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November 8, 1993

Mr. Steve Tribble
Director, Division of Records and Reporting
Florida Public Service Commission
101 East Gaines Street
Tallahassee, FL 32301

re: Docket 920260-TL

Dear Mr. Tribble:

Today we are filing two sets of testimony. The original and fifteen copies of the testimony of each witness in the first set is enclosed, and we have served a copy of the testimony on each party of record. This set of testimony includes the testimony of James Rothschild, Steve Stewart, and James Currin.

The other set of testimony contains information claimed to be proprietary by Southern Bell. This set includes the testimony of Tom DeWard, Kim Dismukes, and three separate pieces of testimony by R. Earl Poucher. We are forwarding only the original to you and will await the ruling of the Commission on Southern Bell's claim of confidentiality before we serve copies on the parties of record.

Last year we filed the testimony of Dr. Mark Cooper, and he will be adopting that same testimony in this phase of the proceeding. We are awaiting the ruling of the Commission on Southern Bell's claim of confidentiality pertaining to his testimony.

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CMU ____ Currin 12057-93
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Sincerely,

Charles J. Beck
Deputy Public Counsel

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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 8th day of November, 1993.

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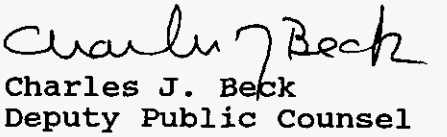

Charles J. Beck
Deputy Public Counsel

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, 1993

DIRECT TESTIMONY

OF

JAMES A. ROTHSCHILD

On Behalf of the Citizens of The State of Florida

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SOUTHERN BELL

Docket No. 920260-TL

TESTIMONY OF JAMES A. ROTHSCHILD

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I. STATEMENT OF QUALIFICATIONS OF JAMES A. ROTHSCHILD

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James A. Rothschild and my address is 115 Scarlet Oak Drive, Wilton, Connecticut 06897.

Q. WHAT IS YOUR OCCUPATION?

A. I am a financial consultant specializing in utility regulation. I have experience in the regulation of electric, gas, telephone, sewer, and water utilities throughout the United States.

Q. PLEASE SUMMARIZE YOUR UTILITY REGULATORY EXPERIENCE.

A. I am President of Rothschild Financial Consulting and have been a consultant since 1972. From 1979 through January 1985, I was President of Georgetown Consulting Group, Inc. From 1976 to 1979, I was the President of J. Rothschild Associates. Both of these firms specialized in utility regulation. From 1972 through 1976, Touche Ross & Co., a major international accounting firm, employed me as a management consultant. Recently, Touche Ross & Co. merged to form Deloite Touche. Much of my consulting work done while at Touche Ross was in utility regulation. While associated with the above firms, I have worked for various state Utility Commissions, Attorneys General, and Public Advocates on regulatory matters relating to regulatory and financial issues. These have included rate of return, financial issues, and accounting issues. (See Appendix B.)

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I received an M.B.A. in Banking and Finance from Case Western University (1971) and a B.S. in Chemical Engineering from the University of Pittsburgh (1967).

II. OVERVIEW

Q. PLEASE EXPLAIN YOUR OVERVIEW PERSPECTIVE ON THE COST OF CAPITAL PORTION OF THIS CASE.

A. Capital cost rates are dramatically lower now than they have been for many years. In order to be fair to ratepayers, and to not mislead investors into overpaying for purchases of utility common stocks, it is critically important for this Commission to lower the authorized return on equity down to today's cost of equity.

The drop in capital cost rates is well known throughout the financial community. Furthermore, it would be only simplistic to reject today's financial reality as somehow a temporary aberration. For example, an advertisement placed by the brokerage firm of Edward D. Jones & Co. on page C21 of the October 12, 1993 *Wall Street Journal* says:

> Like it or not, investors, these are the good old days. If you're about to renew your 8.6 percent five-year CD at something like 5 percent, you may take exception to that statement. The fact of the matter is, however, that today's yields on stocks and bonds are pretty close to their historical averages. In other words, they're just about normal.

The advertisement goes on to say:

> If you invested in bonds for the first time in the 1980s, today's interest rates are probably a big disappointment. But the fact is, over the last 40 years, yields on long-term bonds have averaged about 6.6 percent, not far at all from where they are today. **From a historical standpoint, today's interest rates are not the exception. They're the rule.** Although bonds and other income investments may not be terribly attractive right now, they're still important to your portfolio.
>
> The stock story is similar. The stock market outdid itself in the 80's. From 1980 to 1989, average annual total returns on common stocks exceeded 19 percent. If you were fortunate enough to have invested in the market during those years, we'd expect you to be pleased with your success. We also hope you're not expecting those kinds of returns every year. **In the next ten years, common stock**

returns are far more likely to fall back to their historical levels, in the area of 10 percent.
[Emphasis added]

Of course, the 10 percent return referenced in the above quote is intended to apply to the average common stock, and should be expected to be less for a common stock of below average risk such as that of a regulated telephone utility.

Q. IS THE DROP IN INTEREST RATES AND ASSOCIATED CAPITAL COST RATES PERMANENT?

A. While there will undoubtedly continue to be fluctuations in interest rates, interest rates have been in a general downtrend for over ten years. In the past, long-term trends in interest rates have been sustained much longer than ten years. Recently, a new and significant drop in long-term interest rates occurred concurrent with the passing of a new federal income tax law in August, 1993. The lower interest rates indicate that investors believe the new tax law will make the federal deficit lower than if the tax law had not been passed. A lower deficit should result in lower inflation, and therefore lower interest rates.

Q. IS PART OF THE BENEFIT OF LOWER INTEREST RATES LOWER EQUITY COST RATES?

A. Yes. Lower interest rates mean lower equity cost rates. Equity capital competes with debt capital. When interest rates on debt capital decline, investors are also willing to settle for lower expected returns. This is true not only of utility common stock investors, but is also true of investors in non-utility common stock and in bonds. The benefit of the lower cost of capital should be passed directly on to ratepayers. Ratepayers deserve to have this savings passed on in as timely a fashion as possible.

Q. HOW LONG HAVE INTEREST RATES AND EQUITY COST RATES BEEN TRENDING DOWN?

A. As will be shown later in this testimony, interest rates and therefore equity capital cost rates have been trending down since about 1981.

Q. HAVE ALLOWED RETURNS ON EQUITY ALSO BEEN TRENDING DOWN?

A. Yes, however they have not been trending down fast enough. As pointed out by FERC in a 1988 decision in Docket No. RM87-35-000,

> Equity capital costs generally rise as interest rates rise. Conversely, equity capital costs generally fall as interest rates fall. During periods of rising equity costs, utilities generally file for rate increases to cover these higher costs. This action protects utility shareholders from declines in the value of their stock. The result is a tendency to maintain a utility's existing market-to-book ratio during periods of rising equity costs.
>
> During periods of falling capital costs, the revenue required to meet shareholder capital cost requirements also declines. Until a utility files for new rates that lower capital cost, it continues to charge rates based on the higher equity capital costs that existed when the current rates were set. **The result is a tendency for the utility to earn more than its shareholders currently require a concomitant increase in the price of the utility's common stock and market-to-book ratio.**
>
> (Emphasis added)

Because of the slowness of regulation to drop the cost of equity, market-to-book ratios of utilities have increased sharply since 1981 even though allowed rates of return have come down. Compared to the appropriate regulatory standard of a market-to-book ratio approximating 1.0, the market to book ratio of the RHCs and of BellSouth, the parent of Southern Bell, are extremely high. Based on stock prices as of September 30, 1993, BellSouth's market-to-book ratio was 2.17, and the average market to book ratio for the RHCs was 2.70. See Schedule 6, P. 1.

I am concerned that there might be resistance to lowering the cost of equity as much as is appropriate because the actual cost of equity that exists today might "sound" too low. It is critical to recognize that long-term treasury interest rates around 6% also might seem too low. They "sound" too low merely because the long-term interest rates have been materially higher than 6% over most of the last 20 years. Nevertheless, they are not really low because inflation rates are lower than in the past 20 years, meaning that investors with funds to invest are willing to purchase long-term U.S. treasury bonds that promise yields of about 6%. It makes sense to use an equity cost rate that is consistent with the 6% yield on long-term U.S. treasuries. While interest rates and investors' expectations will fluctuate, and might be higher or lower than the current spot interest rate over the next several months, it should not be automatically assumed that interest rates will jump back up. Those who say rates cannot go any lower than they are should be reminded that as recently as 1969, long-term U.S. treasury bonds were yielding about 4.5%. See the graph contained in the article from page 1 of the September 4th, 1993 issue of *The New York Times* entitled "A Primer: The Forces Propelling Interest Rates Back to the 1960's" included with this testimony as Schedule 10.

As indicated in the graph on Schedule 10 from *The New York Times*, interest rates were generally in an up-trend from the 1960's through about 1981, and have generally been in a downtrend ever since. Eventually, and unpredictably, the trend in interest rates will reverse someday. That someday might be within the next few years, or it might not be for another twenty years. However, for now, the downtrend in interest rates is still intact. To be conservative, my equity cost recommendation is not based upon a projected continuation of the trend towards lower interest rates. But this means that unless the current environment should just happen to be that turning point in the interest rate trend, my equity cost recommendation will prove to be too high over the life of the rates to be decided in this case.

Just as long-term interest rates demanded by investors are breaking into new lower levels, I recommend that this Commission allow the company to earn a cost of equity that is reflective of today's costs. Today's true cost of equity will "sound" too low if it is compared to what are now obsolete ideas formulated as little as a year or two ago. Southern Bell investors are entitled to a reasonable opportunity to earn the cost of equity, and ratepayers are entitled to pay rates that are no higher than necessary to cover the cost of equity demanded by Southern Bell's investors.

III. SUMMARY OF RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS:

A. In keeping with the financial realities that now exist, my conclusions are:

1) Cost of equity. The cost of equity that should be allowed to Southern Bell is 10.40% if the additional risk premium is added that is consistent with my recommended capital structure. The cost of equity that would be appropriate for the company requested low risk capital structure should be no more than 9.70%. See Schedule 1, P. 1.

2) Embedded cost rates. I have adopted the embedded cost rate of debt as proposed by the company. It was not necessary to increase the embedded cost of debt concurrent with my proposed capital structure because, at 7.68% the embedded cost of debt is already more than high enough to cover any costs associated with increasing the amount of debt in Southern Bell' capital structure used for regulatory purposes.

3) Capital Structure. Before adding the Florida ratemaking additions, the capital structure requested by the company contains 61.01% common equity. This is an excessive amount of common equity by any reasonable standard. 61.01% common equity is higher than the actual amount of common equity in the capital structure of any of the RHCs, and is considerably higher than the average 52.90% common equity used by the RHCs. See Schedule 6, Page 3.

There is a tendency in the telephone industry for companies to manipulate the capital structure such that the regulated portion of a company's

operations reflects more than its share of the system's common equity. The optimal capital structure for a regulated telephone company consists of approximately 40% to 45% equity. Since the 42.5% mid-point of the optimal range for common equity is also very close to the same amount of equity actually used by BellSouth, I recommend that the capital structure that should be used to determine the overall cost of capital for Southern Bell be computed using 42.5% common equity. If a higher number than this is used, the actual return on equity earned by the common stockholders from the Southern Bell operations would be considerably higher than whatever return on equity is authorized.

3) Overall cost of capital. Based upon the above cost rates and capital structure, Southern Bell has an overall cost of capital of 7.14%, inclusive of the impact of cost free capital, customer deposits, and investment tax credits. See Schedule 1, P. 1.

IV. CAPITAL STRUCTURE

Q. PLEASE SUMMARIZE YOUR CAPITAL STRUCTURE FINDINGS IN THIS CASE.

A. The cost of capital in this case should not be based upon the capital structure reported by Southern Bell. As shown on Schedule 6, Page 3, BellSouth uses more common equity in its capital structure than any of the other RHCs. In general, the RHCs are more risky than the regulated telephone companies. Therefore, if it weren't for the fact that capital structure manipulation is common, the operating teleephone companies would have less common equity in their capital structure than do the RHCs. The most important reason for rejecting the use of Southern Bell's level of common equity in the capital structure is because it contains an uneconomically high level of common equity in the capital structure. The optimal capital structure for a regulated telephone utility contains 40-45% common equity. I show in this testimony that a capital structure within this optimal range would produce the lowest overall cost of capital for Southern Bell in the long-run. The evidence in favor of using my recommended capital structure in this case is very strong. Furthermore, the company has presented no evidence to support its choice of an uneconomical level of common equity in its capital structure.

