?

1 A. The complex version of the DCF method relies on the results obtained
2 from separately forecasting each future expected dividend payment, and the
3 future expected selling price of the stock. Therefore, unlike the simple version
4 of the DCF method, it can maintain its accuracy even with an expectation of
5 non-constant growth for the future. However, the traditional terms of
6 dividend yield plus growth do not apply to the more complex DCF model.
7 Instead, the result is obtained through the application of numerous repeated
8 calculations. This is accomplished by first providing the computer with a very
9 rough estimate of the discount rate. Then, the computer keeps modifying the
10 discount rate until it finds the rate at which the discounted value of all of the
11 future cash flows is exactly equal to the original purchase price of the stock.
12 The summarized DCF results for the complex model appear on
13 Schedule 1, P. 2. The range of results obtained from the complex version varied
14 from a low of 10.64% to a high of 11.25%.
15
16 Q. How did you quantify the -0.20% recommended adjustment to the cost of
17 equity that results from the capital structure and consequent financial risk
18 difference between Southern Bell Telephone and Telegraph Co. and the
19 comparative telephone companies?
20 A. The capital structure utilized by Southern Bell contains 62.34% common
21 equity before Florida intrastate adjustments. The average for the regional
22 holding companies was 58.11% on 12/31/91. See Schedule 4, P. 3.
23 Each dollar of common equity has a considerably higher revenue
24 requirement associated with it than does a dollar of debt. This is not only
25 because the common equity of a company generally costs more than it would

1 for new debt, but also because of the need to gross up for income taxes only
2 the return component allowed on equity. Interest on debt is tax deductible.
3 As explained above, the cost of debt and the cost of equity both tend
4 to decline as the level of common equity in the capital structure increases.
5 Therefore, it can make economic sense to increase the level of common equity
6 in the capital structure if the drop in the cost of debt combined with the drop
7 in the cost of equity is sufficient to offset what is otherwise a tendency for
8 revenue requirements to increase as the level of common equity in the capital
9 structure increases.
10 Schedule 7 provides an estimate of how much the allowed return on
11 book equity has to drop in order to be able to economically justify an increase
12 in the level of common equity in the capital structure. The analysis on this
13 page is based upon studying the bond rating to capital structure relationship of
14 electric companies because there are not a sufficient number of Telephone
15 companies to make this kind of a detailed analysis possible. The results in
16 Schedule 7 show that the allowed return on book equity has to increase of
17 about 0.04% to 0.09% for each 1% decrease in the level of common equity in
18 the capital structure. Since the average capital structure of the regional
19 holding companies contains 4.23% less common equity than utilized by
20 Southern Bell in this case, this justifies an increase in the allowed return on
21 equity of about 0.20%. (.06% times 4.23%, rounded down to .2%).
22
23 Q. Did you perform any analysis to check the reasonableness of your dcf
24 indicated results?
25 A. Yes. As additional support for my cost of equity recommendation in this

1 case, I made direct observations of the relationship between returns on equity
2 and market-to-book ratios, and an examination of the returns achieved by the
3 companies that make up the Dow Jones Industrial Average to check the
4 reasonableness of my equity cost recommendation.
5

6 **B. Simplified Version of DCF**

7

8 **1. Dividend Yields for Simplified DCF**

9 Q. How did you obtain the dividend yields?
10 A. I use two different ways to compute dividend yields. One way is to use the
11 spot stock price data as of 9/30/92 for each company and divide that into the
12 most current annualized dividend rate declared by each company. Another
13 way is to divide the most current annualized dividend rate declared by each
14 company by the average of the high and low stock price achieved by that
15 company over the year ending 9/30/92. In this way, I have considered both
16 the dividend yield data as of a recent point in time, and have put the current
17 dividend yield into the perspective of what has been happening over the last
18 year.
19 In both cases, I added one-half the future expected growth rate to the
20 dividend yield. Thereby, the calculated dividend yield incorporates investors'
21 expectations of dividend growth over the next year.[2]
22 The dividend yield results for the regional holding companies are
23 5.29% to 5.69% after making the addition of one-half of a years' growth.

2 The complex version does not directly use dividend yields. Instead, it determines the present value of each dividend payment as a discounted cash flow.

2. Growth Rate for Simplified DCF

a) Selection of Growth Rate Method

Q. How did you obtain the growth rates you used in the simplified, or d/p + g version of the DCF method?

A. I derived the growth rates mentioned earlier in this testimony from the internal growth rate, or retention growth rate, or "b x r" method, which is, as I discuss later, the only proper way to determine growth for use in the simplified DCF model. In this formula, "b" represents the future expected retention rate and "r" represents the future expected earned return on book equity. I computed the growth rate, "g," by using a future expected return on book equity value, or "r," of 16.00% for the group of Regional holding companies and used 15.25% for Bell South. The next section of this testimony explains how I obtained these estimates.

In order to complete the quantification of "g" in the simplified DCF model, it is necessary to know the value of both "r" and "b". The retention rate, or "b". used in the "b x r" retention growth formula is determined from the level of earnings per share that is consistent with the future expected earnings rate. The retention rate then comes from the following formula:

(E-D)/E, where

E= Earnings consistent with the future return on book equity expectation

D= Dividend rate used in the computation of the dividend yield.

1

2 Q. Is the retained earnings growth the only source of sustainable growth to a
3 utility company?
4 A. No. Sustainable growth can also occur through the sale of new common
5 stock. This kind of growth can occur because sales of common stock in
6 excess of book value will typically cause the average book value of all of the
7 company's outstanding common stock to increase. Since earnings per share is
8 equal to the book value per share times the earned return on book equity, the
9 higher the book value is for a given level of earned return achieved by a
10 regulated public utility, the higher its earnings will tend to be. Therefore,
11 book value growth arising from the sale of new common stock is an additional
12 part of the total growth a company will experience. As indicated above, I
13 have reflected additional growth for the sale of common stock in my
14 recommended growth rate. This was accomplished by determining the growth
15 rate in the number of shares outstanding as forecast by Value Line. Based
16 upon both this Value Line forecast and the actual market-to-book ratio of
17 each company, the increment to book value that will occur from the common
18 stock sales in excess of book value was computed by using the formula shown
19 on Schedule 3, Page 1, footnote [F].
20
21 Q. Is the "r," or return on book equity in the "b x r" determination of growth,
22 the same as the cost of equity, or "k"?
23 A. No. It is possible for the future expected return on book equity, "r," and
24 the cost of equity, "k," to be substantially different. In the past, I have seen
25 some people mistakenly confuse the value of "r" in the "b x r" approach with

1 the cost of equity.

2 "r" helps quantify the growth rate that investors expect. This is
3 because the rate of earnings actually earned on equity has a great influence on
4 the attained level of future cash flows. This is in contrast to the cost of equity,
5 "k." "k" reflects the return on equity which is sufficient to attract investors at
6 a given market price and in consideration of the anticipated cash flows from
7 that investment. If the market price is above book value, "k" will be less than
8 the return on book equity, and if the market price is below book value, "k"
9 will be higher than the return on book equity. Thus expected returns on a
10 market investment and on a book investment can be substantially different.

11 An analogy with bonds shows how different the cost of equity "k," and
12 the future expected return on book equity, "r" can be. Assume that a utility
13 company issued a non-callable long-term bond back when long-term interest
14 rates were 12% for $1,000 per bond and a coupon interest rate of 12%.
15 Further, assume that the bond is to reach maturity in another 30 years, and
16 that due to a decline in interest rates, a company could now issue a similar 30
17 year bond at an interest rate of 9%. If the current cost of interest being
18 demanded by investors is only 9%, the bond with a 12% coupon would have
19 a market price that is substantially in excess of its original face value. The
20 bond issued with an original face value of $1,000 would have a market price
21 of about $1,300. This is because the discounted cash flow, or DCF analysis
22 of the future expected cash flows has a net present value of about $1,300
23 when the future interest payments (of $120 per year on a 12% bond), and the
24 discount rate on final proceeds payment of $1,000 in 30 years is 9%. In the
25 hypothetical example, investors are willing to settle for an interest rate yield of

1 9%. In this example, "r" on the 12% bond (the bond equivalent of earned
2 return on book equity) would be 12%, but "k" (the total return on the market
3 price of the bond equivalent of cost of equity) would be only 9%. In the case
4 of this hypothetical bond, regulators could readily tell that investors were
5 more than willing to accept the 12% yield because the price of the bond would
6 be above its original issue price.[3]

7 As explained in the above example, when a bond has a market price in
8 excess of its face value, the total return received by an investor who purchases
9 the bond at market will be less than the coupon rate of interest. The same is
10 true for an investment in common stock. Only, instead of face value, the
11 appropriate comparison is to book value. Also, instead of a specific coupon
12 rate, no contract specifies the earnings return received by investors. Instead,
13 estimated levels of future cash flow determine the effective rate investors
14 receive. The return on book equity, or "r," that investors expect for the future
15 is the critical indicator of the future cash flow.

16

17 Q. Do stock analysts use the "b x r" method?

18 A. Yes. In the textbook Investments by Bodie, Kane and Marcus, (1989);
19 page 478, the authors describe the following:

---

3 Given the downtrend in interest rates that has occurred over the last several years, there are many examples of bonds selling above the original issue price. In evaluating such bonds, it must be recognized that those which are subject to being "called" by the issuing company may have a lower market price than similar bonds which are not subject to call provisions.

It should be noted that not everything is analogous between a bond and a stock. In the 12 percent bond example, the interest cost to the company remains at 12 percent over the life of the bond. As a result, the 12 percent rate must be passed on to ratepayers. Common stock returns, however, are not fixed. They change as the cost of equity changes.

1

2 How do stock analysts derive forecasts of g, the
3 expected growth rate of dividends? Usually, they first assume
4 a constant dividend payout ratio (that is, ratio of dividends to
5 earnings), which implies that dividends will grow at the same
6 rate as earnings. Then they try to relate the expected growth
7 rate of earnings to the expected profitability of the firm's
8 **future** investment opportunities.

9 The exact relationship is

10

11 $$g = b \times ROE$$

12 (17.2)

13

14 where "b" is the proportion of the firm's earnings that is
15 reinvested in the business, called the **plowback ratio** or the
16 **earnings retention ratio,** and ROE is the rate of return (return
17 on equity) on new investments. If all of the variables are
18 specified correctly, equation 17.2 is true by definition, ...
19

20 Q. In the above equation, does roe have the same definition as "r"?

21 A. Yes.
22

b) Determining "r" in the Simplified DCF model.

Q. What evidence is available to investors to estimate the future expected level of return on book equity?

A. The following are key factors available to evaluate "r":

- Returns on book equity forecast by securities analysts
- The historic levels and trends in allowed returns on equity
- Historic earned returns on equity.

My tendency is to give the most weight to the returns on book equity forecasted by securities analysts, especially when evaluating the aggregate data for a group of companies because they reflect an assessment of current investor expectations. However, examining historic earned returns on equity and allowed returns on equity are important checks to uncover what might be reporting errors or other problems with analysts' reports for any one company. Also, sometimes it is necessary to evaluate companies for which analysts' reports are not available.

Q. How did you determine the value of "r" that you used in your retained earnings growth computation?

A. The 16.00% investors' expectation of the future value for "r" that I used for the regional holding companies was obtained by evaluating :

1 • the future returns on book equity expected by Value Line,[4]

2 • the return on book equity consistent with the Zack's consensus 5

3 year growth estimate,[5]

4 • absolute levels of and trends in allowed returns on equity to

5 utility companies, and

6 • historic actual earned returns on equity.

7

8 Q. What future returns on equity are expected by value line and Zack's?

9 A. The average return on book equity expected by Value Line for the

10 telephone companies it covers is 16.29%. See Schedule 4, P. 4 .

11 The future earned return on book equity derived from the Zack's

12 consensus growth rates averaged 15.58% for the regional holding companies.

13 See Schedule 4, P. 4 .[6]

14

15 Q. Why don't you use the growth rates as compiled by Zack's directly in the

---

[4]Value Line is a widely subscribed to investment advisory service that provides reports on about 1,700 stocks. Reports are issued weekly. Over a one-year period, four reports are issued on each covered company.

5 Zack's Research is a service that surveys professional securities analysts to determine the consensus earnings per share forecast that is expected for a company. I obtain the Zack's consensus growth rates by accessing the results for the companies of interest to me via the Dow Jones News Retrieval computer database service. Zack's is a similar service to one compiled by I/B/E/S (Institutional Brokers Estimate System). I use Zacks because it is the one chosen by Dow Jones for use in its database.

[6]The future return on equity is derived from Zack's published five-year growth rate by escalating the earnings and dividends per share at the published growth rate. Book value is grown by adding earnings and subtracting dividends to the beginning book value. Return on eqity is then computed by dividing the earnings in the fifth year by the average book value for that fifth year.

1 simplified DCF formula?

2 A. The growth rates reported by Zack's are five year growth rates beginning
3 from an historic year. As such, it would be improper to merely plug these
4 growth rates into the D/P + g simplified version of the DCF formula because
5 they are not intended to be sustainable growth rates.

6 If a company had an atypically good or atypically bad year in 1991,
7 or if the earned returns on equity were for any other reason expected to be on
8 the increase, the five year growth rate as reported by Zack's would be
9 atypically low or high accordingly. Since the perceived abnormal nature of the
10 earnings might be industry-wide, using an average growth rate for the entire
11 group would likely not solve the problem. In order to be able to use these
12 growth rates in the D/P + g version of the DCF formula, it is therefore
13 necessary to compute what return on book equity will achieve the analysts'
14 consensus growth rate. In this way, it is possible to estimate analysts'
15 anticipated future return on book equity.

16

17 Q. Does the history of allowed return on book equity confirm your estimate
18 of a 16.00% earned return expectation on book equity?

19 A. Yes. The analysts' average expectations for future earned returns on book
20 equity were confirmed by observing the average returns on equity allowed to
21 regulated utilities. According to a Merrill Lynch report, average allowed
22 returns in the first quarter of 1992 varied from a high of 12.67% for electric
23 utilities to a low of 12.28% for telephone utilities. I also considered that
24 allowed returns on book equity were and continue to be in a downtrend. The
25 allowed returns on equity in many recent cases are in the 11% range.

1

2 Q. You said that the returns on book equity allowed to regulated public

3 utilities have been in a downtrend. could you provide specific data?

4 A. Yes. A report produced by Merrill Lynch entitled "Utility Industry,

5 Quarterly Regulatory Report", May 1992, compiles the average allowed

6 returns on equity by year separately for regulated telephone, gas, and electric

7 companies. The average allowed returns on equity have been as follows:

8

9

10 AVERAGE ALLOWED RETURNS ON EQUITY

		Electric	Gas	Telephone
11				
12				
13	1983	15.59%	15.52%	14.68%
14	1984	15.64%	15.41%	14.95%
15	1985	15.41%	14.49%	14.75%
16	1986	14.29%	13.29%	14.77%
17	1987	13.25%	12.53%	12.59%
18	1988	13.09%	12.05%	13.29%
19	1989	12.78%	12.76%	12.62%
20	1990	12.78%	12.75%	12.22%
21	1991	12.72%	12.31%	12.84%
22	1992 1st q.	12.67%	12.51%	12.28%

23

24

25 Q. What does the historic return on book equity data show?

1 A. As shown on Schedule 4, Page 2, the average earned return on book
2 equity achieved for the regional holding companies was 11.84% for 1991, and
3 14.07% for 1990. This shows that both Value Line and Zack's consensus are
4 expecting the earned return on book equity for telephone companies to
5 increase from recently achieved levels. This is plausible, particularly given
6 that the profitability of many telephone companies was adversely affected by
7 the recession.
8
9 Q. Please summarize how you obtained your conclusion for the future return
10 on book equity expected by investors for your comparative groups of
11 telephone companies?
12 A. As previously stated, my conclusion is that investors are expecting
13 regulated telephone utilities to earn an average of 16.0% on book equity.
14 I reached my conclusion for the future expected return on book equity
15 largely from:
16 • the 14.49% average future return on book equity for the regional
17 holding companies derived from the Zack's consensus. See
18 Schedule 4, Page 4; and
19 • the 16.79% Value Line expected return on book equity average
20 expectation. See Schedule 4, Page 2.
21
22 The historic actual returns on equity achieved by the comparative
23 telephone companies over the last two years was below the consensus levels
24 expected for the future. However, as previously noted, these earned return
25 levels are probably less than investors expect for the future return on book

1 equity in part because of the impact of the recession. Also, future earned
2 returns on equity might be expected to increase because of rapidly growing
3 activities such as cellular telephone operations. Therefore, it is reasonable that
4 most investors expect the future earned returns on equity to be in line with the
5 Zack's and Value Line expectations. In consideration of all of these factors,
6 the preponderance of evidence suggests that investors are expecting future
7 earned returns on book equity, "r," will be about 16.0% for the regional
8 holding companies.
9 The future earned return on equity expectation I used for Bell South
10 was 15.25%, or 0.75% less than for the regional holding companies. I used a
11 lower future expected return on book equity for Bell South than for the
12 average of the regional holding companies because both the Value Line
13 expected future return on book equity and the 1991 actual earned return on
14 book equity were lower for Bell South than for the average of the regional
15 holding companies.
16
17 c) Determination of Future Expected Retention Rate, "b."
18 Q. How have you determined the value of the future expected retention rate,
19 "b" that you used in your simplified DCF analysis?
20 A. I have recognized that the retention rate, "b" is merely the residual of the
21 dividend rate, "D" and the future expected return on book equity "r." Since,
22 by definition, "b" is the fraction of earnings not paid out as a dividend, the
23 only correct value to use for "b" is the one that is consistent with the
24 quantification of the other variables when implementing the DCF method.
25 The formula to determine "b" is:

1 $b = D/(1-E)$, where

2 b = retention rate

3 D = Dividends

4 E = Earnings.

5

6 However, "E" is equal to "r" times the book value per share. Book value per
7 share is a known accounting entry. Known also is the "E" consistent with the
8 future expected value for "r" and the "D" used to compute dividend yield.
9 Therefore, to maximize the accuracy obtainable from the DCF method by
10 being sure the quantification of the value of "b" was consistent with the
11 estimates I made for "r" and the value I used for "D", I directly computed the
12 value of "b" based upon the values of "D", "r," and book value.