In evaluating my proposed optimal capital structure, the Commission should recognize that the business risk of Southern Bell is lower than the aggregate business risk of BellSouth. The appropriate level of common equity in the capital structure should ideally go down as business risk declines. Therefore, since Southern Bell's reported capital structure contains a similar level of common equity than that used by BellSouth, the requested capital structure must have been manipulated to increase the risk that Southern Bell could charge ratepayers more than its actual cost of capital. The Commission should not permit Southern Bell and BellSouth to overcharge

ratepayers.

Q. IS SOUTHERN BELL'S CAPITAL STRUCTURE TYPICAL OF THE TELEPHONE INDUSTRY?

A. No. It is extremely high. As shown on Schedule 6, P. 3, the 61.01% level of common equity in the capital structure of Southern Bell is higher than all of the RHCs. The average amount of common equity in the capital structure of all seven of the RHCs is 52.90%. Also note that the 42.5% optimal common equity level I recommend for Southern Bell is by no means an extreme. GTE Corp. has 37.14% common equity in its capital structure. This relatively low level of common equity in the capital structure is not causing problems for GTE. Value Line gives GTE Corp. its highest rank for safety, and says in its April 16, 1993 report on GTE that "**(o)ur investment case for GTE is geared towards conservative, income-oriented investors.**" Sprint, at of 41.59% equity (40.12% common plus 0.47% preferred) is also not causing any problems. Value Line gives Sprint an average ranking for safety.

Q. HOW DID YOU DETERMINE THAT THE OPTIMAL CAPITAL STRUCTURE CONTAINING 40% to 45% EQUITY WOULD PRODUCE THE LOWEST OVERALL COST OF CAPITAL IN THE LONG-RUN?

A. The conclusion to base the capital structure to use for ratemaking purposes on a capital structure containing 40% to 45% equity is based upon computations of what the overall cost of capital would be in the long-run if various capital structures were used. A capital structure that still provides the company with reasonable access to the capital markets and produces the lowest long-run overall cost of capital is the capital structure that is in the long-run best interests of ratepayers. It is also a capital structure that is fair to investors so long as the costs of each component are computed

fairly.

Q. WHY HAVE YOU SPECIFIED THAT YOU HAVE USED A LONG-RUN OVERALL COST OF CAPITAL RATHER THAN A SHORTER TIME FRAME?

A. In the short-run, most utility companies can lower the overall cost of capital simply by replacing equity with debt. The revenue requirements to support each dollar of common equity capital are much higher than the revenue requirements to support each dollar of debt capital. This is not only because equity costs more than debt, but because the difference between the cost rate of debt and of equity is substantially amplified by the impact of income taxes. In order for a company to earn its cost of equity, it must be provided with not only the cost of equity, but an allowance for income taxes as well. The interest expenses that make up the cost of debt, however, are tax deductible. Therefore, it is not necessary to provide any allowance for income taxes in order to provide a utility company with a reasonable opportunity to recover its cost of debt.

I have not proposed a capital structure that would only minimize the short-run cost of capital. If the only consideration were the short-run, there would be a tendency to over-use debt. This is because the cost of outstanding debt issues would not change until those debt issues had to be refinanced, but eventually all of the outstanding debt issuances would be refinanced. Therefore, the long-run lowest cost capital structure is the cost of capital that a company would eventually be expected to achieve after all outstanding debt issues were refinanced at a cost rate consistent with the capital structure being evaluated.

Q. WHAT CAPITAL STRUCTURES DID YOU SELECT TO DETERMINE WHAT SHOULD BE THE LONG-RUN OVERALL COST OF CAPITAL?

A. I chose the capital structures shown on Schedule 9, Page 1. One capital structure

is shown for each major S&P bond rating category from AA through BB. The capital structure consistent with each bond rating category was based upon the S&P Benchmarks for the capital structure of each bond rating.

Q. HOW DID YOU DETERMINE THE COST OF DEBT TO APPLY TO EACH STATED CAPITAL STRUCTURE?

A. I used the actual cost of debt by bond rating category as of Sept., 1993. I used the average yields provided by Moody's rather than the ones provided by Standard and Poors. This is because the average yields presented in the Standard & Poors bond guide were inappropriate for this purpose. The yields published by Standard & Poors were not properly adjusted for the impact of debt that investors expected to be called. As a result, the Standard & Poors average yields were erroneously reporting that the cost of BBB rated debt was lower than the cost of A rated debt.

Neither Standard & Poors nor Moody's provided an average cost rate for BB rated utility debt. Therefore, in order to produce an estimate of the cost of capital that should be expected for a BB rated utility, I examined the spread between BBB and BB rated industrials. The actual average spread between BBB and BB industrials was computed to be about 1.3%. However, I also observed that the average spread between AA and A as well as between A and BBB rated industrial bonds were about twice as high for utility companies with similar rating differences. Therefore, it is reasonable to infer that if there were an index of BB rated utility debt, the cost difference between BBB and BB rated utility debt would also be less than for industrials. To be conservative, I rounded the spread difference between the probable cost difference between BBB and BB rated utility debt up to 1.00%.

Q. HOW DID YOU DETERMINE THE COST OF EQUITY TO ASSIGN TO EACH OF THE CAPITAL STRUCTURES YOU EXAMINED?

A. I determined the cost of equity difference demanded by utility investors based upon a detailed analysis of the relationship between the cost of equity of electric utilities and the level of common equity in the capital structure. The analysis was done using electric utilities because there are not enough telephone companies covered by Value Line to make such an estimate with sufficient reliability.

The analysis I prepared used all of the electric utility companies covered by Value Line. Using the DCF analysis, I computed the cost of equity for each electric company once a year for each of the five years ended with 1993. In each of the five years, I based the DCF computations on the information provided in the first edition of Value Line issued each year that covered the utility company being examined. The only companies eliminated from the analysis were companies in which the data provided by Value Line was incomplete, or if the company was not paying a common dividend. Companies not paying a common dividend were eliminated because the constant growth DCF model is of questionable reliability when a company is not paying any dividend.

The dividend yield was computed by taking the most recent quarterly dividend rate and multiplying it by 4, and dividing the result by the recent stock price provided by Value Line. The growth rate was computed using Value Line's future expected return on book equity as the value of "r", and computing a value of "b" consistent with both the selection of "r" and with the dividend rate used to compute dividend yield. I then multiplied "b x r" to obtain the growth rate estimate. I also added an allowance to the growth rate to recognize future growth caused by sales of new common stock above book value. In other words, except for the fact that in this procedure I used a mechanical acceptance of Value Line's future return on book equity as the only estimate for the future return on book equity expected by investors, I used the same approach to the DCF method in this procedure as the approach I used to determine the cost of equity I found appropriate for the RHCs and for BellSouth.

Computations based upon prior years' actual numbers were based upon the financial numbers as reported by Value Line. In some instances the numbers for the prior year were estimated by Value Line. I used the estimated numbers, rather than revising them for actual, because the estimated numbers would be consistent with the numbers available to investors at the time of the stock price shown in the Value Line report.

After obtaining the DCF result explained above, I prepared a multiple regression analysis in which the DCF cost of equity for each company in each year was the dependent variable, and other factors including the interest rate on 30-year treasury bonds, the percentage of common equity in the capital structure, the percentage of income derived from Allowance for Funds Used During Construction, the sustainable retention rate, the external financing rate, and the dividend-to-book ratio were evaluated as independent variables. The results of that analysis are shown on Schedule 9, Page 2. The analysis shows that investors believe the cost of equity for an electric utility increases by between .0167% and .045% for each 1% decrease in the level of common equity in the capital structure. To be conservative in favor of a capital structure containing more common equity, I used .04%, a number near the upper end of this range to determine how the cost of equity changes with changes in the level of common equity in the capital structure.

Q. WHAT DOES THE ANALYSIS YOU DESCRIBE ABOVE SHOW?

A. The results of the analysis are shown on Schedule 9, Page 1. This analysis shows that the pre-tax cost of capital (the cost of capital that reflects the revenue requirements borne by ratepayers) drops rapidly as the level of common equity in the capital structure drops from 60% down to about 40%. Then, as the level of common equity in the capital structure drops from 40%, the additional decline in the overall cost of capital is slight. I would hesitate lowering the level of common equity all the

Standard & Poors benchmark range for BBB rated utility debt is 38% common equity. Therefore, this should be the bottom of the range of the optimal capital structure. I would prefer to see a telephone company keep its level of common equity in the capital structure above 38%, as it would be uneconomical to take action that might cause some of the debt in the consolidated company to be downgraded to BB. In consideration of this, and the results shown on Schedule 9, Page 1, I conclude that anywhere in the 40% to 45% level of equity range would effectively produce the lowest overall cost of capital in the long-run. I have picked the mid-point of this range, 42.5% as the optimal level of equity that a regulated telephone company should maintain to result in the lowest overall cost of capital in the long-run. 42.5% also happens to be very similar to the actual level of common equity employed by BellSouth.

Q. ARE YOU SAYING THAT SOUTHERN BELL SHOULD SELL SUFFICIENT DEBT SO THAT ITS BOND RATING WOULD DROP TO BBB?

A. No, this should not be necessarily. Other regulated telephone companies that have approximately achieved the optimal level of common equity in the capital structure have chosen not to do the incremental borrowing at the regulated telephone subsidiary level. Some or all of the debt could be issued by BellSouth directly, or by other BellSouth subsidiaries rather than by Southern Bell.

It may be that the capital structure of BellSouth, including the impact of its more risky unregulated activities, is already at an optimal level. If this is the case, then BellSouth need not issue any more debt. It then would simply be an allocation problem. So that the regulated telephone company operations do not subsidize the unregulated operations, it is important to determine the overall cost of capital by using the optimal capital structure.

Q. DO BELLSOUTH AND SOUTHERN BELL NECESSARILY HAVE THE SAME COST OF DEBT?

A. No. One important factor that determines the cost of debt to a company is the level of common equity in its capital structure. Other things being equal, the higher the level of common equity in the capital structure, the lower the cost of debt to that company. If BellSouth consolidated were to chose to issue a substantial amount of debt, it is conceivable that it would cost BellSouth more to issue debt of similar maturity and terms than it would Southern Bell. The selection of the optimal capital structure has assumed that the interest cost on debt would increase as a result of a change in the capital structure. Because this increase in interest costs may not actually have to occur, the optimal capital structure I have selected contains a conservatively high level of common equity.

Q. THE CAPITAL STRUCTURES YOU SHOW ON SCHEDULE 6, PAGE 3 ARE FOR THE RHCS, NOT FOR THE SEPARATE REGULATED TELEPHONE COMPANIES. ARE THE RHCS A BETTER BENCHMARK FOR ACTUAL THAN THE SEPARATE REGULATED TELEPHONE COMPANIES OWNED BY THE RHCS?

A. Yes. The FCC has already acknowledged that the capital structure of the BOCs is not representative of the actual capital structure financing the regulated operations of a BOC. In its Order in CC Docket No. 89-624, the cost of capital represcription proceedings (December 7, 1990), the FCC stated, on page 2:

> **We find that the capital structure of the BOC's should not be used in determining the overall interstate access cost of capital because the capital structure of those entities is subject to manipulation by the holding companies.** We therefore adopt for this represcription proceeding the approach, embodied in the Part 65 rules, of using the composite cost of debt and capital structure of the RHC's in calculating the overall unitary rate

of return. (Emphasis added.)

In order to fairly balance the interests of investors and ratepayers, the overall cost of capital used to determine the rates paid by the ratepayers of Southern Bell should be based upon my recommended capital structure. My recommended capital structure is in the mid-point of the range of the optimal capital structure for a regulated telephone utility.

V. COST OF COMMON EQUITY

A. Summary of Conclusions on Cost of Equity

Q. WHAT IS YOUR RECOMMENDED COST OF EQUITY?

A. My recommended cost of equity for Southern Bell is 10.40% for use with my recommended capital structure, and is 9.70% for use with the company requested capital structure.

Q. HOW DID YOU ARRIVE AT YOUR RECOMMENDED COST OF EQUITY?

A. My recommended cost of equity is derived from the use of both a simplified and a complex version of the DCF method. The simplified model in which the cost of equity is determined by adding the dividend yield to the future expected growth rate, is the methodology that is most commonly used in rate proceedings. An absolutely critical requirement in implementing the simplified version of the DCF model is that the estimate of the future expected growth rate be a growth rate that is expected to be sustained, on average, for many years. Stock analysts, and textbooks recognize that if conditions exist that make it valid to use the simplified, or constant growth version of the DCF method, the proper way to estimate the sustainable growth rate is to use what is usually referred to as the retention growth, or "b x r" method. In this approach, the future expected retention rate "b" is multiplied by the future expected return on book equity "r" in order to obtain a sustainable growth rate. Other methods to estimate future sustainable growth can be used, but they generally are more subjective, and often not used with sufficient care so as to be sure that the growth rate measure could be reflective of a long-term future sustainable growth rate. Even if used with extreme care, these other methods do not have the same potential for

accuracy as a properly applied "b x r" estimate because they generally must be adjusted to eliminate at least some of the factors which would otherwise be causing them to include non-recurring influences on growth.

For the reasons states above, I consider the "b x r" method the primary approach to quantifying future sustainable growth. I also present alternative methods such as actual and projected dividend growth rates, projected earnings per share growth rates as forecast by Value Line and a five-year analysts' growth rate consensus forecast. All of these alternative methods must be carefully examined, and adjusted as necessary to eliminate those portions of the growth rate indication which were influenced by factors that should not be expected to re-occur in the future. In this case, if these alternative methods were not adjusted, but were otherwise used in an equally weighted manner, the indicated cost of equity would be similar to the adjusted numbers. As shown on Schedule 1, P. 3, before adjustment, some of the methods understate the cost of equity and others overstate the cost of equity. But, the average of the unadjusted numbers is very close to the average of the adjusted numbers. Even though the result is about the same in this case whether or not the adjustments are made, it is important to make the adjustments because sometimes even the average of the unadjusted numbers could be significantly mis-stating the cost of equity.

In addition to implementing the simplified version of the DCF method, I have also presented a complex version. The complex DCF model computes the cost of equity based upon future expected cash flows for many years into the future.

Currently, the spot cost of equity is less than is indicated by the DCF method presented in this testimony. This is because long-term interest rates have declined significantly since the date of the stock prices used in preparing this testimony. While interest rates will no doubt fluctuate in the future, the cause of the current drop is the passage of a new federal income tax law in August, 1993. Investors have

perceived that the new federal income tax law will reduce the federal deficit, and interest rates. To the extent that the drop in interest rates is because of the new tax law, it is a new factor that will keep interest rates at a lower level, other things being equal, at least until the tax law is changed.

The simplified version of the DCF method is applied by implementing the following formula:

cost of equity = dividend yield + future expected growth

The dividend yield is defined as the dividend rate divided by the stock price. I determined that the average dividend yield of the RHCs was 4.30% based on stock prices as of September 30, 1993, and was 4.78% based upon the average stock prices achieved during the 52 weeks ended September 30, 1993. Approximately 0.12% to 0.13% should be added to the dividend yield to increase the current spot dividend rate to the level required to be reflective of dividends to be paid in the year following September 30, 1993, making the dividend yield appropriate for use in the DCF method 4.42% to 4.91%. The higher end of this dividend yield range is based upon average stock prices for the year. The 4.42% dividend yield is based on more current stock price information. Over the last year, interest rates, and therefore capital cost rates have been trending down rather than simply cycling up and back. Therefore, in this case, more weight should be given to the more current 4.42% dividend yield than to the older 4.91% dividend yield.

My primary method for determining future expected growth is the "b x r" approach. The growth rate indicated by the "b x r" method for the RHCs is estimated to be 5.42% to 5.56%. This is computed using the sustainable growth that is expected to occur in the future. The retention rate times return on equity, or "b x r"

method, has been frequently relied upon by utility commissions in determining the cost of equity. For reasons explained later in this testimony, the "b x r" method is best implemented by multiplying the *future expected* return on book equity by the *future expected* retention rate. Also future sustainable growth should include an increment to growth to allow for the impact of sales of new common stock above book value. The details of the inputs and intermediate computations that I made to produce the growth rates are both explained later in this testimony, and shown on Schedule 3, P. 1 in the two columns entitled "Recommended Expectation". The "b x r" growth rate computation, unless adjusted, does not account for sustainable growth that is caused by the sale of common stock above book value. Therefore, as I have always done when implementing the "b x r" method, I increased the "b x r" growth rate to account for this additional source of growth. The "b x r" method continues to be my preferred method. Properly applied, it encompasses the results of all other financial observations. It is consistent with how analysts actually implement the DCF method when making buy and sell recommendations, and has been shown to be able to explain the actual relationship between stock prices and other independent observable financial factors such as interest rates, the level of common equity in the capital structure, and the portion of earnings allocated to dividends.

The 5.42% to 5.56% growth rate indicated by the "b x r" approach was checked against the following:

a) Trend in Dividends Per Share. As shown on Schedule 5, P. 1, the actual annual growth in dividends per share of the RHCs has been in approximately the 1.75% to 4.2% range over the last several years. However, Value Line forecasts that the low dividend growth rate will begin to increase in 1994 to about 3.5%, and will be between 4.5% and 4.95% per year between 1995 and 1997.

b) Value Line Earnings Per Share from 1994 to 1996-98. This approach is shown on Schedule 5, Page 2. 1994 was chosen as the starting point of this analysis because it is the first fully forecasted year. This has the advantage of making both the starting point and the ending point of the period forecasted results. The growth rate achieved during a fully forecasted period is less subject to abnormalities in the base year than a growth rate that starts with the first year being an historic actual year. However, even this period has some abnormalities that need to be recognized. The unadjusted earnings per share compound annual growth rate forecast by Value Line from 1994 to 1996-98 occurs over a time period that Value Line expects the earned return on book equity to increase substantially for some of the telephone companies, and to decrease for others. Since telephone utilities are regulated, no rational investor can expect the earned return on book equity to continue to increase year-after-year for many years into the future. Therefore, the effect of the increase in the future expected return on book equity must be adjusted out of the earnings per share growth rate in order to produce an earnings per share growth rate that is indicative of the long-term sustainable growth rate required by the DCF model. As shown on Schedule 5, P. 2, this increase in the return on book equity is sufficient to cause the growth rate from 1994 to the 1996-98 era to overstate future sustainable growth by 0.29%. After adjusting for the unsustainable portion of the growth, the sustainable earnings per share growth rate forecast by Value Line is 5.53%.

c) Zack's Consensus Growth Rate. Zack's Investment Research compiles and averages five-year earnings per share growth rates that are produced by investment analysts. Such growth rates generally start from the most recent

historic actual year and end five years later. Analysts usually do some adjusting to partially normalize the starting year, but do not fully normalize the starting year, and are not necessarily consistent on how the normalization is achieved. For example, if a utility company should write-off a major plant investment, the effects of that write-off would generally be excluded from the base year earnings. However, if base year earnings should be abnormally depressed because they did not yet fully reflect the impact of a recently granted rate increase, or because of abnormal weather conditions, it is likely that no adjustment would be made to normalize those effects. A five-year growth rate from an historic year to a period five years into the future would contain the growth that is required for earnings to recover from the abnormal level achieved in the base year to that achieved in some future year. Therefore, an analysts' consensus five-year growth rate should never be directly used in the simplified DCF formula without the necessary adjustment to fully normalize[1] the base year. As shown on Schedule 5, Page 3, the average unadjusted Zack's consensus annual growth rate for the RHCs is 6.10%. However, 1992 was a year of a lower earned return on book equity for the RHCs than is projected will occur over the next five years. After adjusting for the effect of the lower earned return on book equity in 1992, the indicated sustainable annual growth rate derived from the analysts' consensus is 4.31%.

The complex version of the DCF model is implemented by making a separate

[1]For use with a DCF model, fully normalized means, at a minimum, that the earned return on book equity in the base year must be set equal to the earned return on book equity for the final year of the projecton. Otherwise, the resultant growth rate would not be sustainable because the earned return on book equity could not rationally be expected to continue to increase (or decrease) at the same rate that it happened to increase (or decrease) in the time period from which earings growth was being measured.

projection of expected cash flows over the next 40 years. This Commission gives consideration to the quarterly dividend model, and the complex version of the DCF model computes the cash flows quarterly. However, my version of the quarterly model is far more accurate than the version used by Dr. Billingsley because his approach has only examined a very small portion of the actual impact of the payment of quarterly dividends. The results of the complex DCF indicated an equity cost rate for the RHCs of between 9.82% and 10.57% depending upon the time period of the analysis. Therefore, the quarterly approach to the complex DCF method confirms my cost of equity recommendation. The results of the complex DCF method and the simplified DCF method are summarized on Schedule 1, P. 2.

Q. WHEN IS IT PROPER TO USE THE SIMPLIFIED VERSION OF THE DCF MODEL?

The simplified version of the DCF model should only be used when investor 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 future growth rate is best expressed as a constant. 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.

The complex version of the DCF does not require a constant growth rate assumption. This is because the complex version separately discounts each expected future cash flow.

My recommended cost of equity was based upon the application of the DCF

method applied to the RHCs, with the result adjusted upward to reflect the higher risk associated with the capital structure I have recommended for Southern Bell. As a check, I also applied the DCF method to BellSouth. However, it should be recognized that the indicated cost of equity result for one single company generally will not be as accurate as when the equity cost methodology is applied to a group of companies.

Q. WHY DID YOU SELECT THE RHCS AS THE COMPARATIVE GROUP?

A. I selected this group because it is representative of the telephone industry in the United States.

Q. DID YOU REVIEW ANY METHODS OTHER THAN THE DCF TO CONFIRM YOUR COST OF EQUITY CONCLUSION?

A. Yes. I confirmed my DCF result with a risk premium analysis. Some Commissions, such as the Pennsylvania Public Utility Commission reject the use of a risk premium method because of inherent weaknesses in the approach. I share some of those concerns. The DCF is potentially more accurate than the risk premium approach because the risk premium method will be slow to quantify the impact of changes in capital cost rates that have a differing impact on the cost of debt and the cost of equity. Despite the inherent slowness to react to current market changes, if a time is encountered when the risk premium relationship between the cost of equity and the cost of debt is relatively stable, and if the approach to risk premium is carefully selected, it is possible to obtain a result suitable to check the DCF results. Furthermore, a risk premium approach is commonly presented by company cost of capital witnesses. Since other witnesses continue to present risk premium approaches, I thought it would be helpful for the Commission to have the opportunity to see the results of a risk premium approach that at least maximizes the accuracy

obtainable from that method. My risk premium cost of equity finding may be relied upon as a reasonable estimate of the cost of equity as long as the risk premium relationship defined in the five years ending at the beginning of 1993 remains valid.

B. Implementation of Simplified Version of DCF Method

1. Dividend Yields for Simplified DCF

Q. HOW DID YOU APPLY THE SIMPLIFIED DCF MODEL IN THIS CASE?

A. My first step was to quantify the dividend yield, or D/P portion of the simplified DCF model. One approach was to divide the most current annualized dividend rate declared by each company by the spot stock price data as of September 30, 1993 for that company. I also divided the most current annualized dividend rate declared by each company that I analyzed by the average of the high and low stock price of that company over the year ended September 30, 1993. Thus, I considered both the dividend yield data at a recent point in time and over the last year.

To each dividend yield result, I added one-half the future expected growth rate. After this adjustment, the yield is equal to an estimate of dividends over the next year.[2]

The dividend yield for the RHCs, including the increment to the dividend yield for growth to next year, is between 4.42% and 4.92%. The similar dividend yield for BellSouth is 4.54% to 5.01%.

Q. HOW DID YOU OBTAIN THE GROWTH RATES YOU USED IN THE SIMPLIFIED, OR k= D/P + G, VERSION OF THE DCF METHOD?

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.

A. I derived the growth rates from the internal, or retention growth rate, or "b x r" method as well as from examining Value Line's forecasted earnings per share growth rate from 1994 to 1996-98, the trends in dividend per share growth rates, and the long-term sustainable earnings per share growth rates indicated from analyzing the Zack's consensus 5-year earnings per share growth rates. See Schedule 1, P. 2.

My preferred method is the "b x r" approach. If an accurate estimate for the future sustainable value of "r", or return on book equity, is used and if the retention rate "b" is computed in a manner consistent with the selection of the dividend rate and the expected return on book equity, the computed growth rate will be a constant, sustainable growth rate.

As explained, in the "b x r" 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 16.25% for the group of RHCs, and 14.20% for BellSouth. The variations in the expected returns is supported by Value Line's and Zack's estimates for future earned return levels.

I have reflected additional growth for the sale of common stock in my recommended growth rate. 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 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.