13

14 Q. Can you provide an example of how unnecessary errors would be created
15 if there was an inconsistency between the retention rate, dividend rate, and
16 future expected return on book equity?
17 A. Yes. Consider the following hypothetical facts:

18

19 1) dividend yield had been computed based upon a $0.75 per
20 share dividend rate,
21 2) the future expected return on book equity was 13.0%,
22 3) book value was $10.00 per share.

23

24 On the basis of the above, the earnings per share determined to be
25 typical of the future would be the 13% future expected return on book equity

1 times the $10.00 book, or $1.30. This means that the sum total of earnings
2 that is available to pay dividends or for reinvestment in the business is $1.30.
3 If, as has been assumed, we already counted $.75 of the available $1.30 in
4 earnings to pay the dividend, then the only retention rate consistent with the
5 other assumptions is ($1.30 - $ 0.75) / ($1.30), or 42.3%. In this hypothetical
6 example, the only correct retention rate to use is 42.3%. A retention rate of
7 anything but 42.3% would result in an impossible inconsistency. For example,
8 if someone was to conclude that the retention rate should be 25%, and had
9 used the $.75 dividend in its dividend yield computation, earnings would have
10 to be $1.00, because a $.75 dividend requires $1.00 in earnings in order for
11 the retention rate to be equal to 25%. However, it was already assumed that
12 investors expect the future return on book equity to be 13%. Therefore, the
13 earnings per share derived from this expectation is $1.30. Earnings for a
14 company cannot be both $1.00 and $1.30 at the same time.
15
16 Q. What retention rates did you use?
17 A. Based upon the above formula, the retention rate used for the regional
18 holding companies was 32.03% to 32.26%. See Schedule 3, P. 1. The
19 retention rate I used for Bell South was 31.96% to 33.28%. See Schedule 2,
20 P. 1.
21
22
23 **C. Details of Complex DCF Model**
24 Q. Why do you also present the complex version of the dcf method in
25 addition to the simplified version?

1 A. One advantage of presenting the complex version of the DCF method is
2 that it provides a framework that will work even in special situations when
3 future payout ratios, earned returns on equity, or market-to-book ratios
4 change. Another advantage is that it serves as a check to show that the
5 growth rate used in the simplified version of the DCF model is credible. For
6 example, if an analyst expects, by whatever means used, an unrealistically high
7 growth rate to occur, the complex DCF method may establish that the growth
8 rate is improper. Therefore, the complex DCF model both shows that the
9 growth rate I have used in my simplified DCF is a sustainable growth rate, and
10 it provides a mechanism to keep the results of the DCF model valid if facts
11 should be presented which would suggest that non-constant growth rates can
12 produce a better estimate of the future than constant growth rates.
13
14 Q. How does the complex version of the dcf method operate as a framework
15 and as a check on the simplified version of the DCF model?
16 A. Computing in each year the required dividends, earnings, return on book
17 equity and market-to-book ratio permits a separate study of each of the key
18 causes of future cash flow. If, for example, the complex analysis shows that
19 the chosen growth rate could only occur if market-to-book ratios grow to
20 unrealistic levels, or the payout ratio goes to more than 100%, or the earned
21 return on book equity grows to lofty levels, then the growth rate chosen must
22 be too high. Conversely, if a detailed projection would show that payout
23 ratios, or market-to-book ratios, or the earned return on book equity would
24 have to decline to unrealistic levels, then the growth rate selected must be too
25 low.

1

2 Q. How did you estimate the future cash flows?

3 A. I projected earnings, dividends, and stock prices year-by-year over the
4 next 40 years. Events longer than 40 years into the future have a minimal
5 present value. [7]

6 I determined future earnings by multiplying the future book value per
7 share by the future expected earned return on book equity. For the purposes
8 of this case, I used the same future expected return on book equity as was
9 used for my implementation of the simplified version of the DCF model. [8]
10 Projected book value equals the beginning of year book value plus the current
11 years' earnings minus the current years' dividends. Book value growth
12 projections also include the effect of sales of new common stock.[9]

13 Moreover, projections assume a constant dividend payout ratio. [10]

---

7 For example, a change in an assumption that the selling market-to-book ratio would be 0.1 lower or higher than as of the time of purchase would introduce a potential inaccuracy in the indicated cost of equity of plus or minus about 25 basis points in a 30 year analysis, but a similar change in the market-to-book ratio expectation would introduce only plus or minus about 15 basis points in a 40 year analysis.

8 For reasons explained in the discussion of the simplified version of the DCF method, this is because I believe that is the best estimate of future earnings. However, if the use of a varying array of future expected returns on book equity, rather than a constant return, were supported by the facts, the same mathematical model would still be proper to use in determining the cost of equity.

9This is accomplished by adding an increment to book value based upon the projection of new sales of common equity and the market-to-book ratio. Since future earnings are computed based upon future expected returns on book equity, changes in the book value cause a corresponding change in forecasted earnings.

10 As in the case of the future expected earned return on equity assumption, if there were evidence to support the use of varying payout ratios instead of a constant payout ratio, the same model could still be used to accurately quantify the cost of equity. Unlike the simplified DCF model, this model specifically accounts for

1 Also, the derivation of the estimated future stock price is from the projected

2 book value assuming a constant market-to-book ratio.

3 The only cash outflow is the price that the investor has to pay for the

4 stock. The complex version of the model uses both the spot stock price as of

5 9/30/92, and the average stock price for the year ended 9/30/92.

6 As previously stated, the complex version of the DCF model indicates

7 a cost of equity of between 10.64% and 11.25%, 10.83% to 11.25% for the

8 regional holding companies, and 10.64% to 11.18% for Bell South. See

9 Schedule 1, Page 2.

10

11 **D. Financial Principles Supporting the DCF Method**

12

13 Q. Why is the DCF method valid?

14 A. Investors purchase stock with current cash because they perceive the

15 future cash received in the form of dividends and eventual proceeds from the

16 sale of the stock as being more valuable than the current cash. The DCF

17 method quantifies the rate of return by finding the discount rate that equates

18 the future cash expectations to the current market price.

19 Common stock dividend rates are not contractual. Similarly, there is

20 no contractually specified price at which the stock will sell in the future.

21 Therefore, the accuracy of the DCF method is dependent upon the degree

22 with which the future cash flow estimates of dividends and final selling price

23 (growth in market value) of the stock used in the DCF analysis are

---

the fact that a change in the payout ratio has an impact on the book value, and therefore the earnings rate achieved in the future.

1 representative of what the average investor is expecting for the future.

2 When an analyst's best estimate for the future is that earnings,
3 dividends, stock price and book value will all grow at the same rate, then
4 implementing the DCF method may be simplified by expressing the cost of
5 equity, as:

6

7 $$k = D/P + g$$

8 where:

9 k= cost of equity

10 D= dividend rate

11 P= market price

12 g= future expected growth rate

13

14 I applied the DCF method in a manner that is consistent with the
15 principle outlined in the prior paragraph.

16 Both the simplified and the complex approach to the DCF methods I
17 have presented are consistent with how securities analysts implement these
18 methods.

19

20 Q. Does the DCF method take into consideration regulatory influences on
21 future cash flow prospects for a utility company?

22 A. Yes. Rate levels influence a company's likely future earnings levels. Future
23 expected earnings levels influence future stock prices. Since one critical input
24 to the DCF model is stock price, the impact of changing stock prices is
25 captured by the DCF model. The Commission, in a rate proceeding, also sets

1 the opportunity for a company to produce earnings at a specified level.
2 Earnings are the source of dividends. Therefore, the overall level of rates
3 allowed by a commission influences the level at which a company will be able
4 to pay dividends in the future. Also, total earnings prospects have a strong
5 influence on a company's stock price. Therefore, the overall level of rates also
6 influences the future market price that a company's stock is likely to attain.
7 The interrelationship between the market price of a common stock and
8 the future cash flows (dividends and stock sale proceeds) which an investor
9 obtains as a result of the ownership of that stock determines the cost of
10 equity. For a going concern such as the typical regulated public utility, future
11 earnings determine future cash flow. From the perspective of a regulator, the
12 only way to measure whether or not investors believe a utility company is
13 being provided with a reasonable opportunity to earn a fair level of earnings
14 on the book value of its assets is by examining the stock price. If the stock
15 price is high in relation to the book value of the assets, this means that
16 investors are optimistic about a company's cash flow prospects. If a stock
17 price is low in relation to the book value of the assets, then investors are
18 pessimistic about the company's cash flow prospects.
19
20 Q. Can the stock price change even without an increase or decrease in
21 authorized rates?
22 A. Yes. Factors between rate cases, such as the general state of the
23 economy, including interest rate changes, can influence the level of earnings
24 expected by investors. Also, changes in the cost of equity demanded by
25 investors can, and often do, cause stock prices to change. For example,

1 several years ago when equity cost rates for utilities were up in the 14%
2 range, future cash flows expected by investors had to be higher than in the
3 current cost of equity environment to support any given stock price. Stock
4 prices will also change if the relative valuation placed on future earnings by
5 investors also changes. Note that the value of $1.00 of cash flow expected by
6 investors in one year is worth only $0.877 today when the cost of equity
7 demanded by investors is 14% ($0.877 X 1.14 = $1.00), whereas the same
8 $1.00 of earnings expected in one year is worth $0.909 when the cost of
9 equity demanded by investors is 10% ($0.909 X 1.10 = $1.00). The
10 difference in the relative value of future earnings becomes proportionally
11 larger the further out into the future that the expected cash flows occur.
12 The current stock price is logically equal to the sum of the net present
13 value of all of the future expected cash flows. As a result, stock prices
14 change if the cost of equity changes.
15
16 Q. Can you give a simple example that illustrates the underlying principle
17 behind the DCF method?
18 A. Yes. DCF stands for Discounted Cash Flow. What is being discounted is
19 the value of cash flow received in the future. This makes it possible to
20 properly equate the future receipts of cash to the value of current cash. One
21 thousand dollars received next year is worth less than the same amount
22 received today. This is true, if for no other reason, because a person could
23 take the $1,000 received today and put it in a bank account guaranteed by the
24 federal government. Assuming a 5% interest rate, at the time of withdrawal,
25 the person would receive $1,050 from the bank. In this way, $1,000 today is

1 worth the same as $1,050 received in one year. Because of this time value
2 associated with money, the relative value difference of the $1,000 received
3 next year versus the $1,000 received today is dependent upon the interest rate,
4 or cost of capital.

5 The thought process as explained above is directly applicable to a
6 decision to purchase common stock. The essential differences between an
7 investment in common stock and an investment in the bank account are that
8 the exact yield for common stock is unspecified and there is no federal
9 guarantee on the funds. Because of the uncertainties, the stock investment is
10 more risky. Nevertheless, the basic principle of the time value of money that
11 exists for the bank account investment still applies for the common stock
12 investment.

13 When an investor either buys stock in a company, or puts money in a
14 bank account, he or she gives up cash today in exchange for the right to
15 potential future gains. The investor in the bank account gets the specified
16 interest income, whereas the investor in common stock gets any dividends the
17 company may declare plus the right to sell the stock at prevailing market
18 prices. Today's stock price is the present value equivalent of the expected
19 dividends and the proceeds from eventually selling the stock. It is the interest
20 rate, or "discount rate," or "cost of equity," that makes the future anticipated
21 dividends and future anticipated selling price equal to the present market
22 price.

23 The simplified formula is $k = D/P + g$ where "k" equals the cost of
24 equity, "D" equals the dividend, "P" equals market price and "g" equals the
25 future anticipated rate of growth in dividends, earnings, book value, and stock

1 price. This version of the DCF method is applied by computing "D/P"
2 (dividend yield), determining "g" and then adding these two results together.
3 For reasons explained earlier, making a decision to use this simplified
4 version of the DCF formula requires that the retention rate times return on
5 book equity, or "b x r" approach be used to compute growth in order to
6 determine the cost of equity based on a future sustainable constant growth
7 rate. Other techniques to compute growth rates, such as the historic rate of
8 change in dividend or earnings, are from environments in which earnings,
9 dividends, book value, and stock price were calculated based upon historic
10 periods when these factors all grew at non-constant rates. This excludes them
11 from use in the simplified, or D/P +g version of the DCF formula.
12
13 Q. Is it generally proper to use the D/P + g simplified version of the DCF
14 method for public utilities?
15 A. Yes. For most regulated utilities, future expected business conditions are
16 relatively stable. Earnings fluctuate to a certain degree based upon local
17 weather and economic cycles, certain extraordinary events and the timing of
18 rate cases. However, results generally tend to cycle back to a normal profit
19 allowance as a result of commission orders to either increase or decrease
20 rates. This is in contrast to some non-utility companies that might have a fad
21 product with a profit expectation for only a few years or a developing
22 company with several years of projected poor earnings before its product
23 becomes successful.
24 Commonly, analysts' published future growth rates are computed from the
25 most recent historic year to five years beyond that most recent historic year.

1 Yet. it would be improper to simply project this five-year growth rate beyond
2 the initial five years. This is because analysts' published growth rates are not
3 constant growth rates. They include the impact of growth from a base year
4 that may have abnormally depressed or abnormally high earnings. Because
5 these analysts' projected growth rates are not constant growth rates, they
6 generally are only usable in the complex version of the DCF method. In
7 order for these growth rates to be sustainable, the historic base period used to
8 compute the 5 year growth rate would have to contain a return on book equity
9 and payout ratio that is exactly equal to the future anticipated return on book
10 equity and payout ratio. Using the resultant 5 year growth rate as "g" in the
11 simplified D/P + g formulation is a common mistake.
12
13 Q. Is the return on book equity, or "r," investors expect a key to the
14 accurate implementation of the DCF model?
15 A. Yes. Other things being equal, earnings per share are proportional to the
16 earned return on book equity. Earnings per share directly impact the future
17 cash flow expected by investors both because earnings provide the source of
18 dividends, and because the future stock price is dependent upon future
19 earnings and dividend prospects. Focusing on return on book equity is more
20 reliable than other means of estimating sustainable growth rates as long as the
21 value chosen for "r" is reflective of the return on book equity investors expect
22 in the current financial environment, and under normal weather and economic
23 conditions.
24
25 Q. Some analyses, including the one presented by Dr. Billingsley in this case,

1 use historic growth rates in computing the dcf indicated cost of equity. can
2 you provide an example of the problem of computing a compound annual
3 growth rate from an historic period model?
4 A. Yes. Take, for instance, the following example where economic
5 conditions in 1991 were unfavorable and as a result a utility company only
6 earned 10.0% on its book equity in that year, but investors believed the
7 company was capable of earning an average of 12.0% on book equity in a
8 normal year. In this case, the growth in earnings per share necessary to bring
9 the 10.0% earned return on book equity up to 12.0% would unsustainably
10 inflate analysts' estimates for growth over the next few years. Note that an
11 increase from 10% to 12% return on book equity is a one-time growth in
12 earnings per share of 20%. A non-recurring source of growth such as this,
13 even spread out over five years would still overstate the future sustainable
14 growth rate by approximately 4%, which if used in the DCF model could
15 overstate the cost of equity by up to 400 basis points. This growth rate
16 would not be sustainable because once the return on book equity made its
17 increase from 10% to 12%, analysts would be aware that the cause of growth
18 was a recovery of earnings from a time of abnormally depressed earnings to a
19 time of more normal earnings. In this example, the analyst's growth forecast
20 may be consistent with investor expectations, but it is still inappropriate to use
21 that type of growth in the D/P +g simplified formulation of the DCF model
22 because analysts never intended it to be a future sustainable growth rate.
23
24 Q. Are abnormal economic conditions the only potential source of
25 unsustainable growth rates?