Q. DO STOCK ANALYSTS USE THE "b x r" METHOD?

A. Yes. In the textbook Investments by Bodie, Kane and Marcus; Irwin, 1989; page 478, the authors describe the expected growth rate of dividends as follows:

> How do stock analysts derive forecasts of *g*, the expected growth rate of dividends? Usually, they first assume a constant dividend payout ratio (that is, ratio of dividends to earnings), which implies that dividends will grow at the same rate as earnings. Then they try to relate the expected growth rate of earnings to the expected profitability of the firm's *future* investment opportunities.
>
> The exact relationship is
>
> g= b X ROE
>
> where *b* is the proportion of the firm's earnings that is reinvested in the business, called the **plowback ratio** or the **earnings retention ratio,** and ROE is the rate of return (return on equity) on new investments. If all of the variables are specified correctly, [the] equation . . . is true by definition, . . .

In the above equation, ROE has the same meaning as "r" in the "b x r" method.

2. Determination of Future Expected Return on Book Equity, "r"

Q. HOW DID YOU DETERMINE THE VALUE OF "r" THAT YOU USED IN YOUR RETAINED EARNINGS GROWTH COMPUTATIONS FOR BOTH THE RHCS?

A. I determined the 16.25% investors' expectation of the future value for "r" for the RHCs by evaluating :

- the future returns on book equity expected by Value Line,
- the return on book equity consistent with the Zack's consensus 5-year growth estimate,[3]
- absolute levels of, and trends in, allowed returns on equity for utility companies, and
- historic actual earned returns on equity.

Specifically, I observed that:

- Zack's consensus growth rate indicates an 16.53% average future return on book equity for the RHCs. See Schedule 6, Page 4; and

- Value Line's average expected return on book equity expectation for the RHCs is 16.21% See Schedule 6, Page 2.

I also noted that the expectations are higher than the allowed cost of equity

3 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. I use Zacks because it is the one chosen by Dow Jones for use in its database.

patterns that currently exist for the telephone utility industry. The above returns reflect both the regulated and unregulated operations of the RHCs. To the extent that the assets of the telephone companies are regulated using an original cost ratemaking concept, the allowed cost of equity influences both the expected and actual future achieved returns on book equity.

The historic actual returns on book equity achieved by the RHCs were in the 12.84% to 14.68% range over the last two years. See Schedule 6, Page 2. After consideration of all of these factors, I determined that the majority of investors are expecting future earned returns on book equity, "r," to be no more than 16.25% for the RHCs.

Value Line indicates that it expects BellSouth to be able to earn 14.0% on its equity in the future, and the earned return on equity indicated by the Zack's consensus growth rate for BellSouth is 14.43%. Historically, BellSouth has earned between 11.62% and 12.58% on equity over the last three years. Based upon these numbers, I used 14.20% future expected return on book equity for BellSouth.

Q. WHY DON'T YOU USE THE GROWTH RATES AS COMPILED BY ZACK'S DIRECTLY IN THE SIMPLIFIED DCF FORMULA?

A. The growth rates reported by Zack's are five-year growth rates beginning from the most recent historic actual reported earnings per share. It would be improper to merely plug these growth rates into the D/P +g simplified version of the DCF formula because they are not sustainable growth rates. For example, if a company had an atypically good or atypically bad year in 1992, or if the earned returns on equity were, for any other reason, expected to increase (or decrease), the five-year growth rate as reported by Zack's would be atypically low (or high). Since the perceived unsustainably high or unsustainably low rate of earnings on book equity might be industry-wide, use of an average growth rate for the entire group would

likely not solve the problem. Thus, in order to be able to use these growth rates in the D/P +g version of the DCF formula, it is necessary to compute what return on book equity will achieve the analysts' consensus growth rate. In this way, it is possible to estimate analysts' anticipated future return on book equity.

3. Determination of Retention Rate, "b"

Q. HOW HAVE YOU DETERMINED THE VALUE OF THE FUTURE EXPECTED RETENTION RATE, "b" THAT YOU USED IN YOUR SIMPLIFIED DCF ANALYSIS?

A. I have recognized that the retention rate, "b" is merely the residual of the dividend rate, "D", and the future expected return on book equity "r." Since, by definition, "b" is the fraction of earnings not paid out as a dividend, the only correct value to use for "b" is the one that is consistent with the quantification of the other variables when implementing the DCF method. The formula to determine "b" is:

$$b = 1 - (D/E), \text{ where}$$

b = retention rate

D = Dividend rate

E = Earnings rate

However, "E" is equal to "r" times the book value per share. Book value per share is a known amount. Known also is "E", consistent with the future expected value for "r", and the "D" used to compute dividend yield. Therefore, to maximize the accuracy of the DCF method, quantification of the value of "b" should be done in a manner that recognizes the interdependency between the value of "b" and the values for "r" and "D". I directly computed the value of "b" based upon the values of "D", and "r".

Q. WHAT RETENTION RATES DID YOU USE?

A. Based upon the above formula, I used a retention rate for BellSouth that was determined to be 33.56%, and the retention rate for the RHCs that was 28.70% to 30.46%. See Schedule 3, Pages 1 and 2.

C. DCF Based Upon Value Line's Forecast of Earnings Per Share from 1994 to 1996-98.

Q. PLEASE EXPLAIN THE APPROACH TO ESTIMATING FUTURE SUSTAINABLE GROWTH BASED UPON VALUE LINE'S FORECASTED EARNINGS PER SHARE.

A. As shown on Schedule 5, P. 2, the sustainable growth rate for the RHCs based upon Value Line's forecasted earnings results is 5.53%. I chose the period from 1994 through 1996-98 rather than some other period because both the beginning point of this analysis and the ending point of this analysis are based upon fully forecasted years. The advantage of using a fully forecasted year is that there will generally be less abnormalities in a fully forecasted year than is likely to exist in any historic actual year. For example, all future forecasted years should be based upon an expectation of normal weather.

As shown on Schedule 5, P. 2, the unadjusted growth rate in earnings per share that Value Line forecasts for the RHCs is an average of 5.83% per year from 1994 through 1996-98. However, this result is higher than would be sustainable over a long time period. This is because Value Line does forecast a slightly higher earned return on book equity for the 1996-98 period than it forecasts will occur in 1994. It would be illogical for investors to expect the earned return on book equity to continue to increase beyond the 1996-98 period because regulation and competition both put a practical limit on the earned return on book equity that is achievable, on

average, in the long-run. Therefore, in order to derive the long-term sustainable growth rate that is essential for use in the simplified, or constant growth DCF model, it is necessary to adjust the 1994 to 1996-98 growth rate to the level that would be achieved if the earned return on book equity were constant. As shown on Schedule 5, Page 2, the result of this adjustment is to derive an average sustainable growth rate for the RHCs of 5.53% per year.

D. Trend in Dividends Per Share Growth Rates.

Q. PLEASE EXPLAIN THE APPROACH TO ESTIMATING FUTURE SUSTAINABLE GROWTH BASED UPON TRENDS IN DIVIDEND PER SHARE GROWTH RATES.

A. Schedule 5, Page 1 shows the actual dividends per share and actual dividends per share growth rates for each of the companies in the RHCs index from 1983 through 1992, and the dividends per share rates forecast by Value Line for 1993, 1994 and the 1996-98 period. The 1996-98 period is also shown on Schedule 5, Page 1 as its mid-point, or 1997. Value Line does not specifically provide dividend per share forecasted rates for 1995 and 1996. Therefore, I estimated the 1995 and 1996 dividends per share rates by using a constant level of change in the dividends per share between the forecast for 1994 and the forecast for 1997 (mid-point of 1996-98).

As indicated on Schedule 5, Page 1, the actual historic dividends per share growth rates for the RHCs have been much lower in the period since 1990 than they were in the earlier years that are shown. This is logical, given the reduction in allowed returns on equity brought about by ever declining costs of equity. Over the last two years, the actual dividend per share growth has been within the range of 2.19% to 4.16%. The change in dividends per share that Value Line expects will

occur from 1992 through 1993 is 1.77%.

An investor who was making a determination on future dividend growth expectations solely on historic dividend growth rates would have to conclude that future sustainable dividend growth for the RHCs would be in approximately the 2.0% to 4.0% range. However, once again, in order to produce an estimate of a future sustainable growth rate, it is necessary to analyze the numbers rather than simply take them at face value. Value Line forecasts a dividend per share growth rate of 3.53% for 1993-4, and 4.50% to 4.95% in the following years. See Schedule 5, Page 1. Based upon these results, I believe it is proper to adjust the historic 2.0% to 4.0% dividend growth rate range up to the 4.50% to 5.00% range to determine the best estimate of the long-term sustainable dividends per share growth rate that is obtainable from directly studying the dividends per share data.

E. Zack's Consensus 5-Year Earnings Per Share Growth Rates

Q. PLEASE EXPLAIN THE APPROACH TO ESTIMATING FUTURE SUSTAINABLE GROWTH BASED UPON THE ZACK'S CONSENSUS 5 YEAR EARNINGS PER SHARE GROWTH RATES.

A. The Zack's consensus earnings per share five-year forecasted growth rates are shown on Schedule 5, Page 3. These growth rates are supposed to be average annual earnings per share growth rates from 1992 through 1997. Earnings per share for 1992 are supposed to be partially normalized in that they should exclude the impact of major one-time events such as extraordinary plant write-offs. But, they are not supposed to be fully normalized for items such as the timing of a company's last rate increase, or the impact of abnormal weather. As shown on Schedule 5, Page 3, the raw, unadjusted five year growth rate for the RHCs is 6.10% per year. As also

shown on Schedule 5, Page 3, as computed by Value Line the earned return on book equity achieved by the RHCs was 14.94% in 1992 and is expected to increase to 16.21% in the 1996-98 period. The effect of this, computed on an individual company by company basis, is for the growth rate expected from 1992-1997 to be, on average, 1.79% higher than is sustainable in the long run. Therefore, the long-term sustainable growth rate indicated by the Zack's consensus estimated growth rate is 4.31% per year.

As indicated earlier, *Forbes Magazine* has recently published an article which claims that analysts' consensus earnings forecasts are highly inaccurate. See Schedule 11. This article confirms my experience that it is essential to be especially careful about basing a conclusion on the analysts' earnings per share growth rate without balancing the result against other observations even after making the important adjustment to convert the five year growth rate to a long-term sustainable growth rate.

F. Implementation of the Complex Version of DCF Method

Q. WHY DO YOU ALSO PRESENT THE COMPLEX VERSION OF THE DCF METHOD?

A. **When constant growth is expected to be the best estimate of future anticipated growth, except for the use of a quarterly cash flow model instead of an annual model, the complex version of the DCF model is essentially the same as the simplified version**. However, an important advantage of the complex version of the DCF method is that it provides a framework that will work even in special situations when future payout ratios, earned returns on equity, or market-to-book ratios change. Another advantage is that it serves as a check to show that the growth rate used in the simplified version is credible. For example, if an analyst forecasts an unrealistically high growth rate, the complex DCF method may show that the growth rate is improper.

Q. HOW WOULD THE COMPLEX VERSION OF THE DCF METHOD DO THIS?

A. Computing the required dividends, earnings, return on book equity and market-to-book ratio permits a separate study of each of the key causes of future cash flow. If, for example, the complex analysis shows that the chosen growth rate could only occur if market-to-book ratios grow to unrealistic levels, or the payout ratio goes to more than 100%, or the earned return on book equity grows to excessive levels, then the chosen growth rate must be too high. Conversely, if a detailed projection shows that payout ratios, or market-to-book ratios, or the earned return on book equity would have to decline to unrealistic levels, then the growth rate selected must be too low.

Q. HOW DID YOU ESTIMATE THE FUTURE CASH FLOWS?

A. I projected earnings, dividends, and stock prices year-by-year over the next 40

years. Events longer than 40 years into the future have a minimal present value. [4]

I determined future earnings by multiplying the future book value per share by the future expected earned return on book equity. For the purposes of this case, I used the same future expected return on book equity that I used in the simplified version of the DCF model. [5] Projected book value equals the beginning book value plus the current year's earnings minus the current year's dividends. Book value growth projections also include the effect of sales of new common stock.

My projections have relied on a constant dividend payout ratio.[6]

I derived the estimated future stock price from the projected book value assuming a constant market-to-book ratio. The only cash outflow is the price paid for the stock. The complex version of the model uses both the spot stock price as of September 30, 1993, and the average stock price for the year ended September 30, 1993 to be representative of the price paid.

As shown on Schedule 1, P. 2, the complex version of the DCF model indicates a cost of equity between 9.61% and 10.24% for the RHCs, and between 9.70% and 10.06% for BellSouth.

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4 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. If longer than 40 years were used, the result would be even less sensitive to the future market-to-book ratio expectation.

5 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 were supported by the facts, rather than a constant return, the same mathematical model would still be proper to use in determining the cost of equity.

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

G. Risk Premium Method

Q. WHAT COST OF EQUITY IS INDICATED BY THE RISK PREMIUM METHOD?

A. As shown on Schedule 8, P. 1, the risk premium method indicates that the cost of equity to the average electric utility was about 9.11% on September 30, 1993. It was important to use electric utilities for this analysis because there are many more electric utilities than telephone utilities. The larger number of companies improves the confidence in the results. The cost of equity for a regulated telephone utility is not necessarily the same as an electric utility. Therefore, this is another reason that the result from the risk premium analysis should be used only as a check. The adjustment for risk differential between regulated electric utilities and telephone utilities would be small. Both are regulated utilities. The average beta for electric companies is slightly lower than for the average of the RHCs. But, the RHCs are more risky then the regulated telephone companies owned by the RHCs. Therefore, while equity cost differences might exist between regulated telephone utilities and regulated electric utilities, for checking purposes that difference should not be overly important.

Q. PLEASE EXPLAIN THE RISK PREMIUM METHOD?

A. The risk premium method is based upon the concept that the cost of equity is related to, but more expensive than the cost of debt. Since the cost of debt can be readily quantified, if it were possible to accurately quantify the "risk premium" demanded by investors to invest in the common stock of a particular company instead of debt, it would then be possible to determine the cost of equity merely by adding this premium to the cost of debt. However, in order to compute the difference between the cost of equity and the cost of debt, it is necessary to quantify the cost of equity in the first place. It is also necessary to assume that the risk premium applicable to the time that the method is being used is the same as the risk premium that existed when the risk premium was quantified.

Q. IS THE RISK PREMIUM CONSTANT?

A. No. The risk premium over the cost of U.S. treasury debt that is demanded by investors to invest in common stock is, at a minimum, influenced by federal income tax laws. The return on stocks and the return on bonds is taxed differently, and in ways that have varied substantially over the years. When the tax law changes, the risk premium may change.

Q. WHY WOULD A CHANGE IN THE INCOME TAX LAW CHANGE THE RISK PREMIUM?

A. Typically, the total return received by a bondholder is dominated by the interest income received. Interest income is taxable every year. The return received by a stockholder typically contains a capital appreciation component and a dividend component. The capital appreciation component receives favorable tax treatment in two ways. First, the capital gain is not taxable at all until the stock is sold. Second, the income tax rate charged on capital gains has often been substantially lower than the income tax rate charged on dividend and interest income. Since the 1986 tax law change, the income tax rate on capital gains and on regular income has been similar. Third, dividend income paid to stockholders is partially tax free if the stockholder is another corporation. No such exclusion exists for interest income. This means that every time there is a significant change in the federal income tax law, the "risk premium" demanded by investors to be willing to buy common stock instead of bonds could undergo a corresponding change.

Q. DID THE PASSAGE OF THE NEW FEDERAL INCOME TAX LAW IMPACT THE RISK PREMIUM?

A. It probably has. The maximum tax rate on long-term capital gains has remained at a maximum of 28%, whereas income tax rates for high income individual investors on other types of income has increased. This should result in somewhat of a reduction in the risk premium below the level that existed over the last five years.

Q. IS A CHANGE IN THE TAX LAW THE ONLY FACTOR THAT CAN INFLUENCE THE RISK PREMIUM?

A. No. Another important factor that could influence the "risk premium" demanded by investors is the perceived interest rate volatility. Investors who buy long-term bonds with a fixed interest rate are exposed to the risk of being locked into that bond's interest rate even if interest rates rise substantially over the life of the bond. Stockholders, especially utility company stockholders, do not share this interest rate risk. The allowed returns on equity are usually reevaluated in a rate case. When the cost of equity goes up, the returns allowed go up. When the cost of equity goes down, the allowed returns go down. Therefore, in times when investors are concerned about interest rate volatility, the "risk premium" required to buy common stock instead of a long-term bond goes down. Conversely, in times when investors are less concerned about interest rate volatility, the "risk premium" goes up.

Q. DID YOU DO ANYTHING TO MINIMIZE INACCURACIES IN THE RISK PREMIUM METHOD CAUSED BY VARIATIONS IN THE RISK PREMIUM OVER TIME?

A. Yes. I quantified the risk premium demanded by investors to invest in common stock by comparing the cost of debt and the cost of equity over the last five years. There have been no significant changes in the federal income tax rates over that time period. Yet, five years is sufficient time to make it possible to examine a substantial amount of data. I am unaware of any abnormal factors which would have caused investors perceptions about future interest rate volatility to have changed over the last five years. To the extent that there are reasons for a change in investor expectations for interest rate volatility, none of which I am aware, this would remain an inherent weakness in the "risk premium" approach.

Q. HOW DID YOU QUANTIFY THE RISK PREMIUM?

A. I compared the cost of equity to the cost of debt for each of the telephone utilities covered by Value Line. I used the first edition of Value Line issued in each calendar year for the five years ended 1993. The cost of equity in each of the last five years was quantified using the DCF method. The DCF method I used to quantify the cost of equity was essentially the same as the DCF approach I use in this case, except that instead of using my own analysis to determine what return on book equity is expected by investors in the future, I simply used Value Line's future return on book equity expectation as a proxy for what investors expected. The cost of equity so computed was separately compared to the interest rate on 30-year U. S. treasury bonds, 5-year U.S. treasury bonds, and 1-year U.S. treasury bonds. Based upon that analysis, three separate risk premiums were quantified.

Q. WHAT RISK PREMIUMS DID YOU OBTAIN?

A. Based upon interest rates as of September 30, 1993, and the income tax and interest rate volatility environment that existed for the five years ended in early 1993, investors were demanding a risk premium of 2.25% over the 30 year treasury bond interest rate, 4.43% over the 5 year U.S. treasury bond interest rate, and 6.42% over the one-year Treasury Bond interest rate. My cost of equity determination based upon the risk premium method is based upon the average of the cost of equity indicated from the risk premium analysis applied separately to each of the three different treasury bond maturities.

My risk premium analysis showed that the risk premium is better expressed as a constant plus a percentage of the interest rate rather than simply just a constant. This is a logical result. When interest rates are low, an additional 1% per year of return is much more meaningful than when interest rates are high. The formulas derived from a statistical analysis of the data is shown on Schedule 8, p. 1. If interest rates go up, and if nothing else changes to cause the risk premium relationship to change, the risk premiums will increase according to the regression formula. Conversely, if interest rates decline, and if nothing else changes to cause the risk premium relationship to change, the risk premiums will decline according to the regression formula.

Q. ARE CHANGES IN INTEREST RATES, INCOME TAX RATES, AND INVESTORS' PERCEPTIONS ABOUT THE VOLATILITY OF FUTURE INTEREST RATES THE ONLY THINGS THAT IMPACT CHANGES IN THE COST OF EQUITY OVER TIME?

A. No. Factors such as capital structure ratios, uncertainties associated with construction projects, the portion of earnings being paid out as dividends also impact the relative desirability of investing in the common stock of an telephone utility as compared to a treasury bond. As these change over time, even if other things remain equal, the risk premium will change.

Q. WHAT DOES RELYING EXCLUSIVELY ON VALUE LINE'S EXPECTATION OF THE FUTURE RETURN ON BOOK EQUITY IMPACT ON THE RESULTS OF THE RISK PREMIUM STUDY?

A. There is an upward bias in the future expected earned returns on book equity in the Value Line numbers for electric utilities, and electric utilities were used in the risk premium study. Value Line does not factor in a reduction in earned returns that would result if plant disallowances should be ordered by the Commission. Instead, it warns investors of this possibility in its write-up about each company. Investors, however, do recognize that plant disallowances might lower the future return, and therefore lower the expected returns accordingly. By using Value Line's high expected return on book equity for those companies that were facing such risks in the past, the DCF indicated cost of equity is overstated. The higher the DCF indicated cost of equity, the higher the risk premium.

Q. DID YOU PERFORM AN ANALYSIS TO SHOW HOW MUCH THIS OVERSTATEMENT MIGHT BE?

A. Yes. The companies that are most subject to the effects of a Value Line over-estimation of the future expected return on book equity would generally have the highest computed difference between their indicated cost of equity and interest rates. Similarly, companies that Value Line may have under-estimated the future expected return on book equity would likely have the lowest indicated risk premiums. To minimize the impact of Value Line's estimation errors, I presented an alternative analysis in which the 10% of the companies with the highest indicated risk premium and the 10% of the companies with the lowest indicated risk premium were both eliminated. As shown on the lower half of Schedule 8, P. 2, the impact of eliminating these 10% high and 10% low companies was to lower the indicated cost of equity from 9.11% to 8.95%. The 8.95% finding is probably more accurate than the 9.11% risk premium result, but to be conservative, I have presented the 9.11% as my risk premium finding.

H. Summary of the Cost of Equity Determination

Q. DO YOU PRESENT A SCHEDULE WHICH SUMMARIZES YOUR COST OF EQUITY FINDINGS?

A. Yes. Schedule 1, P. 2 shows a detailed review of the "b x r" results applied to the RHCs and to Southern Bell. Schedule 1, P. 3 summarizes the results of the various approaches to the DCF method that I applied to the RHC group. The indicated result from all of the DCF methods applied to the RHCs is 10.00. See Schedule 1, Pages 2 and 3. This range is before adding an allowance for the specific capital structure recommendation. I also determined that the risk premium method is indicating a cost of equity of 9.11%

Q. WHAT IS YOUR COST OF EQUITY RECOMMENDATION, AND HOW DID YOU OBTAIN IT?

A. I recommend that Southern Bell be allowed a cost of equity of 10.40% only if my recommended capital structure containing 42.50% common equity is used. This is based upon the 10.00% cost of equity indicated on Schedule 1, Page 2, and confirmed on Schedule 1, Page 3, plus a 0.40% increment to the cost of equity to be consistent with my capital structure recommendation. If the Commission were to use the capital structure requested by Southern Bell, then the appropriate cost of equity would drop to 9.60%. This reflects the fact that the company requested capital structure contains far less financial risk than the optimal/BellSouth capital structure I have recommended.

Q. HOW DID YOU DETERMINE THE 0.40% REDUCTION TO THE RHC COST OF EQUITY TO ACCOUNT FOR THE REDUCED LEVEL OF COMMON EQUITY IN THE CAPITAL STRUCTURE YOU HAVE RECOMMENDED FOR SOUTHERN BELL?

A. I determined that the cost of equity increases by up to about 0.04% for each 1% decrease in the level of common equity in the capital structure. This amount was quantified by using the same database that was relied upon to produce the risk premium equations, except that several other explanatory variables including the level of common equity in the capital structure, were added. These equations are shown on Schedule 9, Page 2. The regression equations all showed that the level of common equity in the capital structure does impact the cost of equity by up to the 0.04% previously stated. The difference between the Southern Bell capital structure and the average telephone company capital structure was multiplied by .04%, and the answer was rounded to obtain the recommended adjustment.

Q. HAVE YOU MADE A FORECAST OF FUTURE CHANGES IN CAPITAL COST RATES?

A. I have not made a separate forecast of future changes in the financial markets. Stock and bond prices already capture the consensus expectations of investors. My equity cost recommendation is based upon a review of both spot financial data as of September 30, 1993, and financial data on average over October 1, 1992 through September 30, 1993. Because capital cost rates were generally lower on September 30, 1993 than over the prior year, by giving weight to data over the prior year, my recommendation will overstate the cost of equity unless capital cost rates rise back to the levels achieved prior to September 30, 1993.

Forecasting interest rate and other capital cost rate changes is highly speculative. Nobody has shown an ability to reliably make such forecasts. Over the last ten years interest rates and, therefore, capital cost rates have been dropping. In this time period, I have frequently seen company cost of capital witnesses testify that the stock market is overpriced, and interest rates are too low. As a result, they often suggest the use of a higher than indicated capital cost rate.

Interest rates, and the cost of equity might continue to drop over the next several years. However, I do **not** recommend projecting that the downtrend in capital cost rates that has been occurring over the last decade or so be factored into the cost of equity allowance awarded in this case. The only thing that can be said with virtual certainty is that capital markets will fluctuate. The only way to know, with any degree of precision whether capital cost rates will continue on down or begin to rise, is to wait and see what the capital markets will do.