1 A. No. It could also have been abnormal expenses (such as those caused by a
2 bad hurricane), or an overall change in cost of capital rates that caused a
3 modification to the earnings ability of utility companies. Also, gas, water, and
4 electric companies can have earnings that are abnormally high or abnormally
5 low in response to weather conditions.
6
7 Q. Will the use of a large group of comparative companies help to average
8 out the ups and downs caused by years of abnormal earnings?
9 A. No. This is because weather patterns, economic conditions, and the
10 overall levels of allowed returns on equity can and often do affect many of the
11 companies in a similar way.
12
13 Q. Can you provide textbook support for your observations that analysts'
14 growth rates are not constant growth rate forecasts?
15 A. Yes. The textbook Intermediate Financial Management, by Brigham and
16 Gapenski, The Dryden Press, 1990, at page 147 provides the following
17 discussion regarding the use of analysts forecasts:
18
19 It is possible to order these growth rate summaries, such as the
20 ones compiled by Lynch, Jones & Ryan in it's Institutional
21 Brokers Estimate System (IBES).
22 However, these forecasts often assume non constant
23 growth.
24 (Emphasis added)
25

1 Q. How should the growth rates for use in the simplified version of the dcf
2 model be estimated?
3 A. The future growth rate is dependent upon the future earnings a utility will
4 achieve. The proper determination of the future growth rate, or "g" portion of
5 the D/P + g formula, is to multiply the future expected earned return on book
6 equity by the portion of these future expected earnings retained in the
7 business rather than paid out as a dividend (retention rate). This results in a
8 sustainable growth rate that is appropriate for use in the simplified version of
9 the DCF method. Earnings retained in the business are what is available for
10 reinvestment in utility assets. Ultimately, the earnings of a utility company are
11 dependent upon the value of the assets included in rate base.
12
13 Q. Can you provide an example of how retained earnings and earned return
14 on book equity combine to produce growth?
15 A. Yes. Assume a company with a book value of $20.00 per share at the
16 beginning of a year earns 10% on equity and pays a dividend of $1.50 per
17 share. Its earnings in that year would be $2.00 (the $20.00 book value
18 multiplied by 10%). Retained earnings would be $2.00 less $1.50 of
19 dividends, or $0.50. Since the $0.50 represents a permanent increase in equity
20 capital, the book value of the company at the end of the year would be $20.50
21 per share. In this way, by foregoing the additional potential $.50 dividend, the
22 common equity holder has invested an additional $.50 in the business.
23 If the company anticipates that it will continue earning 10% on its
24 book equity, then anticipated earnings in the next year would be $2.05
25 ($20.50 multiplied by 10%). In this example the growth in earnings is

1 \$2.05/\$2.00 =1.025 or 2.5% growth. Mathematically, it is possible to express

2 the growth caused by retained earnings as "b" times "r" where "b" equals the

3 retention rate and "r" equals the future anticipated return on book equity. In

4 this example, the retention rate "b" is \$.50/\$2.00, or 0.25, and "r" has been

5 assumed to be 10%. The "b x r" result is therefore 0.25 x 10%, or 2.5%

6 growth.

7 Note, once again, that it is proper to compare the cause of growth in

8 earnings per share for a utility to the cause of growth in earnings in a savings

9 account. If an investor has \$1,000 in a savings account paying 5% interest, in

10 the first year earnings will be \$50. At the end of one year the account will

11 contain \$1,050. If the investor decides to leave the \$50 in the account (or

12 retain all earnings), then earnings in the next year will grow from \$50 to

13 \$52.50 (1,050 x 5%). Conversely, if the investor decides to withdraw the \$50

14 of first-year earnings, earnings in the second year will not grow to \$52.50, but

15 will remain at \$50. Exactly the same principle holds for determining the

16 sustainable growth rate of a common stock investment. Earnings that are

17 retained are reinvested in the business. The earnings produced from the assets

18 purchased with the reinvested earnings cause future earnings growth.

19 Alternatively, the payment of earnings as a dividend makes that portion

20 unavailable for reinvestment in assets that can cause future earnings growth.

21 Therefore, the future sustainable growth rate, whether it be earnings per share

22 for a company or the balance in a savings account, directly relates to "b" and

23 "r."

24

25 Q. To what does the growth component of the DCF formula refer?

1 A. It refers to the expected growth in cash flows. Cash flows include
2 dividends plus the eventual proceeds from the sale of the stock. Some
3 analysts incorrectly oversimplify the DCF model by saying that only dividends
4 are being discounted. However, since earnings are either reinvested or used
5 for dividends, earnings are more important than dividends in determining the
6 total future cash flow growth that is expected. Therefore, if the DCF model
7 were to examine only one factor, earnings would be preferable to dividends as
8 the indicator of total future cash flow. The following textbook quote shows
9 that it is earnings, not dividends, that are the relevant source of cash flow for
10 consideration in the DCF formula:

11 > There is nothing inconsistent between the dividend
12 > discount model presented in Chapter 16 and the irrelevance of
13 > the dividend decision. The dividend discount model indicates
14 > that the value of one share of common stock was equal to the
15 > present value of all the dividends expected in the future. The
16 > dividend irrelevance argument suggests that if the firm decides
17 > to increase its current dividend, then new shares will need to be
18 > sold. This, in turn, suggests that future dividends will be
19 > smaller, since the aggregate amount of dividends will have to
20 > be divided among an increased number of shares outstanding.
21 > **Ultimately, the current stockholders will be neither better
22 > nor worse off, since the increased current dividend will be
23 > exactly offset by the decreased future dividend.** (Emphasis
24 > added).

25 Page 502 of Investments by Sharpe and Alexander, Prentice Hall, 1990.

Q. Is there anything other than earnings and dividends that can influence the book value growth of a company?

A. Yes. As noted earlier, if a company sells new common stock equity, the amount received per share is equal to market price, not book value. The total common stock equity account includes the proceeds from the sale of new stock. Selling new stock increases the number of shares outstanding. Book value per share is equal to total common equity divided by total shares outstanding. Therefore, a new common equity sale at a price above the book value increases the existing book value per share. A new common equity sale at a price below book value decreases the existing book value per share.

Q. How does a change in book value per share effect earnings?

A. Conceptually, it is possible to make a separate year-by-year estimate of what the dividend for any given company will be. Thus, each year's dividend could be separately discounted back to arrive at its net present value. Through a series of repeated computations one can determine a discount rate that is sufficient for the stream of future cash flows to have the same net present value as the current market price. This procedure is moderately cumbersome. When certain specific conditions exist, it is possible to greatly simplify the process. **If and only if** there is no basis to forecast different rates of future expected growth for earnings, dividends, book value, and stock price, it is mathematically acceptable to use the simplified version of the DCF formula.[11] Earnings per share is equal to the book value per share times

1 return on book equity. Therefore, anything that causes the book value per
2 share of a utility company to decrease will tend to cause the earnings per share
3 to decrease and anything that causes the book value per share to increase will
4 tend to cause the earnings per share to increase.
5
6 Q. Please summarize what factors need to be determined in order to be able
7 to correctly apply the D/P + g version of the dcf method to arrive at an
8 indicated cost of equity?
9 A. Four determinations are part of the proper application of the D/P + g
10 formulation of the DCF Method:
11

11 Earnings, book value, dividends, and stock price virtually never actually grow at the same rate. However, what is important to recognize in using the simplified version of the DCF model is that the analyst has no basis to forecast different future rates of growth for each of these items.

1 1. Dividend Yield (D/P);

2

3 2. The return on book equity rate which investors anticipate a

4 company will earn in the future;

5

6 3. The future expected retention rate; and

7

8 4. The impact of any sales of new equity at other than book value,

9 a factor which needs to be reflected as an increment to the

10 growth rate computed from the "b x r" computation.

11

12 Whether using the D/P +g simplified version of the DCF method, or

13 using the full DCF method, it is essential that the above determinations be

14 internally consistent.

15

16 Q. Can you provide an example?

17 A. Yes. Assume a company is being evaluated based upon the following:

18

19 Market Price = $14.00/share

20 Book Value = 10.00/share

21 Dividend = 1.00/share

22

23 Then the dividend yield is $1.00/$14.00, or 7.14%

24

25 Q. In this example, how would the retention rate be computed?

A. The retention rate is dependent upon both the dividend rate used to compute the dividend yield and the future expected return on book equity. For example, if an analyst felt that investors anticipated this hypothetical company to be able to earn 12.0% on its equity in the future, the important fact to note is that the determination of the only correct retention rate to use with the above assumptions is as follows:

Anticipated Return On Book Equity of 12.0% x
Book Value of $10.00 = $1.20 earnings per share

$$\frac{\text{Dividend of \$1.00}}{\text{Earnings per Share of \$1.20}} = 0.833 \text{ Payout Ratio}$$

Retention rate = 1 - 0.833 payout ratio, or 0.167.

Q. Is it proper to separately estimate the dividend rate, the future expected return on book equity, and the retention rate?

A. No. The point of the above example is to show that the dividend yield computation and the growth rate computation are interdependent, not independent determinations. This is because the allocation of each dollar of earnings available to a company may be either to dividends or reinvested in the business. Dividends provide a current benefit to investors. Reinvested earnings provide a future benefit in the form of growth in earnings.

Q. Is it possible to precisely determine the cost of equity?

1 A. Used properly, the DCF model is the most accurate available means to
2 quantify the cost of equity. Even this method contains a certain degree of
3 imprecision because it depends upon the determination of investors'
4 expectations of future cash flow. Future cash flow is highly dependent upon
5 future expected earnings, or return on book equity levels. Earnings levels are
6 not guaranteed, and are not specified by contract.
7 The greatest source of imprecision in arriving at the cost of equity in
8 utility rate proceedings comes from the improper selection of techniques, or
9 the misapplication of the selected techniques rather than a difficulty of
10 quantification of investors' expectations. For example, in the DCF method, if
11 one approaches the quantification of investor growth expectations by merely
12 observing historic growth rates or even short-term projections of growth
13 rates, a misapplication of the DCF method would likely result. Consequently,
14 it is very important to properly quantify growth. Recognizing that it occurs
15 because of earnings retained in the business and re-invested in used and useful
16 assets, and using a realistic estimate of the future return on book equity,
17 produces a much more accurate estimate of growth.
18
19 **E. Market Price Relationship to Investors' Expectations of Return on**
20 **Book Equity.**
21
22 Q. Does the original cost of the assets owned by a company determine the
23 market price of a company's common stock?
24 A. Only indirectly. The future cash flows, which are the direct determinant of
25 stock price, are created by the earning ability of the assets owned by the

1 company. Company management decides what assets to produce with the
2 funds available to a company. Therefore, it is the anticipated success of
3 management in earning future profits on assets, not merely the cost of the
4 assets, that determines the market price for essentially any stock.
5 Absent the impact of disallowed rate base or operating expenses,
6 regulators should strive to set earnings sufficient to provide investors a return
7 on book equity on an original cost rate base which is consistent with the
8 return on equity demanded by investors. If regulators were to set earnings at
9 a level that would cause investors to set the market price below book value,
10 the perceived earnings power of the assets is worth less than the net original
11 cost. Conversely, if regulators were to set earnings at a level that would cause
12 investors to set the market price above book value, this would mean investors
13 would be perceiving that the profits on the assets would be high enough to be
14 worth more than the original cost of the assets.
15 If the net present value of the future perceived cash flows which
16 investors expect is equal in value to the original cost of the assets, then the
17 market price will equal the original cost, or book value of the company's
18 stocks and bonds. Conversely, if investors believe the net present value of
19 the future cash flows is more (or less) than the book value of the assets owned
20 by a company, then the market price of the company's stocks and bonds will
21 be correspondingly more (or less) than the book value of the company's
22 assets.
23
24 Q. Are there any undesirable results associated with setting a return at some
25 level other than that which would result in a market price equal to the book

1 value of used and useful utility investment?

2 A. Yes. If the market-to-book ratio target were less than 1.0, management

3 might resist making new capital investments in order to minimize dilution.

4 Conversely, a market-to-book ratio above 1.0 derived from the authorized

5 return would also be an undesirable target for a regulated company. Not only

6 would it result in higher profits than appropriate, it also would give

7 management an incentive to invest in unneeded new assets. Equity raised to

8 finance the new assets would cause the book value to inflate. Therefore, if

9 regulation permits a utility to increase its book value per share merely by

10 purchasing new assets, a potential risk exists that a utility may purchase more

11 assets than needed to provide safe and adequate service.

12 The DCF method measures the rate of return investors expect to earn on

13 their market price investment. Market price will equal book value once

14 investors believe that regulators will allow a utility company the opportunity

15 to earn the same return on book value that the investors are demanding on

16 market value.

17

18 **F. Comparable Earnings Observations**

19 Q. How does your DCF indicated cost of equity for Southern Bell compare

20 to the return available on the equity of the 30 companies that make up the

21 dow jones industrial average?

22 A. As shown on Schedule 6, Page 1, and as graphed on Schedule 6, Page 2,

23 the ten year moving average of the actual earned return on book equity for the

24 Dow Jones Industrial average has essentially been between 10% and 12%

25 since the late 1950's. Therefore, my recommended cost of equity in this case is

1 well within that range.

2

3 Q. Are you suggesting that the return on book equity earned on the dow

4 jones industrials is the cost of equity to the Dow Jones industrials?

5 A. No. The earned return on book equity is not the cost of equity. It is,

6 however, the earned return on book equity that will be the end result of the

7 rates allowed from these proceedings. Therefore, it is worth comparing the

8 earned return on book equity being achieved by the Dow Jones 30 Industrials

9 with the cost of equity recommendation in this case.

10

11 Q. Is the achieved return on book equity rate of the dow jones industrials

12 acceptable to investors?

13 A. Yes. The market-to-book ratio achieved by the Dow Jones Industrials has

14 mostly been at or above book value since 1932, the very bottom of the Great

15 Depression. See Schedule 6, Page 1. Most of the time the market-to-book

16 ratio has been substantially above 1.0. This shows that most of the time the

17 cost of equity being demanded by investors on average for the Dow Jones

18 Industrials has been less than whatever investors expect the companies will be

19 able to earn on equity in the future.

20

21 Q. How does the risk of the dow jones industrials compare to the risk of

22 other comparable telephone utilities?

23 A. A standard measure of relative risk is the stock's beta. Beta is a number

24 that quantifies the relative volatility of the stock price movements of a

25 particular company with a broad based average such as the New York Stock

1 Exchange Average. A higher beta indicates higher risk. As shown on
2 Schedule 6, Page 3, the beta of the Dow Jones Industrials averaged 1.09. The
3 beta of the regional holding companies averaged 0.84. This indicates that the
4 investment risk is considerably higher, on average, for the Dow Jones
5 Industrials than for the regional holding companies. This means that
6 whatever the average cost of equity is for the Dow Jones Industrials, it is a
7 higher equity cost rate than on average for the group of regional holding
8 companies.

1 **VI Testimony Evaluation.**

2 **A. Introduction**

3

4 Q. Please summarize the testimony of Dr. Billingsley.

5 A. Dr. Billingsley explains that the methods he relied upon to reach his cost

6 of equity recommendation were the DCF method and a risk premium method.

7 Dr. Billingsley implemented his DCF method by computing a DCF

8 method based upon the use of a quarterly dividend model and using a five-

9 year earnings per share growth estimate as a proxy for what he believes

10 investors expect for growth way beyond the initial five years.