VI. Testimony Evaluation

Q. HAVE YOU READ THE TESTIMONY OF DR. BILLINGSLEY IN THIS RATE PROCEEDING?

A. Yes.

Q. PLEASE COMMENT ON HIS TESTIMONY.

A. His recommended 13.90% to 14.18% cost of equity is a gross overstatement of what investors are demanding on their market price investment. 13.90% to 14.18% is extremely high even in comparison to what other telephone company cost of capital witnesses are requesting in the current environment. If investors thought that a return anywhere close to 13.90% to 14.18% could be obtained by investing in the stock of a company such as Southern Bell, there would literally be a stampede to buy the stock --rapidly causing the stock price to be bid way up to the point where a return much more reflective of current capital markets is all that an investor could expect to get.

After studying Dr. Billingsley's procedures to develop a cost of equity, it is apparent how he was capable of obtaining such a highly inaccurate result. His most important problem, because it reoccurs in both his DCF method and his Risk Premium method, is that he has used a totally inadequate methodology of quantifying investors long-term future sustainable growth rates. He quantifies long-term sustainable growth merely by using a consensus of what analysts expect for growth over the five years starting from either 1991 or 1992. This five-year growth rate number is often very different than the long-term sustainable growth rate that is anticipated by investors. What is especially troublesome with what Dr. Billingsley has done is that it is relatively easy to show that, based upon a glaring inconsistency in Dr. Billingsley's analysis, his DCF approach MUST be very highly inaccurate.

Dr. Billingsley's risk premium method is based upon the very same faulty approach to the DCF method that got him into trouble in his DCF method. Therefore, this risk premium method is also a useless attempt to derive a cost of equity.

Q. CAN THE COST OF EQUITY BE COMPUTED WITH ABSOLUTE PRECISION?

A. No. However, methods such as those that have been proposed by Dr. Billingsley can be rejected with absolute precision. As will be shown below, the fact that there is always some degree of imprecision in quantifying the cost of equity is no excuse for the huge error in Dr. Billingsley's methodologies.

Q. HOW ARE YOU SO CONFIDENT THAT DR. BILLINGSLEY'S APPROACH IS SO INACCURATE?

A. Aside from the fact that his equity cost recommendation is so much higher than the result I obtained from properly applying the DCF and risk premium methods, and that the answer he obtained is generally way out of line with what is available to investors in the current capital markets, there are two separate ways that I know his approach to the DCF is erroneous. First, there are the glaring internal inconsistencies that I mentioned within Dr. Billingsley's analysis that are, in and of themselves, are so serious that his approach to the DCF must be rejected. Second, the glaring inconsistencies are not surprising given the extremely weak theoretical support for his chosen approach to the DCF method.

Q. PLEASE EXPLAIN THE "GLARING INTERNAL INCONSISTENCIES" IN DR. BILLINGSLEY'S MIS USE OF THE DCF METHOD.

A. Dr. Billingsley applied the DCF method by starting with 222 companies. Then,

based upon an intricate, but controversial, array of financial indicators, he computed what he calls a "Z" statistic, which is supposed to be an overall measurement of a company's relative risk. His theory is that companies with a similar Z statistic have a similar risk profile, and therefore have a similar cost of equity. The "Z" statistic is then used to select a "cluster" group of 20 companies that he alleges to be of comparable risk to Southern Bell. Therefore, **his DCF analysis requires two conditions to both be true, or his analysis is worthless:** 1) his approach to the DCF method must be capable of at least some meaningful level of accuracy to quantify the cost of equity **and** 2) his Z statistic must be capable of quantifying relative risk. **If it fails in either of the two requirements, then his DCF result is meaningless.** If the DCF method cannot quantify the cost of equity, then the DCF method must be rejected. But, also if the Z statistic he developed is incapable of categorizing companies by the kind of risk that impacts the cost of equity, then his analysis is also meaningless because the cost of equity, even if it were properly computed, for a group of companies that are not risk comparable to Southern Bell would be an improper comparative group to use.

What Dr. Billingsley failed to do is compare his DCF result, which he alleges is capable of quantifying the cost of equity, with his Z statistic, which he alleges is capable of categorizing companies into their risk. Since the cost of equity is related to risk, both the DCF method and the Z statistic, if valid, should be expected to quantify risk. If the DCF method as complied by Dr. Billingsley was capable of quantifying the cost of equity, and if the Z statistic was also capable of quantifying risk, then the cost of equity as indicated by Dr. Billingsley's approach to the DCF should indicate a higher cost of equity for companies with a Z statistic that indicates high risk, and should indicate a lower cost of equity for companies with a Z statistic that indicates low risk.

Q. DID YOU COMPARE DR. BILLINGSLEY'S QUANTIFICATION OF RISK WITH HIS QUANTIFICATION OF THE COST OF EQUITY BASED UPON HIS DCF METHOD?

A. Yes, I performed the test that Dr. Billingsley should have performed. I prepared a simple regression analysis in which the DCF cost of equity, obtained by Dr. Billingsley, was the dependent variable and the risk, as indicated by Dr. Billingsley's Z statistic, was the independent variable. The resultant r^2 was zero[7], and the t-statistic also showed a statistically insignificant relationship between Dr. Billingsley's Z statistic and his DCF result. **In other words, the cost of equity as quantified by Dr. Billingsley is totally unrelated to Dr. Billingsley's quantification of risk.** This means that either:

a) the DCF method used by Dr. Billingsley is incapable of any meaningful quantification of the cost of equity, or

b) the risk quantification methodology used by Dr. Billingsley is invalid, or

c) both his DCF method and his risk quantification method are invalid.

As previously stated, in order for his DCF cost computation to have any validity, both the cluster companies he selected must be an appropriate risk match to Southern Bell AND the quantification of the cost of equity of those allegedly risk comparable companies must also be done correctly. Therefore, since at least one of

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[7]The R^2 using the IBES consensus five year growth rate as a proxy for future sustainable growth is .00002, and the R^2 using the Zack's consensus five year growth rate as a proxy for future sustainable growth is .00052. Both round to zero at the second decimal place.

these essential elements to Dr.Billingsley's approach to the DCF is wrong, his "cluster" DCF method must also be wrong and should be given no more weight than a number picked randomly out of a hat when the Commission determines the cost of equity for Southern Bell.

Q. HAVE YOU SEEN ANY WITNESSES OTHER THAN DR. BILLINGSLEY PRESENT A "CLUSTER" ANALYSIS APPROACH TO COSTING EQUITY?

A. Yes. I have seen only one other cost of capital witness present a cluster analysis in a utility rate proceeding. That witness was Dr. Vander Weide while testifying on behalf of Chesapeake and Potomac Telephone Company before the Washington, D.C. Public Service Commission in Formal Case No. 850.

Q. DID THE WASHINGTON, D.C. PUBLIC SERVICE COMMISSION ACCEPT DR. VANDER WEIDE'S CLUSTER ANALYSIS?

A. No. In its Order No. 9927, dated January 27, 1992, the Washington D.C. Public Service Commission said:

> Like the FCC, we give little weight to Dr. Vander Weide's analysis of "cluster" companies. C&P has failed to show that the cluster companies are reasonable proxies for C&P. C&P's cluster analysis is defective because of this fundamental error.

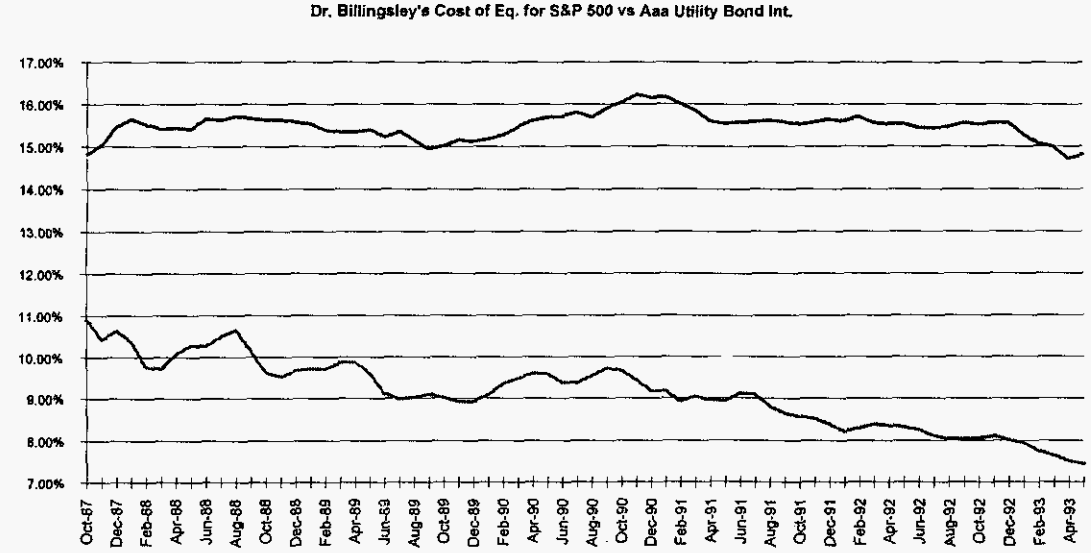
Q. IS THE FAILURE OF DR. BILLINGSLEY'S DCF TO TRACK HIS QUANTIFICATION OF RISK THE ONLY GLARING INCONSISTENCY YOU FOUND IN DR. BILLINGSLEY'S OWN NUMBERS?

A. No. Dr. Billingsley argues that the cost of equity is related to the cost of debt. This is logical because stocks and bonds have to compete for investor capital. When interest rates being paid by bonds are high, then the return required to attract funds to

an equity investment must also be high. When interest rates being paid by bonds are low, then the return required to attract funds to an equity investment need not be as high. This means that if Dr. Billingsley's approach to the DCF were correct, it should be expected that the cost of equity indicated by his DCF method would show a meaningful tendency to correlate to changes in interest rates.

Q. DO THEY?

A. No. The following graph shows Dr. Billingsley's quantification of the cost of equity, in aggregate, for the S&P 500 Vs the interest rate on Moody's Aaa rated utility bonds:



The top line in the above graph is the average cost of equity for the S&P 500 as indicated by Dr. Billingsley's attempt at the DCF method. The lower line shows the interest rate on Aaa rated Moody's public utility bonds. All of the numbers to produce the above graph were obtained from Dr. Billingsley's Exhibit RSB-2,

Schedule 2. Just by visually inspecting the above graph, it is apparent that there is no relationship between the "cost" of equity as indicated by Dr. Billingsley's attempt at the DCF method and the interest rate on Aaa rated utility bonds. In fact, from October, 1987 through December, 1990, Dr. Billingsley's attempt at the DCF was actually indicating that the cost of equity increased from just under 15% to over 16% at the same time the cost of debt declined from about 11% to just over 9%. Since this DCF result is the compilation of equity cost indications for 500 companies, not just one company, an **increase** in the measured cost of equity of over 1% during a time period when interest rates **declined** by about 2% strongly suggests that the attempt made by Dr. Billingsley to apply the DCF method must have something seriously wrong with it.

Overall, from the first month presented by Dr. Billigsley (October, 1987) through the most current month shown by Dr. Billingsley (May, 1993), the interest rate on Moody's Aaa rated utility bonds declined by 3.48%, from 10.92% to 7.44%. At the same time, the cost of equity indicated by Dr. Billingsley's attempt at the DCF method was virtually unchanged, declining from 14.82% down to 14.81%. See Exhibit RSB-2, Schedule 2, pages 1 and 4. Therefore, since the cost of equity is affected by the cost of debt, Dr. Billingsley's approach to quantifying the cost of equity must be seriously flawed.

Q. DID YOU PREPARE A REGRESSION ANALYSIS BETWEEN THE COST OF EQUITY AS INDICATED BY DR. BILLINGSLEY'S DCF AND THE COST OF DEBT?

A. Yes. I regressed the DCF results presented by Dr. Billingsley on Exhibit RSB-2 against the interest rate on Moody's Aaa rated Public Utility Bonds also shown on Exhibit RSB-2. The regression produced an r^2 of .04, and a totally insignificant t-statistic. Therefore, the regression analysis confirms the observations discussed

above. Dr. Billingsley's approach to applying the DCF method is so inaccurate that it was incapable of any meaningful correlation between changes in interest rates. Ratepayers should not be burdened with paying rates based upon what is such an obviously erroneous approach to determining the cost of equity.