11 Another approach used by Dr. Billingsley is the risk premium method.

12 He implemented this method by comparing his determination of the DCF

13 indicated cost of equity the annual returns achieved on the S&P 500 stocks as

14 compared to Moody's Aaa rated utility bonds. The high-end of his risk

15 premium range was based upon the difference between the bond return and

16 the stock return actually achieved from 1937 through 1991 based upon the use

17 of the arithmetic mean. The low-end of the range was based upon the

18 geometric mean of the difference stock return and the bond return based upon

19 the geometric mean. He also conducted a similar analysis in which he used the

20 S&P utilities index instead of the S&P 500 index.

21

22 **B. DCF Method**

23

24 Q. Both Dr. Billingsley and you have presented a DCF method. what are the

1 most important differences between your approach and that used by Dr.
2 Billingsley?
3 A. While other differences exist, the most important differences are that Dr.
4 Billingsley:
5 1) applied his DCF approach to a group of 20 companies most of
6 which are not even in businesses remotely related to the telephone
7 utility business.
8
9 2) assumed that investors merely conclude that the five-year historic
10 to forecasted earnings per share growth rates would be reflective of
11 the growth rates investors expect would be sustained in years beyond
12 the initial five-year period,
13
14 3) increased the dividend yield portion of the DCF formula to account
15 for the effect of the quarterly payment of dividends, and
16
17 4) overstated the financing costs required for a company such as
18 Southern Bell to obtain new common equity financing.
19
20 For reasons that are explained later in this section, the combined effect of
21 these problems with his DCF presentation are the primary reasons that his
22 14.60% equity cost recommendation substantially overstates the cost of equity
23 that is currently being demanded by investors in regulated telephone utilities.
24
25 Q. Please explain the problems with Dr. Billingsley's growth rate

1 computation.

2 A. Dr. Billingsley obtains the "g" he uses in his DCF formula based upon
3 historic-to-future growth rates in earnings per share as complied by IBES.
4 These growth rates are highly influenced by events that were unique to the
5 specific five-year period. Since the simplified, or D/P + g version of the DCF
6 formula requires that the value for "g" be reflective of a long-term sustainable
7 growth rate, these five year growth rates should be rejected because rational
8 investors are aware that it is highly unlikely or even impossible that those
9 events could continue to re-occur year after year in the future.

10

11 Q. Why is it highly unlikely or impossible for the historic-to-future five-year
12 growth in earnings per share to be representative of what investors expect for
13 the future?

14 A. Referring to Schedule 8, please note that in 1991, the average return on
15 book equity achieved by the 20 "cluster" companies selected by Dr. Billingsley
16 was 14.41%, based upon an average of the earned return on book equity
17 numbers presented by Value Line. Value Line has projected that, on average,
18 the earned return on book equity for these companies will be 16.55% in the
19 1995-97 time period. This means that to the extent the consensus estimate of
20 the analysts relied upon by Dr. Billingsley are consistent with what Value Line
21 expects, a major portion of the growth rate that Dr. Billingsley has used in his
22 DCF formulation is non-recurring growth. It is non-recurring growth because
23 competitive pressures do not permit continual increases in earned returns on
24 book equity. In unregulated industries, as earned returns go higher and
25 higher, new capital is brought in either by companies already in the particular

1 industry or by companies that seek to get a share of the increasing
2 profitability. Those pressures put an effective lid on what is a sustainable rate
3 of earnings on book equity. Because Dr. Billingsley did not take this vital
4 factor into consideration, and because the growth rate he has used could only
5 be expected to continue if the earned return on book equity continued to
6 increase beyond the 16.55% for years after the 1995-97 period, Dr. Billingsley
7 has used a growth rate in his DCF model that is substantially higher than
8 rational investors could possibly expect.
9
10 Q. Why is the component of growth that is caused by the forecasted increase
11 in the earned return on book equity recognized by investors as unsustainable?
12 A. For a regulated telephone company, the earned return on book equity,
13 while rarely exactly equal to the allowed return on book equity, is significantly
14 impacted by the cost of equity that the company's utility commission will
15 allow. If the earned return on book equity being achieved by the regulated
16 telephone portion of the company's operations is above the cost of equity, the
17 company will not be able to pass on increases in operating expenses until
18 those increases are first sufficient to lower the return on book equity down to
19 the cost of equity. Also, if the earned returns on book equity are sufficiently
20 large, the telephone company would eventually become vulnerable to a
21 commission ordered rate decrease.
22 In a response to Citizen's 12th Interrogatories, item no. 305, Dr.
23 Billingsley provided a list of the textbooks he has used in courses he has
24 taught over the last five years. On page 467 of *Essentials of Investments*, by
25 Bodie, Kane, and Marcus, 1992, it says:

1

2 A firm's ROE is a key determinant of the growth rate of its earnings.

3

4 In the above quote, ROE stands for return on book equity.

5 Also, on page 424 through through 427, the same text goes on to

6 explain that using five-year earnings per share growth rates can be

7 inappropriate to use in a constant growth DCF model.

8 If Dr. Billingsley had taken this advice that was provided in this

9 textbook he used, he would have readily determined that the IBES 5 year

10 growth rate was not a sustainable growth rate.

11

12 Q. Was Dr. Billingsley aware that what he relied upon as the projected

13 growth rates are not indicative of growth rates that can be expected beyond

14 the 1995-1997 time period?

15 A. Apparently not. In response to Citizen's 12th Interrogatories, response #

16 310, Dr. Billingsley states that he was not sure what growth rate period is

17 specifically reported in IBES, but acknowledged that the growth rates were

18 probably from 1991 through 1996. Then, in response to Citizen's 12th

19 Interrogatories, response # 312 he says that while he is aware that five-year

20 growth rates for any one company might not be indicative of the future, he

21 was under the impression that when evaluated in the context of a portfolio, the

22 effects would cancel out. What Dr. Billingsley has failed to realize is that

23 factors which are causing the five-year growth rate to be abnormal for all the

24 companies will not cancel out. For example, all of his "cluster" companies are

25 dependent upon overall economic conditions. As I have already demonstrated

1 with reference to my Schedule 8, on average, the portfolio of companies he
2 has examined earned a lower return on book equity in 1991 then is forecast
3 for 1995-97. This is one specific example of the kind of unsustainable growth
4 that is not averaged out merely because he examined a portfolio of 20
5 "cluster" companies.

6 Another problem is that IBES collects its growth rate estimates from
7 investment banking firms that make money by selling stock. This creates an
8 inherent conflict of interest which has historically caused earnings estimates to
9 be high. For example, Chicago Investment Analytics, Inc. determined that
10 "(a)nalysts earnings estimates for the S&P 500 Index are almost always too
11 optimistic at the beginning of a calendar year." They go on to conclude that,
12 on average from 1983 through 1992 investment analysts estimates were high
13 by 6.5%.
14

15 Q. Does Dr. Billingsley agree that the growth rate for use in the simplified, or
16 d/p + g version of the dcf method must be reflective of growth not only for the
17 next five years, but for years beyond 1997 as well?
18 A. Yes. He acknowledged this in response to Citizen's 12th Interrogatories,
19 response # 322. Although he was aware that he needed to establish an
20 estimate of a long-term growth rate, he did nothing to analyze whether or not
21 the IBES 5 - year growth rates were or were not representative of the growth
22 rate to expect for years beyond 1997.
23

24 Q. You have provided a detailed analysis that shows why the ibes growth
25 rates are not appropriate for use in the simplified D/P + g model. have you

1 also surveyed analysts to see what they do?

2 A. Yes. Several years ago, I surveyed the major utility analysts employed by

3 the leading investment banking firms. While not all of the analysts were

4 willing to disclose exactly how they would determine future sustainable

5 growth for use in a DCF model, more than half of them did tell me. All of

6 these explained that they would use the "b x r" method.

7

8 Q. You criticized Dr. Billingsley for making an increment to his cost of equity

9 because of quarterly compounding. why is it inappropriate to compound the

10 quarterly return?

11 A. It is inappropriate because it is inconsistent with the rest of the regulatory

12 process and therefore adding this additional allowance is duplicative.

13

14 Q. How is the quarterly compounding inconsistent?

15 A. Dr. Billingsley concluded that the cost of equity to allow Southern Bell be

16 able to earn 14.60% per year on its equity. He failed to consider that

17 whatever return on equity this Commission eventually allows, it will eventually

18 be used to compute the overall cost of capital. Then total earnings

19 requirements will be computed by applying the overall cost of capital to rate

20 base.

21 When the return is finally applied to rate base, and used to establish

22 rates, the company will earn those rates every day. Therefore, the actual

23 return earned by the company will automatically compound daily. A

24 compounded daily return need not be as high to produce the desired results as

25 does an annual return. For example, assume that the Commission wanted

1 Southern Bell to have an opportunity to earn 14.60% on equity. If
2 implemented in the traditional way, this would provide the company with an
3 opportunity to earn 14.60%/365, or 0.04% per day. But, 0.04%, compounded
4 daily produces a total return of 15.72% or 1.12% more than was intended by
5 the Commission. Therefore, if an adjustment is to be made to increase the
6 total return to consider the quarterly compounding effect of dividends, then a
7 similar, but larger adjustment should be made to lower the allowed return on
8 equity to consider the daily compounding of the allowed return rate.
9
10 Q. If the quarterly discounting model were going to be applied, are there any
11 other adjustments that would be necessary?
12 A. Yes. Because dividends are paid quarterly, the average common stock
13 price for any company is lower than it would be if the dividend were paid
14 annually. This is because stock prices gradually increase as an unpaid
15 dividend accrues, and then drop back by the amount of the dividend as soon as
16 the dividend record date passes. For example, assume hypothetically that a
17 utility company pays an annual dividend of $1.00 per share. If the dividend
18 were actually paid only once a year, the stock price would start the dividend
19 year containing no allowance for the accrued dividend. As the year passed,
20 the stock price would gradually increase by $1.00 as the date of the
21 anticipated dividend approached. Immediately prior to the dividend payment
22 "record"[12] date, the stock price would contain a full $1.00 allowance for the
23 dividend. Then, one day later, once the dividend "record" date passes, the
24 stock price drops by $1.00, plus or minus whatever other events might have

[12]The date which owners of record are actually paid the dividend by the company.

1 occurred that day to influence the stock price. Stock price movements caused
2 by the passing of a "record" date are not even included in the newspaper as
3 part of the daily change in the stock price. For example, if this hypothetical
4 company that pays $1.00 per year dividend had a stock price of $20.00 per
5 share just prior to the "record" date, and if the stock closed at $19.00 per
6 share one day later, the newspaper would report that change in price from
7 $20.00 to $19.00 as no change in price, not -1.

8 Therefore, this hypothetical company paying a dividend of $1.00 per
9 year has a stock price that would be, on average higher by $0.50 because of
10 the allowance for unpaid dividends.

11 Contrast this $0.50 higher price for an annual allowance for dividends
12 with what the allowance for unpaid dividends if the company paid quarterly
13 dividends of $0.25 instead of the $1.00 annual dividend. In the quarterly
14 dividend example, the average allowance in the stock price for dividend
15 accrual would be $0.125, or $0.3875 lower than if the dividend were paid
16 annually. The lower the stock price, the higher the measured dividend yield,
17 and therefore the higher the DCF indicated cost of equity. In this hypothetical
18 example, the company paying a $1.00 annual dividend rate would have a
19 measured dividend yield of $1.00/$20.50, or 4.88% if the dividends were paid
20 annually, but would have a dividend yield of $1.00/$20.125, or 4.97% if
21 dividends were paid quarterly. In this example, the company paying the
22 quarterly dividend has a 0.09% higher measured dividend yield than if the
23 company were paying the dividend annually. This means that companies who
24 actually do pay a quarterly dividend have already included the impact of the
25 quarterly payment of dividends included in the DCF equation when actual,

1 unadjusted stock prices are used in the DCF equation. If the additional
2 quarterly adjustment as proposed by Dr. Billingsley were to be used, then this
3 would only further exaggerate what is already a tendency for the DCF model
4 to overstate the cost of equity.
5
6 Q. Are you recommending an adjustment to lower the measured cost of equity
7 because dividends are paid quarterly?
8 A. No. To be conservative, I am not proposing the adjustment. However, it
9 would be improper to make an adjustment to increase the allowed return on
10 equity because of the quarterly payment of dividends when in reality the
11 impact of the payment of quarterly dividends is to cause the DCF model to
12 overstate, not understate the return on book equity which should be allowed
13 to regulated public utilities.
14
15
16

1 **C. Risk Premium Method**

2

3 Q. Please comment on the risk premium methods as presented by Dr.
4 Billingsley.

5 A. Dr. Billingsley applies the risk premium method by computing the
6 difference between the cost of equity to the S&P 500 and the interest cost on
7 Aaa rated utility debt, on a monthly basis, from October, 1987 through May,
8 1992. He concluded that the risk premium based upon his study of the S&P
9 500 was 6.16% over the cost of Aaa rated utility bonds.[13] Based upon his
10 computation that "Aaa" rated utility debt was yielding 8.36%[14], he concludes
11 that the indicated cost of equity to Southern Bell Telephone based upon this
12 method is 14.52%.[15]

13

14 Q. What are the problems with Dr. Billingsley's risk premium method?

15 A. The problems are numerous and very serious, and include the following:

16 1) reliance on the same flawed DCF methodology to quantify the cost
17 of equity for the S&P 500 as the method he used to quantify the cost
18 of equity for his 20 "cluster" companies, and

19

20 2) an incorrect inference that the risk of the S&P utilities is consistent
21 with the risk of a regulated telephone utility such as Southern Bell.

22

23 I have already explained in detail what problems exist in his DCF

---

[13] Schedule 2, page 2 of Dr. Billingsley's direct testimony.
[14] Page 39 of Dr. Billingsley's direct testimony, line 9.
[15] Page 39, line 10 of Dr. Billingsley's direct testimony.

1 method. Applying the same method to the S&P 500 from 1987 to present
2 does not correct any of those errors. He still is over-stating the dividend yield
3 because of his miss-use of the quarterly discounting effect, and still has
4 directly used the consensus historic-to-projected 5 year earnings per share
5 growth rates as a proxy for growth beyond the initial five year period.
6 Therefore, his "risk premium" method is merely his DCF method by another
7 name, but with yet another error super-imposed upon it so that the results are
8 even less accurate.
9
10 Q. What is the additional error?
11 A. in applying his risk premium method dr. billingsley failed to make any
12 adjustment to the risk premium to consider the risk that is applicable to
13 southern belL. The S&P 500 includes all kinds of companies, not just
14 regulated telephone utilities. As shown on my Schedule 6, Page 3, the
15 average beta for the regional holding telephone companies is 0.84. This
16 means that even after the impact of regulated telephone operations is mixed
17 with the more risky unregulated businesses operated by the regional holding
18 companies, the aggregate risk is still about 16% less than for the average
19 company. Even before considering that the regulated telephone company
20 portion of these businesses, if independently traded should have an even lower
21 beta, a risk reduction of 16% would cause the average company to have a cost
22 of equity approximately 1.5% (150 basis points) higher than would be
23 appropriate for Southern Bell. Merely adjusting for this fact alone causes the
24 14.52% obtained by Dr. Billingsley in the implementation of his risk premium
25 method to drop to about 12%. Additionally, if Dr. Billingsley had not

1 overstated his answer because of the miss-quantification of the quarterly
2 dividend effect, then his risk premium result would have been somewhere in
3 the 11% range.
4
5 Q. Have you determined any important misconceptions on the part of Dr.
6 Billingsley that are revealed in his interrogatory responses?
7 A. Yes. In responses to Citizen's 12th Interrogatories, response # 308, Dr.
8 Billingsley says that book value does not have any significance to the firm's
9 equity investor, in response to # 319 he says that book values "... do not
10 constitute a meaningful reference point in investment analysis...", and in
11 response to item # 320, he says that "... book value is not a meaningful
12 economic benchmark in equity analysis...". He is wrong in all of the above
13 cases. In an original cost ratemaking jurisdiction, utility rates are set by
14 providing a utility company with a reasonable opportunity to earn a fair return
15 on its used and useful rate base. The used and useful rate base is equal the
16 total of the book value of the company's common equity and debt that is
17 financing those rate base assets. This is especially true in Florida, where
18 adjustments are made to the capital structure to be sure that it is set equal to
19 book value. Therefore, rational investors must be directly concerned about
20 book value because it has a direct impact on the revenue requirements the
21 company will be allowed.
22 Furthermore, in response to Citizen's 12th Interrogatories, response #
23 307, Dr. Billingsley acknowledges that a company's allowed rate of return
24 must meet the rate of return investors are demanding when an investment is
25 made at market price. Since the regulatory process takes the cost of equity

1 demanded by investors on market price and applies that return to an original
2 cost book value, if rates are then set at the proper level, the return that will
3 eventually be earned on book value will become the same as the return being
4 demanded on market price. Dr. Billingsley's failure to appreciate these
5 important interrelationships between book value and market price for
6 regulated utilities is part of the reason he so dramatically overstated the cost
7 of equity.
8
9 Q. DOES THIS CONCLUDE YOUR TESTIMONY?
10 A. Yes.
11
12

Schedule 1, P. 1

Southern Bell Telephone
Overall Cost of Capital

Recommended Result			
Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-term Debt	33.59% [A]	8.73% [A]	2.93%
Short-term Debt	4.07% [A]	6.05% [A]	0.25%
Common Equity	62.34% [A]	11.00% [B]	6.86%
	100.00%		10.04%

Adjusted 1991 Florida Intrastate Capital Structure

Long-term Debt	25.75%	8.73%	2.25%
Short-term Debt	3.12%	6.05%	0.19%
Common Equity	47.80%	11.00%	5.26%
Preferred Stock	0.00%	0.00%	0.00%
Customer Deposits	1.28%	8.25%	0.11%
Cost Free Capital	18.60%	0.00%	0.00%
Investment Tax Credits	3.45%	10.04%	0.35%
	100.00%		8.15%

Source:

[A] Keck Schedule No. 1, Page 1 of 1

[B] Schedule 1, P. 2

Schedule 1, P. 2

Southern Bell Telephone
Cost of Equity Summary

	Based Upon Average for Year Ended 9/30/92 Stock Prices			Based Upon Stock Prices on 9/30/92		
SIMPLIFIED DCF, OR D/P + g RESULTS:						
REGIONAL HOLDING COMPANIES		11.10%	[A]		10.68%	[A]
BELLSOUTH		11.08%	[B]		10.55%	[B]
Average		11.09%			10.62%	
COMPLEX DCF RESULTS:						
REGIONAL HOLDING COMPANIES		11.25%	[C]		10.83%	[D]
BELLSOUTH		11.18%	[E]		10.64%	[F]
Average		11.22%			10.74%	
Average of Comparative Telephone Companies	11.18%			10.76%		
Average of BellSouth Results Only	11.13%			10.60%		
Allowance for Financing Costs			0.10%	[G]		
Equity Cost Rate For Telephone Company with Average Capital Structure						**11.20%**
Equity Cost Rate to Southern Bell						**11.00%**

Source:

[A] Schedule 3, P. 1
[B] Schedule 2, P. 1
[C] Schedule 3, P. 2
[D] Schedule 3, P. 3
[E] Schedule 2, P. 3
[F] Schedule 2, P. 4
[G] Per BellSouth Annual Report to Stockholders for 1990, P. 48,
5,959.8/12,666.4, or 47% of common
equity was raised internally. Therefore, financing costs should apply to only the 53% of comm. equity raised esternally. As explained in text, market to book goal should be about 1.02.
Based upon the dividend yield of BellSouth 2.00% X 5.24%
= 0.10%

BELLSOUTH **Schedule 2, P. 1**

DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

		Based on Market Average for Year			Based on Year-end Market Price		
Basis for Future Expected :::: Return on Equity ::::		High Estimate	Low Estimate	Recommended Expectation	High Estimate	Low Estimate	Recommended Expectation
1 Dividend Yield On Market Price	[A]	5.58%	5.58%	5.58%	5.24%	5.24%	5.24%
2 Retention Ratio:							
a) Market-to-book	[A]	1.82	1.82	1.82	1.98	1.98	1.98
b) Div. Yld on Book	[B]	10.18%	10.18%	10.18%	10.38%	10.38%	10.38%
c) Return on Equity	[C]	16.00%	14.00%	15.25%	16.00%	14.00%	15.25%
d) Retention Rate	[D]	36.41%	27.32%	33.28%	35.15%	25.89%	31.96%
3 Reinvestment Growth	[E]	5.82%	3.82%	5.07%	5.62%	3.62%	4.87%
4 New Financing Growth	[F]	0.27%	0.27%	0.27%	0.30%	0.30%	0.30%
5 Total Estimate of Investor Anticipated Growth	[G]	6.10%	4.10%	5.35%	5.92%	3.92%	5.17%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.17%	0.11%	0.15%	0.16%	0.10%	0.14%
7 Indicated Cost of Equity	[I]	11.85%	9.79%	11.08%	11.32%	9.27%	10.55%

Sources:

[A] Schedule 2, P. 2

[B] Line 1 x Line 2a

[C] See text

[D] 1- Line 2b/Line 2c

[E] Line 2c x Line 2d

[F] Estimated impact of dilution or premium due to sale of equity at other than book value. Computed based upon mathematically derived result from following formula:
[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1) Ext. Fin. rate used = 0.61% [J]

[G] Line 3 + Line 4

[H] Line 1 x one-half of line 5

[I] Line 1 + Line 5 + Line 6

[J] Schedule 5 result for Bell Atlantic

Schedule 2, P. 2

FINANCIAL DATA ON BELLSOUTH

	1986	1987	1988	1989	1990	1991	Y/E 9/30/92	At 9/30/92
Market Price- High	$46.00	$44.30	$43.90	$58.10	$59.30	$55.00	$55.50	
Market Price- Low	$30.00	$29.10	$35.80	$39.00	$49.00	$43.40	$43.38	
Average	$38.00	$36.70	$39.85	$48.55	$54.15	$49.20	$49.44	$52.63
Book Value , Y/E	$23.61	$24.89	$25.51	$27.21	$26.54	$27.01	$26.60	$26.60
Book Value, Avg.		$24.25	$25.20	$26.36	$26.88	$26.78	$27.13	
Earnings Per Share	$3.39	$3.46	$3.51	$3.48	$3.38	$3.11		
Dividends Per Share	$2.04	$2.20	$2.36	$2.52	$2.68	$2.76	$2.76	$2.76
Dividend Yield		5.99%	5.92%	5.19%	4.95%	5.61%	5.58%	5.24%
Return on Equity		14.27%	13.93%	13.20%	12.58%	11.62%		
Market-to-Book		1.51	1.58	1.84	2.01	1.84	1.82	1.98

Value Line Future Expected Return on Equity: 16.00%

Return on Equity implied in Zack's Consensus Growth Rate= 14.55% [A]

Source: Value Line October 16, 1992, Page 754

[A] Schedule 2, Page 5

Schedule 2, P. 3

BELLSOUTH
FULL DCF METHOD
Based on Market Average for Year

Year	Year End Book	Retention Rate	Dividend	Earnings Per Share	Retained Earnings Per Share	External Financing Rate	Increment to book from Ext. Fin.	Total Increment to Book	Market Price	Mkt to Book	Expect. Ret. on Equity	Cash Fl. from Stock Trans.	Cash Fl. from Div.	Total Cash Flow
1990														
1991	$26.54		$2.76							1.82	15.25%			
1992	$27.98	33.28%	$2.77	$4.16	$1.38	0.50%	$0.06	$1.44	$51.00	1.82	15.25%	($51.00)		($51.00)
1993	$29.51	33.28%	$2.93	$4.38	$1.46	0.50%	$0.06	$1.52	$53.78	1.82	15.25%		$2.93	$2.93
1994	$31.11	33.28%	$3.08	$4.62	$1.54	0.50%	$0.07	$1.61	$56.71	1.82	15.25%		$3.08	$3.08
1995	$32.81	33.28%	$3.25	$4.87	$1.62	0.50%	$0.07	$1.69	$59.80	1.82	15.25%		$3.25	$3.25
1996	$34.60	33.28%	$3.43	$5.14	$1.71	0.50%	$0.08	$1.79	$63.05	1.82	15.25%		$3.43	$3.43
1997	$36.48	33.28%	$3.62	$5.42	$1.80	0.50%	$0.08	$1.88	$66.49	1.82	15.25%		$3.62	$3.62
1998	$38.46	33.28%	$3.81	$5.71	$1.90	0.50%	$0.08	$1.99	$70.10	1.82	15.25%		$3.81	$3.81
1999	$40.56	33.28%	$4.02	$6.03	$2.01	0.50%	$0.09	$2.09	$73.92	1.82	15.25%		$4.02	$4.02
2000	$42.77	33.28%	$4.24	$6.35	$2.11	0.50%	$0.09	$2.21	$77.95	1.82	15.25%		$4.24	$4.24
2001	$45.09	33.28%	$4.47	$6.70	$2.23	0.50%	$0.10	$2.33	$82.19	1.82	15.25%		$4.47	$4.47
2002	$47.55	33.28%	$4.71	$7.06	$2.35	0.50%	$0.10	$2.46	$86.66	1.82	15.25%		$4.71	$4.71
2003	$50.14	33.28%	$4.97	$7.45	$2.48	0.50%	$0.11	$2.59	$91.38	1.82	15.25%		$4.97	$4.97
2004	$52.87	33.28%	$5.24	$7.85	$2.61	0.50%	$0.12	$2.73	$96.36	1.82	15.25%		$5.24	$5.24
2005	$55.75	33.28%	$5.53	$8.28	$2.76	0.50%	$0.12	$2.88	$101.60	1.82	15.25%		$5.53	$5.53
2006	$58.78	33.28%	$5.83	$8.73	$2.91	0.50%	$0.13	$3.03	$107.13	1.82	15.25%		$5.83	$5.83
2007	$61.98	33.28%	$6.14	$9.21	$3.06	0.50%	$0.14	$3.20	$112.97	1.82	15.25%		$6.14	$6.14
2008	$65.36	33.28%	$6.48	$9.71	$3.23	0.50%	$0.14	$3.37	$119.12	1.82	15.25%		$6.48	$6.48
2009	$68.91	33.28%	$6.83	$10.24	$3.41	0.50%	$0.15	$3.56	$125.60	1.82	15.25%		$6.83	$6.83
2010	$72.67	33.28%	$7.20	$10.80	$3.59	0.50%	$0.16	$3.75	$132.44	1.82	15.25%		$7.20	$7.20
2011	$76.62	33.28%	$7.60	$11.38	$3.79	0.50%	$0.17	$3.96	$139.65	1.82	15.25%		$7.60	$7.60
2012	$80.79	33.28%	$8.01	$12.00	$3.99	0.50%	$0.18	$4.17	$147.25	1.82	15.25%		$8.01	$8.01
2013	$85.19	33.28%	$8.44	$12.66	$4.21	0.50%	$0.19	$4.40	$155.27	1.82	15.25%		$8.44	$8.44
2014	$89.83	33.28%	$8.90	$13.35	$4.44	0.50%	$0.20	$4.64	$163.72	1.82	15.25%		$8.90	$8.90
2015	$94.72	33.28%	$9.39	$14.07	$4.68	0.50%	$0.21	$4.89	$172.64	1.82	15.25%		$9.39	$9.39
2016	$99.88	33.28%	$9.90	$14.84	$4.94	0.50%	$0.22	$5.16	$182.04	1.82	15.25%		$9.90	$9.90
2017	$105.32	33.28%	$10.44	$15.65	$5.21	0.50%	$0.23	$5.44	$191.95	1.82	15.25%		$10.44	$10.44
2018	$111.05	33.28%	$11.01	$16.50	$5.49	0.50%	$0.24	$5.73	$202.40	1.82	15.25%		$11.01	$11.01
2019	$117.09	33.28%	$11.61	$17.40	$5.79	0.50%	$0.26	$6.05	$213.41	1.82	15.25%		$11.61	$11.61
2020	$123.47	33.28%	$12.24	$18.34	$6.10	0.50%	$0.27	$6.37	$225.03	1.82	15.25%		$12.24	$12.24
2021	$130.19	33.28%	$12.91	$19.34	$6.44	0.50%	$0.29	$6.72	$237.28	1.82	15.25%		$12.91	$12.91
2022	$137.28	33.28%	$13.61	$20.39	$6.79	0.50%	$0.30	$7.09	$250.20	1.82	15.25%		$13.61	$13.61
2023	$144.75	33.28%	$14.35	$21.50	$7.16	0.50%	$0.32	$7.47	$263.82	1.82	15.25%		$14.35	$14.35
2024	$152.63	33.28%	$15.13	$22.68	$7.55	0.50%	$0.33	$7.88	$278.19	1.82	15.25%		$15.13	$15.13
2025	$160.94	33.28%	$15.95	$23.91	$7.96	0.50%	$0.35	$8.31	$293.33	1.82	15.25%		$15.95	$15.95
2026	$169.71	33.28%	$16.82	$25.21	$8.39	0.50%	$0.37	$8.76	$309.30	1.82	15.25%		$16.82	$16.82
2027	$178.94	33.28%	$17.74	$26.58	$8.85	0.50%	$0.39	$9.24	$326.14	1.82	15.25%		$17.74	$17.74
2028	$188.69	33.28%	$18.70	$28.03	$9.33	0.50%	$0.41	$9.74	$343.90	1.82	15.25%		$18.70	$18.70
2029	$198.96	33.28%	$19.72	$29.56	$9.84	0.50%	$0.44	$10.27	$362.62	1.82	15.25%		$19.72	$19.72
2030	$209.79	33.28%	$20.80	$31.17	$10.37	0.50%	$0.46	$10.83	$382.36	1.82	15.25%		$20.80	$20.80
2031	$221.21	33.28%	$21.93	$32.86	$10.94	0.50%	$0.48	$11.42	$403.18	1.82	15.25%	$403.18	$21.93	$425.10
											Internal Rate of Return			11.18%