Q. NOW THAT YOU HAVE CONCLUSIVELY SHOWN THAT DR. BILLINGSLEY'S DCF RESULT IS NOT MEANINGFUL, CAN YOU EXPLAIN WHY HIS APPROACH TO THE DCF IS WRONG?

A. Yes. Dr. Billingsley used a dividend yield plus growth version of the DCF method. This is a constant growth form of the model. A constant growth DCF model can only be expected to work if the value used for the estimate of growth, or "g" is an estimate of the long-term sustainable growth rate. However, Dr. Billingsley used a five-year growth rate, not a long-term sustainable growth rate. Only under very special conditions that rarely occur is a five-year growth rate indicative of the long-term sustainable growth rate. This is the root cause of why his DCF result is so inaccurate that it does not track changes in interest rates, and should not be expected to quantify variations in the cost of equity caused by variations in a company's risk. As long as Dr. Billingsley's attempt at using the DCF method is based upon the fallacious assumption that a five-year forecasted earnings per share growth rate is a proxy for a long-term sustainable growth rate, he will keep getting DCF results that will be inconsistent with movements in interest rates and variations in risk.

Q. WHY ARE FIVE YEAR FORECASTED EARNINGS PER SHARE GROWTH RATES A POOR PROXY FOR LONG-TERM SUSTAINABLE GROWTH RATES IN STOCK PRICE AND DIVIDENDS PER SHARE?

A. Earnings per share in any one year are capable of being abnormally low. When investors recognize that earnings per share for a company or industry were

abnormally low in any one year, then stock prices for that company or industry do not drop anywhere near as much as earnings drop. It is very possible that they would not drop at all. Investors buy a stock based upon future expectations, not merely based upon earnings achieved in any one year. However, if earnings are abnormally low in any one year, then in order for earnings to return to normal, earnings per share growth would have to be extraordinarily high for a relatively short time period. For example, assume that a hypothetical company with a stock price of $20 is expected by investors to be able to earn $2.00 per share in a normal year, and that the $2.00 level of normal earnings is expected to grow by 5% per year, compounded annually. In this example, investors would expect earnings per share to be $2.55 in five years. If the company should happen to experience conditions over one year that are abnormally unfavorable for business, this could cause the actual earnings per share to be substantially lower than the expected $2.00. However, since investors would recognize that the best estimate for the future is that business conditions, and therefore earnings, will be normal. In such a case, if business conditions were sufficiently abnormal that the company earned only $1.00 per share instead of the expected $2.00, one year later the company's stock price would grow by 5%, or from the assumed $20.00 to $21.00 so long as it is expected that the normal earnings per share will be at the same levels that were originally anticipated. Yet, if a five-year earnings per share growth rate number is measured under such conditions, simply because a company happened to earn $1.00 per share instead of an expected $2.00 per share means that instead of growing at the normal rate of 5% per year, earnings per share will have to grow by more than 100% over one year just to catch back up to the normal expected earnings per share level. An extra growth rate in earnings per share of 100% in one year of a five-year period would mean that growth in earnings per share over that hypothetical five-year period should be expected to be about 20% higher than either the stock price or dividend per share growth.

Companies tend to seek stability in dividend policy. Therefore, dividends per share are generally not lowered simply in response to a one year abnormal drop in earnings per share.

For the above reasons, five-year earnings per share growth rates are an extremely inaccurate proxy for long-term sustainable growth rate in stock price and dividends per share. Yet, it is this growth rate in earnings per share that is the very backbone of Dr. Billingsley's five year forecasted earnings approach to DCF.

Q. ARE THE FIVE-YEAR FORECASTED CONSENSUS EARNINGS PER SHARE GROWTH RATES THAT ARE COMPILED BY ZACK'S AND BY IBES NORMALIZED?

A. Some of the analysts surveyed do provide some partial degree of normalization to the five year growth rate numbers, and some do not. For example, many analysts will normalize the earnings per share in the base year to exclude the impact of an extraordinary one-time plant write-off, but they will not normalize earnings simply because a base year might have been impacted by a general business recession throughout the country or if earnings were abnormally low because of weather conditions.

Q. CAN YOU PROVIDE AN EXAMPLE THAT SHOWS HOW BAD A FIVE-YEAR EARNINGS PER SHARE GROWTH RATE IS AS A PREDICTOR OF FUTURE EXPECTED GROWTH RATES IN STOCK PRICE AND DIVIDENDS?

A. Yes. The returns on book equity achieved in 1991 and 1992 as well as the future expected return on book equity as reported by Value Line are shown in the following table:

	Actual 1991	Actual 1992	Projected 1996-98
Ameritech	15.20%	19.30%	16.50%
Bell Atlantic	17.00%	17.70%	19.00%
BellSouth	11.50%	12.00%	14.00%
NYNEX	12.60%	13.50%	14.50%
Pacific Telesis	14.30%	13.80%	16.50%
Southwestern Bell	13.10%	14.00%	18.50%
U.S. West	11.90%	14.30%	14.50%
RHC Avg.	13.66%	14.94%	16.21%

Investors purchase common stock based upon expectations of future earnings. The fact that the earned return on book equity is expected to increase over the next five years from almost 15% to above 16% means that, to the extent investors expectations are consistent with Value Line's expectations, stock prices already reflect the higher returns on book equity. Therefore, the extraordinary growth that is required to bring earnings per share from 14.94% to 16.21% for the RHCs is already in the stock price. Only the sustainable portion of the growth (the growth that occurs when returns on equity are constant) is the portion of the growth that should be included in the simplified, or D/P + g version of the DCF method. To increase the earned return on book equity for the RHCs from 14.94% to 16.21% over five years requires an increase in earnings per share of 1.79% per year above and beyond normal earnings per share growth. See Schedule 5, Page 3. This means that if Dr. Billingsley had directly applied his erroneous version of the DCF to the RHCs, it would have had a tendency to overstate the cost of equity by 1.79% because of his error in using a five-year growth rate as a proxy for a long-term sustainable growth

rate.

Q. EVEN THOUGH A FIVE-YEAR EARNINGS PER SHARE GROWTH RATE FORECAST IS IMPROPER TO USE DIRECTLY IN A DCF ANALYSIS, ARE ANALYSTS' EARNINGS FORECASTS AT LEAST RELIABLE IN DETERMINING EARNINGS PER SHARE GROWTH OVER THE FIRST FIVE YEARS?

A. No, not according to a recent study published in *Forbes Magazine*. In an article entitled "Chronically clouded crystal balls" (p. 178 of the October 11, 1993 edition), it was determined that analysts' forecasts are "...utterly undependable." In what the article described as a "... comprehensive study..." using "... a sample of 67,375 analysts' quarterly estimates and included most of the large stocks on the New York and American stock exchanges between 1973 and 1990. A minimum of six analysts' estimates were required to avoid distortions caused by a few outlying forecasts;" The article concludes that these forecasts were "... seriously wrong two-thirds or three-quarters of the time..." and are "... notoriously inaccurate...".

Q. ON PAGE 38 OF HIS TESTIMONY, DR. BILLINGSLEY CLAIMS THAT WHEN INTEREST RATES DECLINE, THE EQUITY RISK PREMIUM WIDENS AND WHEN INTEREST RATES RISE, THE EQUITY RISK PREMIUM NARROWS. IS THIS CORRECT?

A. No, it is not correct. Currently, interest rates are much lower than they were for decades. For example, an investor who wants to invest in a 30 year U.S. treasury bond has to settle for a return of about 6% while returns of over 10% were possible not that many years ago. An additional 2% return when the low risk alternative yield is 6% increases the total return an investor could obtain by 33.3% (2%/6%), while adding an additional 2% of return when the low risk alternative investment increases

the total return available to the investor by only 20% (2%/10%). This is why, *other things being equal*, investors are willing to settle for a lower risk premium when interest rates are low than when interest rates are high.

Q. IS THE LEVEL OF INTEREST RATES THE ONLY THING THAT AFFECTS THE RISK PREMIUM?

A. No. That is why I added "other things being equal" to my last answer. As explained in my risk premium analysis, factors that can materially affect the relationship between interest rates and the risk premium include the federal income tax law and changes in investors' perceived volatility in interest rates. Changes in either of these two items could either amplify or mitigate changes in the risk premium level that respond to overall interest rate levels.

Q. DOES DR. BILLINGSLEY ACKNOWLEDGE THAT FACTORS OTHER THAN THE OVERALL LEVEL OF INTEREST RATES CAN, AND DO, INFLUENCE THE RISK PREMIUM DEMANDED BY INVESTORS?

A. No, Dr. Billingsley does not acknowledge that there are other important factors to consider. However, the 1986 article relied upon by Dr. Billingsley to support his mis-conception about the relationship between interest rates and the risk premium, reference is made to the prior work of Dr. Brigham which it reports as having said "... prior to 1980 utility risk premia increased with the level of interest rates, but that this pattern reversed thereafter, resulting in an inverse correlation between risk premia and interest rates. They explain this turnaround as the outcome of changes in bond markets and adaptation of utilities and their regulators to an inflationary environment." Remember, that this article relied upon by Dr. Billingsley was written in 1986, a time just prior to a major change in the federal income tax laws. Even worse, the data upon which the analysis was based was the period from January,

1982-December 1984, a time that covers a major change in the overall trend in interest rates. Therefore, while the basic relationship of a lower risk premium with a general decline in interest rates remained, the several years immediately before 1986 were especially influenced by changes in investors perceptions about interest rate volatility. Furthermore, the several years surrounding 1986 were especially dominated by changes in the income tax law.

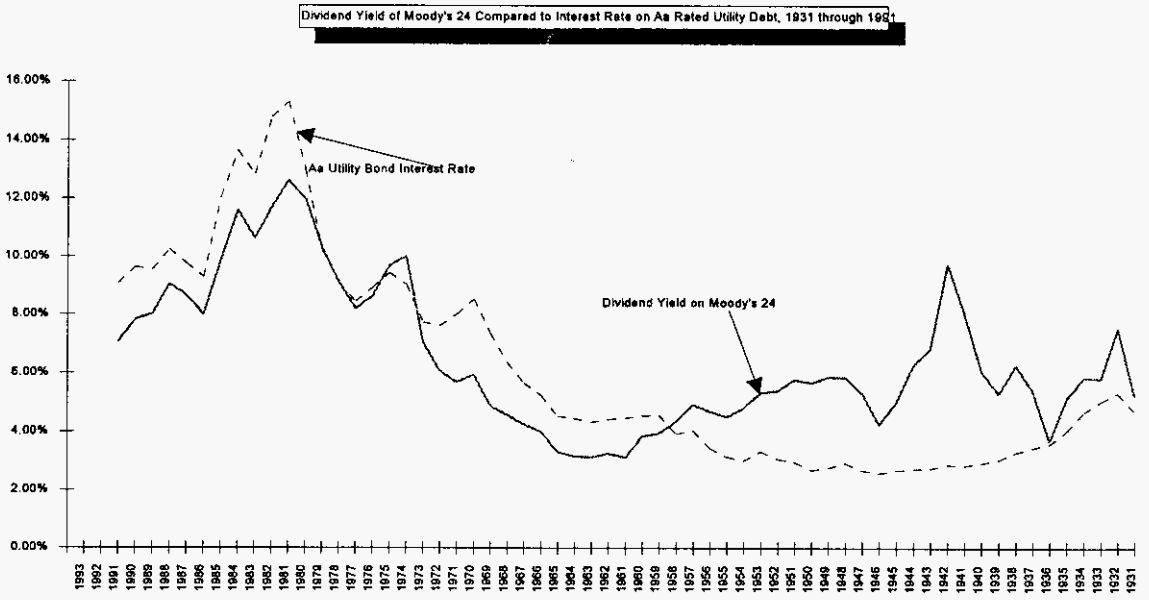
Additionally, it should be pointed out that the risk premium analysis done by Robert S. Harris, unlike the other risk premium studies referenced in the article, was based on the use of the IBES five year growth rate as a proxy for investors' long-term growth expectations. Therefore, the method used by Dr. Harris to compute the cost of equity is erroneous. Because of this major flaw, in addition to the other problems mentioned above, the results of the Harris study are very unreliable.

Q. IN ADDITION TO THE REGRESSION EQUATIONS YOU SHOW ON SCHEDULE 9, P. 2, IS THERE ANY OTHER EMPIRICAL EVIDENCE TO SHOW THAT DR. BILLINGSLEY'S VIEW OF THE BEHAVIOR OF HOW THE RISK PREMIUM CHANGES AS INTEREST RATES CHANGE IS INCORRECT?