Schedule 2, P. 4

BELLSOUTH
FULL DCF METHOD
Based on Year-end Market Price

Year	Year End Book	Retention Rate	Dividend	Earnings Per Share	Retained Earnings Per Share	External Financing Rate	Increment to book from Ext. Fin.	Total Increment to Book	Market Price	Mkt to Book	Expect. Ret. on Equity	Cash Fl. from Stock Trams.	Cash Fl. from Div.	Total Cash Flow
										M/B Chane				
1990	$26.54									0.00				
1991	$26.54	31.96%	$2.76	$4.05					$52.63	1.98	15.25%			
1992	$27.93	31.96%	$2.83	$4.15	$1.33	0.50%	$0.07	$1.39	$55.27	1.98	15.25%	($55.27)		($55.27)
1993	$29.40	31.96%	$2.97	$4.37	$1.40	0.50%	$0.07	$1.47	$58.17	1.98	15.25%		$2.97	$2.97
1994	$30.95	31.96%	$3.13	$4.60	$1.47	0.50%	$0.07	$1.55	$61.23	1.98	15.25%		$3.13	$3.13
1995	$32.57	31.96%	$3.30	$4.84	$1.55	0.50%	$0.08	$1.63	$64.44	1.98	15.25%		$3.30	$3.30
1996	$34.29	31.96%	$3.47	$5.10	$1.63	0.50%	$0.08	$1.71	$67.83	1.98	15.25%		$3.47	$3.47
1997	$36.09	31.96%	$3.65	$5.37	$1.72	0.50%	$0.09	$1.80	$71.40	1.98	15.25%		$3.65	$3.65
1998	$37.98	31.96%	$3.84	$5.65	$1.81	0.50%	$0.09	$1.90	$75.15	1.98	15.25%		$3.84	$3.84
1999	$39.98	31.96%	$4.04	$5.94	$1.90	0.50%	$0.10	$2.00	$79.10	1.98	15.25%		$4.04	$4.04
2000	$42.08	31.96%	$4.26	$6.26	$2.00	0.50%	$0.10	$2.10	$83.25	1.98	15.25%		$4.26	$4.26
2001	$44.29	31.96%	$4.48	$6.59	$2.10	0.50%	$0.11	$2.21	$87.63	1.98	15.25%		$4.48	$4.48
2002	$46.62	31.96%	$4.72	$6.93	$2.22	0.50%	$0.11	$2.33	$92.23	1.98	15.25%		$4.72	$4.72
2003	$49.07	31.96%	$4.96	$7.30	$2.33	0.50%	$0.12	$2.45	$97.08	1.98	15.25%		$4.96	$4.96
2004	$51.65	31.96%	$5.23	$7.68	$2.45	0.50%	$0.12	$2.58	$102.18	1.98	15.25%		$5.23	$5.23
2005	$54.36	31.96%	$5.50	$8.08	$2.58	0.50%	$0.13	$2.71	$107.55	1.98	15.25%		$5.50	$5.50
2006	$57.22	31.96%	$5.79	$8.51	$2.72	0.50%	$0.14	$2.86	$113.21	1.98	15.25%		$5.79	$5.79
2007	$60.23	31.96%	$6.09	$8.96	$2.86	0.50%	$0.14	$3.01	$119.15	1.98	15.25%		$6.09	$6.09
2008	$63.39	31.96%	$6.41	$9.43	$3.01	0.50%	$0.15	$3.17	$125.42	1.98	15.25%		$6.41	$6.41
2009	$66.73	31.96%	$6.75	$9.92	$3.17	0.50%	$0.16	$3.33	$132.01	1.98	15.25%		$6.75	$6.75
2010	$70.23	31.96%	$7.11	$10.44	$3.34	0.50%	$0.17	$3.51	$138.95	1.98	15.25%		$7.11	$7.11
2011	$73.92	31.96%	$7.48	$10.99	$3.51	0.50%	$0.18	$3.69	$146.25	1.98	15.25%		$7.48	$7.48
2012	$77.81	31.96%	$7.87	$11.57	$3.70	0.50%	$0.19	$3.88	$153.93	1.98	15.25%		$7.87	$7.87
2013	$81.90	31.96%	$8.29	$12.18	$3.89	0.50%	$0.20	$4.09	$162.02	1.98	15.25%		$8.29	$8.29
2014	$86.20	31.96%	$8.72	$12.82	$4.10	0.50%	$0.21	$4.30	$170.54	1.98	15.25%		$8.72	$8.72
2015	$90.73	31.96%	$9.18	$13.49	$4.31	0.50%	$0.22	$4.53	$179.50	1.98	15.25%		$9.18	$9.18
2016	$95.50	31.96%	$9.66	$14.20	$4.54	0.50%	$0.23	$4.77	$188.93	1.98	15.25%		$9.66	$9.66
2017	$100.52	31.96%	$10.17	$14.95	$4.78	0.50%	$0.24	$5.02	$198.86	1.98	15.25%		$10.17	$10.17
2018	$105.80	31.96%	$10.70	$15.73	$5.03	0.50%	$0.25	$5.28	$209.31	1.98	15.25%		$10.70	$10.70
2019	$111.36	31.96%	$11.27	$16.56	$5.29	0.50%	$0.27	$5.56	$220.31	1.98	15.25%		$11.27	$11.27
2020	$117.21	31.96%	$11.86	$17.43	$5.57	0.50%	$0.28	$5.85	$231.89	1.98	15.25%		$11.86	$11.86
2021	$123.37	31.96%	$12.48	$18.34	$5.86	0.50%	$0.30	$6.16	$244.08	1.98	15.25%		$12.48	$12.48
2022	$129.86	31.96%	$13.14	$19.31	$6.17	0.50%	$0.31	$6.48	$256.90	1.98	15.25%		$13.14	$13.14
2023	$136.68	31.96%	$13.83	$20.32	$6.50	0.50%	$0.33	$6.82	$270.40	1.98	15.25%		$13.83	$13.83
2024	$143.86	31.96%	$14.55	$21.39	$6.84	0.50%	$0.35	$7.18	$284.61	1.98	15.25%		$14.55	$14.55
2025	$151.42	31.96%	$15.32	$22.52	$7.20	0.50%	$0.36	$7.56	$299.57	1.98	15.25%		$15.32	$15.32
2026	$159.38	31.96%	$16.12	$23.70	$7.57	0.50%	$0.38	$7.96	$315.31	1.98	15.25%		$16.12	$16.12
2027	$167.76	31.96%	$16.97	$24.94	$7.97	0.50%	$0.40	$8.38	$331.89	1.98	15.25%		$16.97	$16.97
2028	$176.57	31.96%	$17.86	$26.25	$8.39	0.50%	$0.42	$8.82	$349.33	1.98	15.25%		$17.86	$17.86
2029	$185.85	31.96%	$18.80	$27.63	$8.83	0.50%	$0.45	$9.28	$367.68	1.98	15.25%		$18.80	$18.80
2030	$195.62	31.96%	$19.79	$29.09	$9.30	0.50%	$0.47	$9.77	$387.01	1.98	15.25%		$19.79	$19.79
2031	$205.90	31.96%	$20.83	$30.62	$9.79	0.50%	$0.50	$10.28	$407.35	1.98	15.25%	$407.35	$20.83	$428.18
											Internal Rate of Return			10.64%

Earned Return on Equity
BellSouth
Needs to Earn
To Achieve Zack's Consensus Growth Rate

Mean Growth Rate= 6.20%

		Book Value	Earnings Per Share	Dividends Per Share	Return on Equity
1991	Act. Y/E Bk	$27.01	$3.11	$2.76	
1992		$27.38	$3.30	$2.93	12.14%
1993		$27.78	$3.51	$3.11	12.72%
1994		$28.20	$3.73	$3.31	13.31%
1995		$28.64	$3.96	$3.51	13.92%
1996		$29.11	$4.20	$3.73	14.55%

Note: Both earnings per share and dividends per share have been grown at Zack's consensus growth rate. Return on equity was computed by dividing earnings per share by average of current and prior year's book value.

REGIONAL HOLDING COMPANIES **Schedule 3, P. 1**

DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

Basis for Future Expected Return on Equity		Based on Market Average for Year: Zacks Consensus	Value Line	Recommended Expectation	Based on Year-end Market Price: Historical Actual	Value Line	Recommended Expectation
1 Dividend Yield On Market Price	[A]	5.54%	5.54%	5.54%	5.15%	5.15%	5.15%
2 Retention Ratio:							
a) Market-to-book	[A]	1.95	1.95	1.95	2.11	2.11	2.11
b) Div. Yld on Book	[B]	10.84%	10.84%	10.84%	10.87%	10.87%	10.87%
c) Return on Equity	[C]	14.49%	16.79%	16.00%	14.49%	16.79%	16.00%
d) Retention Rate	[D]	25.20%	35.44%	32.26%	24.94%	35.21%	32.03%
3 Reinvestment Growth	[E]	3.65%	5.95%	5.16%	3.61%	5.91%	5.13%
4 New Financing Growth	[F]	0.24%	0.24%	0.24%	0.26%	0.26%	0.26%
5 Total Estimate of Investor Anticipated Growth	[G]	3.89%	6.19%	5.41%	3.88%	6.17%	5.39%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.11%	0.17%	0.15%	0.10%	0.16%	0.14%
7 Indicated Cost of Equity	[I]	9.55%	11.91%	11.10%	9.13%	11.49%	10.68%

Sources:

[A] Schedule 4, P. 1

[B] Line 1 x Line 2a

[C] Zacks from Schedule 4, P. 4
Value Line from Schedule 4, P. 2

[D] 1- Line 2b/Line 2c

[E] Line 2c x Line 2d

[F] Estimated impact of dilution or premium due to sale of equity at other than book value. Computed based upon one-half of mathematically derived result based upon the historical external financing rate.
[M/B X (Ext. Fin Rate+1]/(M/B + Ext. Fin. Rate-1) Ext. Fin. rate used = 0.50% [J]

[G] Line 3 + Line 4

[H] Line 1 x one-half of line 5

[I] Line 1 + Line 5 + Line 6

[J] Ex.(A)- 4

Schedule 3, P. 2

COMPARATIVE TELEPHONE COMPANIES
FULL DCF METHOD
Based on Market Average for Year

Year	Year End Book	Retention Rate	Dividend	Earnings Per Share	Retained Earnings Per Share	External Financing Rate	Increment to book from Ext. Fin.	Total Increment to Book	Market Price	Mkt to Book	Expect. Ret. on Equity	Cash Fl. from Stock Trams.	Cash Fl. from Div.	Total Cash Flow
1990	$27.73													
1991	$29.41	32.26%	$2.96	$4.57	$1.61	0.50%	$0.07	$1.68	$57.50	1.95	16.00%	($57.50)		($57.50)
1992	$31.05	32.26%	$3.28	$4.84	$1.56	0.50%	$0.07	$1.63	$60.70	1.95	16.00%		$3.28	$3.28
1993	$32.77	32.26%	$3.46	$5.11	$1.65	0.50%	$0.08	$1.73	$64.07	1.95	16.00%		$3.46	$3.46
1994	$34.59	32.26%	$3.65	$5.39	$1.74	0.50%	$0.08	$1.82	$67.63	1.95	16.00%		$3.65	$3.65
1995	$36.52	32.26%	$3.85	$5.69	$1.84	0.50%	$0.09	$1.92	$71.38	1.95	16.00%		$3.85	$3.85
1996	$38.54	32.26%	$4.07	$6.00	$1.94	0.50%	$0.09	$2.03	$75.35	1.95	16.00%		$4.07	$4.07
1997	$40.69	32.26%	$4.29	$6.34	$2.05	0.50%	$0.10	$2.14	$79.54	1.95	16.00%		$4.29	$4.29
1998	$42.95	32.26%	$4.53	$6.69	$2.16	0.50%	$0.10	$2.26	$83.96	1.95	16.00%		$4.53	$4.53
1999	$45.33	32.26%	$4.78	$7.06	$2.28	0.50%	$0.11	$2.39	$88.62	1.95	16.00%		$4.78	$4.78
2000	$47.85	32.26%	$5.05	$7.45	$2.41	0.50%	$0.11	$2.52	$93.55	1.95	16.00%		$5.05	$5.05
2001	$50.51	32.26%	$5.33	$7.87	$2.54	0.50%	$0.12	$2.66	$98.74	1.95	16.00%		$5.33	$5.33
2002	$53.32	32.26%	$5.63	$8.31	$2.68	0.50%	$0.13	$2.81	$104.23	1.95	16.00%		$5.63	$5.63
2003	$56.28	32.26%	$5.94	$8.77	$2.83	0.50%	$0.13	$2.96	$110.02	1.95	16.00%		$5.94	$5.94
2004	$59.41	32.26%	$6.27	$9.25	$2.99	0.50%	$0.14	$3.13	$116.13	1.95	16.00%		$6.27	$6.27
2005	$62.71	32.26%	$6.62	$9.77	$3.15	0.50%	$0.15	$3.30	$122.59	1.95	16.00%		$6.62	$6.62
2006	$66.19	32.26%	$6.98	$10.31	$3.33	0.50%	$0.16	$3.48	$129.40	1.95	16.00%		$6.98	$6.98
2007	$69.87	32.26%	$7.37	$10.88	$3.51	0.50%	$0.17	$3.68	$136.59	1.95	16.00%		$7.37	$7.37
2008	$73.75	32.26%	$7.78	$11.49	$3.71	0.50%	$0.17	$3.88	$144.17	1.95	16.00%		$7.78	$7.78
2009	$77.85	32.26%	$8.21	$12.13	$3.91	0.50%	$0.18	$4.10	$152.18	1.95	16.00%		$8.21	$8.21
2010	$82.17	32.26%	$8.67	$12.80	$4.13	0.50%	$0.19	$4.33	$160.64	1.95	16.00%		$8.67	$8.67
2011	$86.74	32.26%	$9.15	$13.51	$4.36	0.50%	$0.21	$4.57	$169.57	1.95	16.00%		$9.15	$9.15
2012	$91.56	32.26%	$9.66	$14.26	$4.60	0.50%	$0.22	$4.82	$178.99	1.95	16.00%		$9.66	$9.66
2013	$96.65	32.26%	$10.20	$15.06	$4.86	0.50%	$0.23	$5.09	$188.93	1.95	16.00%		$10.20	$10.20
2014	$102.02	32.26%	$10.77	$15.89	$5.13	0.50%	$0.24	$5.37	$199.43	1.95	16.00%		$10.77	$10.77
2015	$107.68	32.26%	$11.36	$16.78	$5.41	0.50%	$0.26	$5.67	$210.51	1.95	16.00%		$11.36	$11.36
2016	$113.67	32.26%	$11.99	$17.71	$5.71	0.50%	$0.27	$5.98	$222.21	1.95	16.00%		$11.99	$11.99
2017	$119.98	32.26%	$12.66	$18.69	$6.03	0.50%	$0.28	$6.32	$234.55	1.95	16.00%		$12.66	$12.66
2018	$126.65	32.26%	$13.36	$19.73	$6.37	0.50%	$0.30	$6.67	$247.58	1.95	16.00%		$13.36	$13.36
2019	$133.68	32.26%	$14.11	$20.83	$6.72	0.50%	$0.32	$7.04	$261.34	1.95	16.00%		$14.11	$14.11
2020	$141.11	32.26%	$14.89	$21.98	$7.09	0.50%	$0.33	$7.43	$275.86	1.95	16.00%		$14.89	$14.89
2021	$148.95	32.26%	$15.72	$23.21	$7.49	0.50%	$0.35	$7.84	$291.19	1.95	16.00%		$15.72	$15.72
2022	$157.23	32.26%	$16.59	$24.49	$7.90	0.50%	$0.37	$8.28	$307.37	1.95	16.00%		$16.59	$16.59
2023	$165.96	32.26%	$17.51	$25.86	$8.34	0.50%	$0.39	$8.74	$324.44	1.95	16.00%		$17.51	$17.51
2024	$175.19	32.26%	$18.49	$27.29	$8.81	0.50%	$0.42	$9.22	$342.47	1.95	16.00%		$18.49	$18.49
2025	$184.92	32.26%	$19.51	$28.81	$9.29	0.50%	$0.44	$9.73	$361.50	1.95	16.00%		$19.51	$19.51
2026	$195.19	32.26%	$20.60	$30.41	$9.81	0.50%	$0.46	$10.27	$381.58	1.95	16.00%		$20.60	$20.60
2027	$206.04	32.26%	$21.74	$32.10	$10.36	0.50%	$0.49	$10.85	$402.78	1.95	16.00%		$21.74	$21.74
2028	$217.49	32.26%	$22.95	$33.88	$10.93	0.50%	$0.52	$11.45	$425.16	1.95	16.00%		$22.95	$22.95
2029	$229.57	32.26%	$24.23	$35.76	$11.54	0.50%	$0.54	$12.08	$448.79	1.95	16.00%		$24.23	$24.23
2030	$242.33	32.26%	$25.57	$37.75	$12.18	0.50%	$0.57	$12.76	$473.72	1.95	16.00%		$25.57	$25.57
2031	$255.79	32.26%	$26.99	$39.85	$12.86	0.50%	$0.61	$13.46	$500.04	1.95	16.00%	$500.04	$26.99	$527.03
											Internal Rate of Return			11.25%

Schedule 3, P. 3

COMPARATIVE TELEPHONE COMPANIES
FULL DCF METHOD
Based on Year-end Market Price

Year	Year End Book	Retention Rate	Dividend	Earnings Per Share	Retained Earnings Per Share	External Financing Rate	Increment to book from Ext. Fin.	Total Increment to Book	Market Price	Mkt to Book	Expect. Ret. on Equity	Cash Fl. from Stock Trams.	Cash Fl. from Div.	Total Cash Flow
										M/B Chane				
1990	$27.73									0.00				
1991	$29.41	32.03%	$2.96	$4.57	$1.61	0.50%	$0.07	$1.68	$62.05	2.11	16.00%	($62.05)		($62.05)
1992	$31.04	32.03%	$3.29	$4.84	$1.55	0.50%	$0.08	$1.63	$65.49	2.11	16.00%		$3.29	$3.29
1993	$32.76	32.03%	$3.47	$5.10	$1.64	0.50%	$0.08	$1.72	$69.11	2.11	16.00%		$3.47	$3.47
1994	$34.57	32.03%	$3.66	$5.39	$1.73	0.50%	$0.09	$1.81	$72.94	2.11	16.00%		$3.66	$3.66
1995	$36.49	32.03%	$3.86	$5.69	$1.82	0.50%	$0.09	$1.91	$76.98	2.11	16.00%		$3.86	$3.86
1996	$38.51	32.03%	$4.08	$6.00	$1.92	0.50%	$0.10	$2.02	$81.24	2.11	16.00%		$4.08	$4.08
1997	$40.64	32.03%	$4.30	$6.33	$2.03	0.50%	$0.10	$2.13	$85.74	2.11	16.00%		$4.30	$4.30
1998	$42.89	32.03%	$4.54	$6.68	$2.14	0.50%	$0.11	$2.25	$90.48	2.11	16.00%		$4.54	$4.54
1999	$45.27	32.03%	$4.79	$7.05	$2.26	0.50%	$0.12	$2.37	$95.49	2.11	16.00%		$4.79	$4.79
2000	$47.77	32.03%	$5.06	$7.44	$2.38	0.50%	$0.12	$2.51	$100.78	2.11	16.00%		$5.06	$5.06
2001	$50.42	32.03%	$5.34	$7.86	$2.52	0.50%	$0.13	$2.65	$106.36	2.11	16.00%		$5.34	$5.34
2002	$53.21	32.03%	$5.63	$8.29	$2.66	0.50%	$0.14	$2.79	$112.25	2.11	16.00%		$5.63	$5.63
2003	$56.16	32.03%	$5.95	$8.75	$2.80	0.50%	$0.14	$2.95	$118.46	2.11	16.00%		$5.95	$5.95
2004	$59.26	32.03%	$6.28	$9.23	$2.96	0.50%	$0.15	$3.11	$125.02	2.11	16.00%		$6.28	$6.28
2005	$62.55	32.03%	$6.62	$9.74	$3.12	0.50%	$0.16	$3.28	$131.94	2.11	16.00%		$6.62	$6.62
2006	$66.01	32.03%	$6.99	$10.28	$3.29	0.50%	$0.17	$3.46	$139.25	2.11	16.00%		$6.99	$6.99
2007	$69.66	32.03%	$7.38	$10.85	$3.48	0.50%	$0.18	$3.65	$146.96	2.11	16.00%		$7.38	$7.38
2008	$73.52	32.03%	$7.79	$11.45	$3.67	0.50%	$0.19	$3.86	$155.10	2.11	16.00%		$7.79	$7.79
2009	$77.59	32.03%	$8.22	$12.09	$3.87	0.50%	$0.20	$4.07	$163.68	2.11	16.00%		$8.22	$8.22
2010	$81.89	32.03%	$8.67	$12.76	$4.09	0.50%	$0.21	$4.30	$172.75	2.11	16.00%		$8.67	$8.67
2011	$86.42	32.03%	$9.15	$13.46	$4.31	0.50%	$0.22	$4.53	$182.31	2.11	16.00%		$9.15	$9.15
2012	$91.21	32.03%	$9.66	$14.21	$4.55	0.50%	$0.23	$4.78	$192.41	2.11	16.00%		$9.66	$9.66
2013	$96.26	32.03%	$10.19	$15.00	$4.80	0.50%	$0.25	$5.05	$203.06	2.11	16.00%		$10.19	$10.19
2014	$101.59	32.03%	$10.76	$15.83	$5.07	0.50%	$0.26	$5.33	$214.30	2.11	16.00%		$10.76	$10.76
2015	$107.21	32.03%	$11.35	$16.70	$5.35	0.50%	$0.27	$5.62	$226.17	2.11	16.00%		$11.35	$11.35
2016	$113.15	32.03%	$11.98	$17.63	$5.65	0.50%	$0.29	$5.94	$238.69	2.11	16.00%		$11.98	$11.98
2017	$119.41	32.03%	$12.64	$18.60	$5.96	0.50%	$0.31	$6.26	$251.90	2.11	16.00%		$12.64	$12.64
2018	$126.02	32.03%	$13.35	$19.63	$6.29	0.50%	$0.32	$6.61	$265.85	2.11	16.00%		$13.35	$13.35
2019	$133.00	32.03%	$14.08	$20.72	$6.64	0.50%	$0.34	$6.98	$280.57	2.11	16.00%		$14.08	$14.08
2020	$140.36	32.03%	$14.86	$21.87	$7.01	0.50%	$0.36	$7.36	$296.11	2.11	16.00%		$14.86	$14.86
2021	$148.13	32.03%	$15.69	$23.08	$7.39	0.50%	$0.38	$7.77	$312.50	2.11	16.00%		$15.69	$15.69
2022	$156.34	32.03%	$16.56	$24.36	$7.80	0.50%	$0.40	$8.20	$329.80	2.11	16.00%		$16.56	$16.56
2023	$164.99	32.03%	$17.47	$25.71	$8.23	0.50%	$0.42	$8.66	$348.06	2.11	16.00%		$17.47	$17.47
2024	$174.13	32.03%	$18.44	$27.13	$8.69	0.50%	$0.44	$9.14	$367.33	2.11	16.00%		$18.44	$18.44
2025	$183.77	32.03%	$19.46	$28.63	$9.17	0.50%	$0.47	$9.64	$387.67	2.11	16.00%		$19.46	$19.46
2026	$193.94	32.03%	$20.54	$30.22	$9.68	0.50%	$0.50	$10.17	$409.14	2.11	16.00%		$20.54	$20.54
2027	$204.68	32.03%	$21.67	$31.89	$10.22	0.50%	$0.52	$10.74	$431.79	2.11	16.00%		$21.67	$21.67
2028	$216.01	32.03%	$22.87	$33.66	$10.78	0.50%	$0.55	$11.33	$455.70	2.11	16.00%		$22.87	$22.87
2029	$227.97	32.03%	$24.14	$35.52	$11.38	0.50%	$0.58	$11.96	$480.93	2.11	16.00%		$24.14	$24.14
2030	$240.60	32.03%	$25.48	$37.49	$12.01	0.50%	$0.61	$12.62	$507.55	2.11	16.00%		$25.48	$25.48
2031	$253.92	32.03%	$26.89	$39.56	$12.67	0.50%	$0.65	$13.32	$535.66	2.11	16.00%	$535.66	$26.89	$562.54
											Internal Rate of Return			10.83%

Comparative Telephone Companies-Prior AT&T Bell Companies **Schedule 4, P. 1**
Selected Financial Data

	[1] Book Per Sh. Dec. 89	[2] Book Per Sh. Dec. 90	[3] Book Per Sh. Dec. 91	[4] Market Price At 9/30/92	[5] Market Price High for Year	[6] Market Price Low for Year	[7] Market to Book Year End	[8] Market to Book Avg. for Year	[9] Div. Rate	[10] Dividend Yield Year End	[11] Dividend Yield Avg. for Year
	[A]	[A]	[A]	[B]	[B]	[B]	[C]	[C]	[C]	[D]	[D]
Ameritech	$28.45	$29.25	$30.37	$68.50	$70.63	$56.25	2.26	2.09	$3.52	5.14%	5.55%
Bell Atlantic	$21.78	$22.71	$19.77	$48.75	$49.75	$40.25	2.47	2.28	$2.60	5.33%	5.78%
BellSouth	$27.21	$26.54	$27.01	$52.63	$55.50	$43.38	1.95	1.83	$2.76	5.24%	5.58%
NYNEX	$47.55	$45.72	$44.77	$82.25	$85.63	$69.13	1.84	1.73	$4.64	5.64%	6.00%
Pacific Telesis	$19.68	$18.53	$19.27	$44.63	$45.00	$36.88	2.32	2.12	$2.18	4.89%	5.33%
S.W. Bell	$27.83	$28.62	$29.53	$68.50	$69.00	$53.75	2.32	2.08	$2.92	4.26%	4.76%
U.S. West	$21.58	$23.48	$23.39	$38.00	$40.00	$32.88	1.62	1.56	$2.12	5.58%	5.82%
AVERAGE	**$27.73**	**$27.84**	**$27.73**	**$57.61**	**$59.36**	**$47.50**	**2.11**	**1.95**	**$2.96**	**5.15%**	**5.54%**

Source [A] Value Line, 10/16/92
[B] New York Times, Oct. 1, 1992
[C] Market price divided by book value
[D] Dividend rate divided by market price

Comparative Telephone Companies-Prior AT&T Bell Companies
Earnings Per Share and Return on Equity **Schedule 4, P. 2**

	[1] EPS 1990 [A]	[2] EPS 1991 [A]	[3] Return on Eq. 1991 [B]	[4] Value Line Future Exp. Return on Equity [A]	Return on Equity 1990
Ameritech	$4.73	$4.64	15.57%	18.00%	16.40%
Bell Atlantic	$3.38	$3.41	16.05%	20.00%	15.19%
BellSouth	$3.38	$3.11	11.62%	16.00%	12.58%
NYNEX	$6.08	$2.98	6.59%	15.00%	13.04%
Pacific Telesis	$2.77	$2.81	14.87%	17.50%	14.50%
S.W. Bell	$3.67	$3.58	12.31%	16.00%	13.00%
U.S. West	$3.11	$1.38	5.89%	15.00%	13.80%
Average	**$3.87**	**$3.13**	**11.84%**	**16.79%**	**14.07%**

Source: [A Value Line, 10/16/92
[B] Earnings Per Share divded by average book value. Book value shown on Schedule 4, P. 1

Schedule 4, P. 3

Comparative Telephone Companies
Percentage of Common Equity in the Capital Structure
Excluding Short-term Debt

	1987	1988	1989	1990	1991
Ameritech	63.10%	63.60%	60.30%	60.40%	62.00%
Bell Atlantic	62.70%	58.30%	52.70%	52.20%	49.60%
BellSouth	65.50%	62.70%	65.00%	61.90%	62.90%
NYNEX	60.20%	60.10%	59.20%	56.80%	57.20%
Pacific Telesis	59.60%	59.50%	59.40%	56.50%	58.40%
S.W. Bell	59.20%	62.80%	60.50%	61.00%	61.00%
U.S. West	60.10%	54.60%	52.70%	56.30%	55.70%
AVERAGE	61.49%	60.23%	58.54%	57.87%	58.11%

Source: Value Line

Return on Equity Implied in Zack's Consensus Growth Rates

Schedule 4, P. 4

	Y/E Book Dec. 91 [A]	Earnings 1991 [A]	Dividends 1991 [A]	Zack's Consens 5 Year Growth [B]	Y/E Book in 1995 at Zack's Growth [C]	Y/E Book in 1996 at Zack's Growth [C]	Earnings 1996 at Zack's Growth [D]	Return on Equity to achieve Zack's Growth
Ameritech	$30.37	$4.64	$3.40	5.60%	$36.06	$37.69	$6.09	16.52%
Bell Atlantic	$19.77	$3.41	$2.48	5.80%	$24.06	$25.29	$4.52	18.32%
BellSouth	$27.01	$3.11	$2.74	6.20%	$28.73	$29.23	$4.20	14.50%
NYNEX	$44.77	$2.98	$4.56	6.20%	$37.41	$35.27	$4.03	11.08%
Pacific Telesis	$19.27	$2.81	$2.11	6.70%	$22.57	$23.54	$3.89	16.86%
S.W. Bell	$29.53	$3.58	$2.82	7.00%	$33.14	$34.21	$5.02	14.91%
U.S. West	$23.39	$1.38	$2.06	5.80%	$20.25	$19.35	$1.83	9.24%
							Average	14.49%

Source: [A] Value Line, 10/16/92

[B] Zack's Research as reported in Dow Jones News Retrieval computer database, 9/5/92

[C Comuted by growing earnings and dividends at the Zack's consensus 5 year growth rate. Each years' earnings is added to the beginning book value, and each years' dividend is subtracted from the year end book value.

[D 1991 earnings per share, escalated at Zack's consensus growth rate

Schedule 5

COMPARATIVE TELEPHONE COMPANIES
EXTERNAL FINANCING RATE
(Millions of Shares)

Common Stock Outstanding	1991	1995-97	Compound Annual Growth
Ameritech	266.63	273.10	0.48%
Bell Atlantic	396.05	440.00	2.13%
BellSouth	485.11	500.00	0.61%
NYNEX	203.76	208.00	0.41%
Pacific Telesis	401.02	394.90	-0.31%
S.W. Bell	300.16	296.00	-0.28%
U.S. West	409.94	421.00	0.53%
	351.81	361.86	
	Average		0.51%
	Round to		0.50%

Source:
Value Line

RETURN ON EQUITY, MARKET-TO-BOOK AND EARNED RISK PREMIUM OF DOW JONES INDUSTRIALS FROM 1920 THROUGH 1991

Schedule 6, Page 1

Year	DJ Book	DJIA Average (Avg. for Year)	DJ Market to Book	Aaa Indust. Bond Rate	Earned Return on Book Equity		10 Yr Avg. Return on Book vs Aaa Ind. Bonds
					Current	10Yr Avg.	
	[A]	[A]		[A]	[A]		
1920	48.2	90.0	1.87	6.10%	18.90%		
1921	46.4	73.0	1.57	6.00%	4.50%		
1922	51.6	93.0	1.80	5.10%	17.70%		
1923	55.3	94.0	1.70	5.10%	14.90%		
1924	61.0	100.0	1.64	5.00%	17.80%		
1925	69.4	134.0	1.93	4.90%	20.00%		
1926	75.2	152.0	2.02	4.70%	15.10%		
1927	77.9	175.0	2.25	4.60%	11.20%		
1928	84.1	227.0	2.70	4.50%	19.00%		
1929	91.3	311.2	3.41	4.80%	21.80%	16.09%	11.29%
1930	91.2	236.3	2.59	4.50%	12.10%	15.41%	10.91%
1931	86.9	138.6	1.59	4.60%	4.70%	15.43%	10.83%
1932	81.8	64.6	0.79	5.00%	-0.60%	13.60%	8.60%
1933	80.5	83.7	1.04	4.50%	2.10%	12.32%	7.82%
1934	80.7	98.3	1.22	4.00%	4.80%	11.02%	7.02%
1935	82.5	120.0	1.45	3.60%	7.70%	9.79%	6.19%
1936	85.5	162.2	1.90	3.20%	11.80%	9.46%	6.26%
1937	88.3	166.4	1.88	3.30%	13.00%	9.64%	6.34%
1938	87.1	132.4	1.52	3.20%	6.90%	8.43%	5.23%
1939	95.6	142.7	1.49	3.00%	9.50%	7.20%	4.20%
1940	98.7	134.7	1.36	2.80%	11.10%	7.10%	4.30%
1941	103.0	121.8	1.18	2.80%	11.30%	7.76%	4.96%
1942	107.0	107.2	1.00	2.80%	8.60%	8.68%	5.88%
1943	113.0	134.8	1.19	2.70%	8.60%	9.33%	6.63%
1944	118.3	143.3	1.21	2.70%	8.50%	9.70%	7.00%
1945	122.7	169.8	1.38	2.60%	8.60%	9.79%	7.19%
1946	131.4	191.6	1.46	2.50%	10.40%	9.65%	7.15%
1947	149.1	177.6	1.19	2.60%	12.60%	9.61%	7.01%
1948	159.7	179.9	1.13	2.80%	14.40%	10.36%	7.56%
1949	170.1	179.5	1.06	2.70%	13.80%	10.79%	8.09%
1950	194.2	216.3	1.11	2.60%	15.80%	11.26%	8.66%
1951	202.6	257.6	1.27	2.90%	13.10%	11.44%	8.54%
1952	213.4	270.8	1.27	3.00%	11.60%	11.74%	8.74%
1953	244.3	276.0	1.13	3.20%	11.10%	11.99%	8.79%
1954	249.0	333.9	1.34	2.90%	11.30%	12.27%	9.37%
1955	271.8	442.7	1.63	3.10%	13.20%	12.73%	9.63%
1956	284.8	493.0	1.73	3.40%	11.70%	12.86%	9.46%
1957	298.7	475.7	1.59	3.90%	12.10%	12.81%	8.91%
1958	311.0	491.7	1.58	3.80%	9.00%	12.27%	8.47%
1959	339.0	632.1	1.86	4.40%	10.10%	11.90%	7.50%
1960	369.9	618.0	1.67	4.40%	8.70%	11.19%	6.79%
1961	385.7	691.5	1.79	4.30%	8.30%	10.71%	6.41%
1962	401.0	639.8	1.60	4.30%	9.10%	10.46%	6.16%
1963	425.9	714.8	1.68	4.30%	9.70%	10.32%	6.02%
1964	417.4	834.0	2.00	4.40%	11.10%	10.30%	5.90%
1965	453.3	910.9	2.01	4.50%	11.80%	10.16%	5.66%
1966	475.9	873.6	1.84	5.10%	12.10%	10.20%	5.10%
1967	476.5	879.1	1.84	5.50%	11.30%	10.12%	4.62%
1968	521.1	906.0	1.74	6.20%	11.10%	10.33%	4.13%
1969	542.3	876.7	1.62	7.00%	10.50%	10.37%	3.37%
1970	573.2	753.2	1.31	8.00%	8.90%	10.39%	2.39%
1971	607.6	884.8	1.46	7.40%	9.10%	10.47%	3.07%
1972	642.9	949.1	1.48	7.20%	10.40%	10.60%	3.40%
1973	690.2	923.9	1.34	7.40%	12.50%	10.88%	3.48%
1974	747.0	759.4	1.02	8.60%	13.30%	11.10%	2.50%
1975	783.6	802.5	1.02	8.80%	9.70%	10.89%	2.09%
1976	798.2	974.9	1.22	8.40%	12.10%	10.89%	2.49%
1977	841.8	894.6	1.06	8.00%	10.60%	10.82%	2.82%
1978	890.7	820.2	0.92	8.70%	12.70%	10.98%	2.28%
1979	859.4	844.4	0.98	9.60%	14.50%	11.38%	1.78%
1980	928.5	891.4	0.96	11.90%	13.10%	11.80%	-0.10%
1981	975.6	932.9	0.96	14.20%	11.70%	12.06%	-2.14%
1982	881.5	884.4	1.00	13.80%	1.03%	11.12%	-2.68%
1983	888.2	1190.0	1.34	12.00%	8.19%	10.69%	-1.31%
1984	916.7	1178.0	1.29	12.70%	12.29%	10.59%	-2.11%
1985	945.0	1330.0	1.41	11.40%	9.47%	10.57%	-0.83%
1986	986.5	1797.0	1.82	9.00%	11.13%	10.47%	1.47%
1987	1009.0	2264.0	2.24	9.40%	13.46%	10.76%	1.36%
1988	1075.0	2062.0	1.92	9.70%	21.17%	11.60%	1.90%
1989	1206.0	2510.0	2.08	9.30%	18.80%	12.03%	2.73%
1990	1276.0	2670.0	2.09	9.30%	14.82%	12.21%	2.91%
1991	1297.0	2933.0	2.26	8.80%	7.71%	11.81%	3.01%

Source: [A] "A LONG TERM PERSPECTIVE", Supplement to The Value Line Investment Survey
The return on equity includes the effect of both recurring and non-recurring items.

Schedule 6, P. 3

Relative Risk as Indicated by Beta

Dow Jones Industrials

	Beta	
Allied Signal	1.00	
Alcoa	1.25	
American Express	1.40	
American T&T	0.85	
Bethlehem Steel	1.45	
Boeing	1.05	
Chevron	0.90	
Coca Cola	0.95	
Dupont	1.10	
Eastman Kodak	1.00	
Exxon	0.75	
General Electric	1.10	
General Motors	1.05	
Goodyear	1.15	
IBM	0.95	
International Paper	1.30	
McDonalds	0.95	
Merck	1.00	
Minn. Mining & Mfg.	1.05	
Navistar	1.25	
Phil. Morris	1.05	
Primerica	1.40	
Proctor & Gamble	1.00	
Sears Roebuck	1.05	
Texaco	0.70	
USX		NMF
Union Carbide		NMF
United Technologies	1.15	
Westinghouse	1.30	
Woolworth	1.25	
Average	1.09	

Comparative Telephone Companies

	Beta
Ameritech	0.80
Bell Atlantic	0.85
Bell South Corp.	0.80
NYNEX	0.80
Pacific Telesis	0.85
S.W. Bell	0.90
U.S. West	0.85
Average	0.84
Alltel Corp.	0.95
Centel	1.05
Century Tel.	1.15
Cincinnati Bell	0.95
GTE Corp.	0.90
Rochester Tel.	0.80
Southern New Eng. Tel.	0.85
Average	0.95

SOURCE: The Value Line Investment Survey, & Index August 14, 1992

Schedule 7

ELECTRIC COMPANIES
ANALYSIS OF EFFECT OF LEVERAGE ON OVERALL COST OF CAPITAL
REQUIRED CHANGE IN COST OF EQUITY TO KEEP OVERALL COST OF CAPITAL CONSTANT

Constant Revenue Requirement on Rate Base

Bond Rating		Ratio	Marginal Cost	Weighted Cost	Pre-tax Cost	Change per Percent Increase In Common Equity
BBB	Equity, Common	35.00%	11.50%	4.03%	6.10%	
	Equity Preferred	10.00%	9.00%	0.90%	1.36%	
	Debt	55.00%	9.50%	5.23%	5.23%	
				10.15%	12.69%	
A	Equity, Common	41.00%	11.00%	4.51%	6.83%	
	Equity, Preferred	10.00%	8.75%	0.88%	1.33%	
	Debt	49.00%	9.25%	4.53%	4.53%	
				9.92%	12.69%	0.083%
A+	Equity, Common	44.00%	10.89%	4.79%	7.26%	
	Equity, Preferred	10.00%	8.50%	0.85%	1.29%	
	Debt	46.00%	9.00%	4.14%	4.14%	
				9.78%	12.69%	0.037%
AA						
	Equity, Common	47.00%	10.78%	5.07%	7.68%	
	Equity, Preferred	10.00%	8.25%	0.83%	1.25%	
	Debt	43.00%	8.75%	3.76%	3.76%	
				9.65%	12.69%	0.037%
AAA						
	Equity, Common	50.00%	10.66%	5.33%	8.08%	
	Equity, Preferred	10.00%	8.00%	0.80%	1.21%	
	Debt	40.00%	8.50%	3.40%	3.40%	
				9.53%	12.69%	0.040%
AAA	Equity, Common	55.00%	10.20%	5.61%	8.50%	
	Equity, Preferred	10.00%	8.00%	0.80%	1.21%	
	Debt	35.00%	8.50%	2.98%	2.98%	
				9.39%	12.69%	0.092%

Schedule 8

Southern Bell Telephone
Actual and Forecast Eamed Return on Book Equity
for Dr. Billingsley's "Cluster" Companies

	1991	1995-97
Mobil Corp.	11.00%	13.50%
Amoco Corp.	8.60%	15.00%
McDonalds Corp.	17.80%	16.50%
Exxon Corp.	16.00%	16.50%
Kimberly-Clark Corp.	20.20%	19.00%
Du Pont (E.I.) de nemours	10.40%	16.50%
Super Valu Stores, Inc.	15.20%	14.50%
Anheuser-Busch Cos., Inc.	21.20%	18.50%
Chevron Corp.	8.80%	14.50%
Emerson Electric Corp.	19.40%	19.00%
Sara Lee Corp.	18.50%	18.50%
Air Products Chemicals, Inc.	12.80%	15.50%
Hershey Foods Corp.	16.40%	16.50%
Lincoln Telecommunications	15.40%	13.50%
Raytheon Co.	17.80%	14.50%
Pfizer, Inc.	18.20%	24.00%
Yellow Freight Systems	5.60%	14.50%
Armstrong World Inds., Inc.	6.80%	16.50%
Pitney Bowes, Inc.	15.60%	18.50%
K Mart Corp.	12.50%	15.50%
	14.41%	16.55%

Source: Value Line

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2 APPENDIX

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6

TESTIFYING EXPERIENCE OF JAMES A. ROTHSCHILD THROUGH OCTOBER, 1992

ALABAMA

Continental Telephone of the South; Docket No. 17968, Rate of Return, January, 1981.

ARIZONA

Sun City West Utilities; Accounting, January, 1985

CONNECTICUT

Connecticut American Water Company; Docket No. 800614, Rate of Return, September, 1980

Connecticut Light & Power Company; Docket No. 85-10-22, Accounting and Rate of Return, February, 1986

Connecticut Light & Power Company; Docket No. 88-04-28, Gas Divestiture, August, 1988

Connecticut Natural Gas; Docket No. 780812, Accounting and Rate of Return, March, 1979

Connecticut Natural Gas; Docket No. 830101, Rate of Return, March, 1983

Connecticut Natural Gas; Docket No. 87-01-03, Rate of Return, March, 1987

United Illuminating Company; Docket No. 89-08-11:ES:BBM, Financial Integrity and Financial Projections, November, 1989.

DELAWARE

Artesian Water Company, Inc.; Rate of Return, December, 1986

Artesian Water Company, Inc.; Docket No. 87-3, Rate of Return, August, 1987

Diamond State Telephone Company; Docket No. 82-32, Rate of Return, November, 1982

Diamond State Telephone Company; Docket No. 83-12, Rate of Return, October, 1983

Wilmington Suburban Water Company; Rate of Return Report, September, 1986

Wilmington Suburban Water Company; Docket No. 86-25, Rate of Return, February, 1987

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

New England Power Company; CWIP, February, 1984

New England Power Company; Docket No.ER88-630-000 & Docket No. ER88-631-000, Rate of Return, April, 1989

New England Power Company; Docket Nos. ER89-582-000 and ER89-596-000, Rate of Return, January, 1990

New England Power Company: Docket Nos. ER91-565-000, ER91-566-000 , FASB 106, March, 1992

Philadelphia Electric Company - Conowingo; Docket No. EL-80-557/588, July, 1983

FLORIDA

Alltel of Florida; Docket No. 850064-TL, Accounting, September, 1985

Florida Power & Light Company; Docket No. 810002-EU, Rate of Return, July, 1981

Florida Power & Light Company; Docket No. 82007-EU, Rate of Return, June, 1982

Florida Power & Light Company; Docket No. 830465-EI, Rate of Return and CWIP, March, 1984

Florida Power Corporation; Docket No. 830470-EI, Rate Phase-In, June, 1984

Florida Power Corp.; Rate of Return, August, 1986

Florida Power Corp.; Docket No. 870220-EI, Rate of Return, October, 1987

GTE Florida, Inc.; Docket No. 890216-TL, Rate of Return, July, 1989

Gulf Power Company; Docket No. 810136-EU, Rate of Return, October, 1981

Gulf Power Company; Docket No. 840086-EI, Rate of Return, August, 1984

Gulf Power Company; Docket No. 881167-EI, Rate of Return, 1989

Gulf Power Company; Docket No. 891345-EI, Rate of Return, 1990

Rolling Oaks Utilities, Inc.; Docket No. 850941-WS, Accounting, October, 1986

Southern Bell Telephone Company; Docket No. 880069-TL, Rate of Return, January, 1992

Tampa Electric Company; Docket No. 820007-EU, Rate of Return, June, 1982

Tampa Electric Company; Docket No. 830012-EU, Rate of Return, June, 1983

United Telephone of Florida; Docket No. 891239-TL, Rate of Return, November, 1989

United Telephone of Florida; Docket No. 891239-TL, Rate of Return, August, 1990

Water and Sewer Utilities, Docket No 880006-WS, Rate of Return, February, 1988.

GEORGIA

Georgia Power Company; Docket No. 3397-U, Accounting, July, 1983

ILLINOIS

Central Illinois Public Service Company; ICC Docket No. 86-0256, Financial and Rate of Return, October, 1986.

Commonwealth Edison Company; Docket No. 85CH10970, Financial Testimony, May, 1986.

Commonwealth Edison Company; Docket No. 86-0249, Financial Testimony, October, 1986.

Commonwealth Edison Company; ICC Docket No. 87-0057, Rate of Return and Income Taxes, April 3, 1987.

Commonwealth Edison Company; ICC Docket No. 87-0043, Financial Testimony, April 27, 1987.

Commonwealth Edison Company; ICC Docket Nos. 87-0169, 87-0427,88-0189,880219,88-0253 on Remand, Financial Planning Testimony, August, 1990.

Commonwealth Edison Company; ICC Docket Nos. 91-747 and 91-748; Financial Affidavit, March, 1991.

Commonwealth Edison Company; Financial Affidavit, December, 1991.

Commonwealth Edison Company, Finanicial Testimony, August, 1992, Docket No. 87-0427 et al. No. 90-0169 (On Second Remand)

Illinois Power Company, Financial Affidavit, August, 1992, Docket 91-0147, on Rehearing

Northern Illinois Gas Company; Financial Affidavit,
February, 1987.

Northern Illinois Gas Company; Docket No. 87-0032, Cost of Capital and Accounting Issues, June, 1987.

Peoples Gas Light and Coke Company; Docket No. 90-0007, Accounting Issues, May, 1990.

KENTUCKY

Kentucky Power Company; Case No. 8429, Rate of Return, April, 1982.

Kentucky Power Company; Case No. 8734, Rate of Return and CWIP, June, 1983.

Kentucky Power Company; Case No. 9061, Rate of Return and Rate Base Issues, September, 1984.

West Kentucky Gas Company, Case No. 8227, Rate of Return, August, 1981.

MAINE

Bangor Hydro-Electric Company; Docket No. 81-136, Rate of Return, January, 1982

Maine Public Service Company; Docket No. 90-281, Accounting and Rate of Return, April, 1991

MARYLAND

C & P Telephone Company; Case No. 7591, Fair Value, December, 1981

MASSACHUSETTS

Boston Edison Company; Docket No. DPU 906, Rate of Return, December, 1981

Fitchburg Gas & Electric; Accounting and Finance, October, 1984

Southbridge Water Company; M.D.P.U., Rate of Return, September, 1982

MINNESOTA

Minnesota Power & Light Company; Docket No. EO15/GR-80-76, Rate of Return, July, 1980

NEW JERSEY

Atlantic City Sewage; Docket No. 774-315, Rate of Return, May, 1977

Atlantic City Electric Company, Docket Nos. ER 8809 1053 and ER 8809 1054, Rate of Return, April, 1990

Elizabethtown Water Company; Docket No. 781-6,Accounting, April, 1978

Elizabethtown Water Company; Docket No. 802-76, Rate of Return, January, 1979

Elizabethtown Water Company; Docket No. PUC 04416-90, BPU Docket No. WR90050497J, Rate of Return and Financial Integrity, November, 1990.

Elizabethtown Water Company; Docket No.WR 9108 1293J, and PUC 08057-91N, Rate of Return and Financial Integrity, January, 1992.

Essex County Transfer Stations; OAL Docket PUC 03173-88, BPU Docket Nos. SE 87070552 and SE 87070566, Rate of Return, October, 1989.

Hackensack Water Company; Docket No. 776-455, October, 1977 and Accounting, February, 1979

Hackensack Water Company; Docket No. 787-847, Accounting and Interim Rate Relief, September, 1978

Hackensack Water Company; AFUDC & CWIP, June, 1979

Hackensack Water Company; Docket No. 804-275, Rate of Return, September, 1980

Hackensack Water Company; Docket No. 8011-870, CWIP, January, 1981

Middlesex Water Company; Docket No. 793-254, Tariff Design, September, 1978

Middlesex Water Company; Docket No. 793-269, Rate of Return, June, 1979

Middlesex Water Company; Docket No. WR890302266-J, Accounting and Revenue Forecasting, July, 1989

Middlesex Water Company; Docket No. WR90080884-J, Accounting, Revenue Foresasting, and Rate of Return, February, 1991

Mount Holly Water Company; Docket No. 805-314, Rate of Return, August, 1980

National Association of Water Companies; Tariff Design, 1977

New Jersey Bell Telephone; Docket No. 7711-1047, Tariff Design, September, 1978

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November, 1985

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Rockland Electric Company; Docket No. 795-413, Rate of Return, October, 1979

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United Artists Cablevision; Docket No. CTV-9924- 83, Rate of Return, April, 1984

West Keansburg Water Company; Docket No. 838-737, Rate of Return, December, 1983

NEW YORK

Consolidated Edison Company; Case No.27353, Accounting and Rate of Return, October, 1978

Consolidated Edison Company; Case No. 27744, Accounting and Rate of Return, August 1980

Generic Financing Case for Electric & Gas Companies; Case No. 27679, May, 1981

Long Island Lighting Company; Case No. 27136, Accounting and Rate of Return, June, 1977

Long Island Lighting Company; Case No. 27774, Rate of Return, November, 1980

Long Island Lighting Company; Case No. 28176 and 28177, Rate of Return and Revenue Forecasting, June, 1982

Long Island Lighting Company, Case No. 28553, Rate of Return and Finance, March, 1984

New York Telephone, Case No. 27469, April, 1979

New York Telephone, Case No. 27710, Accounting, September, 1981

OHIO

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CERTIFICATE OF SERVICE
DOCKET NO. 920260-TL

I HEREBY CERTIFY that a copy of the foregoing has been furnished by U.S. Mail or hand-delivery to the following parties on this 16th day of November, 1992.

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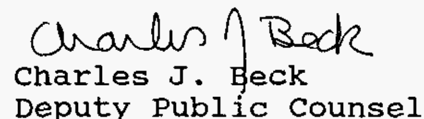

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