A. Yes. The following graph is based upon information contained in Moody's Public Utility Manual. It shows that dividend yields on electric utility common stocks closely track the interest rate on long-term Aa rated public utility bonds. Electric utilities were used for this analysis because the compiled data is readily available in the Moody's manual. However, the principles behind the relationship between the cost of equity and the cost of debt remain unchanged.

Since the cost of equity is equal to the sum of the dividend yield and the growth rate, IF the growth rate were constant, the risk premium would be relatively constant. However, since the cost of equity is lower when interest rates are lower, and is higher when interest rates are higher, growth must also have a strong tendency

to be lower when interest rates are low and higher when interest rates are high. Therefore, because dividend yields track interest rates so well, and because growth varies with interest rates, the risk premium must be lower when interest rates are low and higher when interest rates are high. Dr. Billingsley's use of a risk premium is just as high when interest rates are low as it was interest rates were high must be incorrect.



Q. IN RESPONSE TO CITIZENS 35th INTERROGATORIES, JULY 21, 1993, ITEM NO. 912, DR. BILLINGSLEY ACKNOWLEDGES THAT THE COST OF EQUITY SHOULD BE THE RETURN DEMANDED BY INVESTORS ON THEIR MARKET PRICE INVESTMENT. DOES HE UNDERSTAND WHAT IMPLICATION THIS HAS TO THE APPROPRIATE MARKET TO BOOK RATIO?

A. No. I agree that the cost of equity is the return demanded by investors on their market price investment. However, Dr. Billingsley failed to recognize that the cost of equity is applied to an original cost rate base, not a market value rate base. Therefore, the result of the regulatory process is for the return demanded by investors on their market price investment to become the allowed return on an original cost rate base. If the original cost rate base is lower than the market value rate base, but the return is established on the original cost rate base, the effect is for the market value to be driven towards original cost. Of course, market value may never get to its original cost, or book value, because of 1) the impact of unregulated operations and 2) investors expectations for a future earned return are not necessarily equal to whatever cost of equity is authorized by the Commission.

Many utility company cost of capital witnesses recognize that a properly applied DCF method establishes the cost of equity that will result in a market price for a regulated public utility equal to book value. Also, both the FERC and the FCC not only recognize the importance of this concept, but in separate decisions have both concluded that setting the allowed return on equity equal to the return on equity which would result in a market-to-book of one is a requirement of the U.S. Supreme Court's decision in the Hope Natural Gas case.

For example, in Docket No. RM87-35-000, FERC correctly determined that:

> During periods of falling capital costs, the revenue required to meet shareholder capital cost requirements also declines. Until a utility files for new rates at the lower capital cost, it continues to charge rates based on the higher equity capital costs that existed when the current rates were set. The result is a tendency for the utility to earn more than its shareholders currently require and concomitant increase in the price of the utility's common stock and market-to-book ratio.
>
> [P. 3348 Federal Register/ Vol. 53. No. 24/ Friday February 5, 1988/Rules and Regulations]

The same decision goes on to effectively conclude that setting the cost of equity at the level that would be required to achieve a market-to-book of 1.0 is consistent with the Supreme Court's statement in the *Federal Power Commission v. Hope Natural Gas Co.* case.

Similarly, the FCC stated, on page 15 of FCC 90-315:

> Ameritech's third argument amounts to a suggestion that we are obligated to prescribe a rate of return that will ensure continuation of the carriers' current market-to-book-ratios. We reject this suggestion for several reasons.

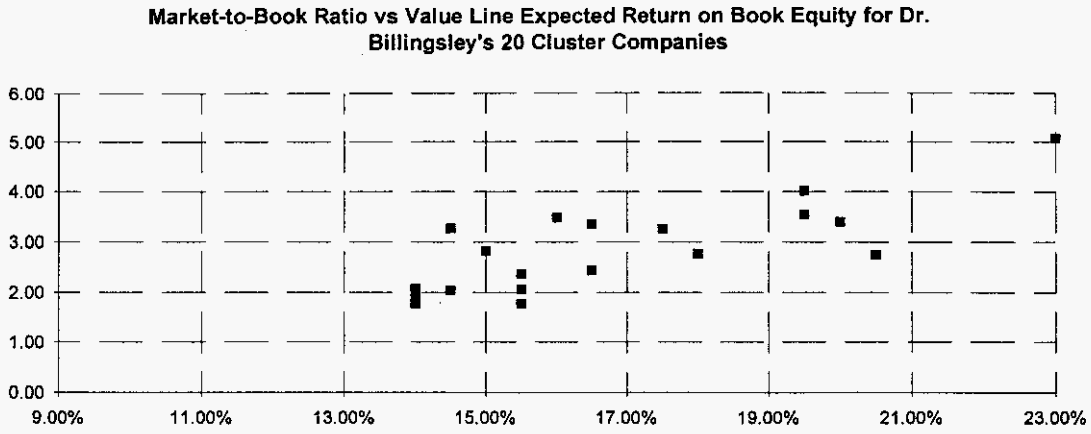
Then, on the same page, the FCC goes on to say:

> We would be remiss in our responsibilities to balance ratepayers' and investors' interests if we implemented procedures that effectively insulated a carrier from experiencing a decrease in its authorized rate of return. Thus, our current market-based rate of return procedures meet the *Bluefield/Hope* criteria notwithstanding that their application herein may adversely impact carriers' high market-to-book ratios. . .
>
> Ameritech's desire that we prevent the market price from declining towards book value would require that we validate the current market valuation of the RHCs. This argument essentially states that investors are entitled to earn their expected return on all shareholder investment in the company's stock rather than earning a return on capital invested in the regulated company. We agree with Consumer Coalition that Ameritech's position attempts to revive the "fair value" principle of ratemaking discredited by *Hope*.

Q. WHAT ARE THE IMPLICATIONS OF DR. BILLINGSLEY'S FAILURE TO UNDERSTAND THAT THE COST OF EQUITY IS APPLIED TO AN ORIGINAL COST RATE BASE, NOT A MARKET VALUE RATE BASE?

A. Following is a graph that shows the relationship between the market-to-book ratio and the return on equity that Value Line expects will be achieved by each of the

20 "cluster" companies chosen by Dr. Billingsley:



The above graph shows that there is a strong relationship between the future expected return on book equity and the resultant market-to-book ratio. The results are not perfect, primarily because Value Line's expectations are not always identical to the market consensus expectation. Nevertheless, the graph makes it clear that Dr. Billingsley's equity cost recommendation of 13.90% to 14.18% should be expected to result in a market-to-book ratio for a company that is of comparable risk to the "cluster" companies of about 2.0. This is twice the level that is the appropriate goal for regulation. Furthermore, by projecting the relationship portrayed in the above graph down to the market-to-book range of 1.0, the future expected return on equity required to produce a market-to-book of 1.0 would be something between 10% and 11%.

Q. ARE THERE ANY OTHER PROBLEMS WITH DR. BILLINGSLEY'S APPROACH TO COSTING EQUITY?

A. Yes. Dr. Billingsley improperly inflates his otherwise inflated DCF result by

adding an erroneously computed quarterly compounding effect. Adding the quarterly compounding effect in the manner he has done it is wrong. He has adjusted his equity cost result only for the portion of the quarterly dividend payment effect that appears to cause an upward adjustment to the cost of equity. He has ignored the other factors that are also influenced by the quarterly payment of dividends which cause a downward adjustment to the computed cost of equity. Specifically, he did not recognize that the stock price of the companies he examined are lower than if a dividend were paid annually, and that the earnings stream received by a company is not obtained at one time at the end of the year, but is available to the company for use throughout the year. If all of the factors are considered rather than just the selective choosing of one of the factors, the net result is for an annual DCF model to be slightly overstating, not understating the cost of equity.

Q. DOES DR. BILLINGSLEY PRESENT A "b x r" GROWTH RATE COMPUTATION IN HIS TESTIMONY?

A. No. This is especially unfortunate because textbooks explain that the proper way to determine growth in the DCF formula is to multiply the future expected retention rate "b" by the future expected return on book equity "r". The proper application of the "b x r" approach avoids the glaring errors caused by using the non-constant growth rates relied upon by Dr. Billingsley.

Q. IS THE COMPANY ABLE TO PROVIDE ECONOMIC SUPPORT FOR ITS CAPITAL STRUCTURE SELECTION?

A. No. Citizens' 35th Interrogatories, Item 929, Page 1 simply says that because the capital structure results from a business decision made by Southern Bell, it must somehow be the appropriate capital structure. The company then asks us to accept their logic that because they feel it is the appropriate capital structure, it must result

in an overall cost of capital that is the lowest reasonable one. There are millions of dollars of ratepayers money at stake depending upon whether or not the company has selected a reasonable capital structure. Yet, the company could not even present any studies whatsoever to support its capital structure. The capital structure study I have presented shows that Southern Bell's capital structure selection is extremely expensive for ratepayers. Therefore, to fairly balance the interests of investors and ratepayers, the company's requested capital structure should be rejected.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

APPENDIX A

FINANCIAL PRINCIPLES SUPPORTING THE DCF METHOD

A. Basic Principles

Q. WHY IS THE DCF METHOD VALID?

A. Investors purchase stock with current cash because they perceive the future cash received in the form of dividends and proceeds from the eventual sale of the stock as being more valuable than the current cash. The DCF method quantifies the rate of return by finding the discount rate that equates the future cash expectations to the current market price.

Common stock dividend rates are not contractual. Similarly, there is no contractually specified price at which the stock will sell in the future. Therefore, the accuracy of the DCF method is dependent upon the degree with which the future cash flow estimates of dividends and estimated selling price of the stock used in the DCF analysis are representative of what the average investor is expecting for the future.

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

k=D/P + g

where:

k = cost of equity

D = dividend rate

P = market price

g = future expected growth rate

My "b x r" approach the simplified version of the DCF method and my approach to the complex version of the DCF are consistent with how securities analysts implement these methods, and is consistent with the principles explained in this testimony.

Q. TO WHAT DOES THE GROWTH COMPONENT OF THE DCF FORMULA REFER?

A. It refers to the expected growth in cash flows. Cash flows include dividends plus the eventual proceeds from the sale of the stock. Some analysts incorrectly oversimplify the DCF model by saying that only dividends are being discounted. However, since earnings are either reinvested or used for dividends, earnings are more important than dividends in determining the total future cash flow growth that is expected. Therefore, if the DCF model were to examine only one factor, earnings would be preferable to dividends as the indicator of total future cash flow.

Q. IS IT POSSIBLE TO APPLY THE DCF METHOD WHEN NON-CONSTANT GROWTH RATES ARE FORECAST?

A. Yes. 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.[1] Earnings per share is equal to the book value per share times return on book equity. Therefore, anything that causes the book value per share of a utility company to decrease will tend to cause the earnings per share to decrease and anything that causes the book value per share to increase will tend to cause the earnings per share to increase.

Q. DOES THE DCF METHOD TAKE INTO CONSIDERATION REGULATORY INFLUENCES ON FUTURE CASH FLOW PROSPECTS FOR A UTILITY COMPANY?

A. Yes. Rate levels influence a company's likely future earnings. Future expected earnings influence stock prices. Earnings are the source of dividends. Therefore, the level of rates allowed by a commission influences the amount of dividends a company will be able to pay in the future. Also, total earnings prospects have a strong influence on a company's stock price. Therefore, the level of rates also influences the future market price that a company's stock is likely to attain.

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1 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.

Q. HOW DOES STOCK PRICE COMMUNICATE THE COST OF EQUITY BEING DEMANDED BY INVESTORS?

A. The relationship between the market price of a common stock and the future cash flows (dividends and stock sale proceeds) which an investor obtains as a result of the ownership of that stock determines the cost of equity. For a going concern such as the typical regulated public utility, future earnings determine future cash flow. The only way to measure whether or not investors believe a utility company is being provided a reasonable opportunity to earn a fair level of earnings on the book value of its assets is by examining the stock price. If the stock price is high in relation to the book value of the assets, this means that investors are optimistic about a company's cash flow prospects. If a stock price is low in relation to the book value of the assets, then investors are pessimistic about the Company's cash flow prospects.

Q. CAN THE STOCK PRICE CHANGE WITHOUT AN INCREASE OR DECREASE IN AUTHORIZED RATES?

A. Yes. Factors outside rate cases, such as the general state of the economy, and interest rate changes, can influence the level of earnings expected by investors. Also, changes in the cost of equity demanded by investors can, and often do, cause stock prices to change. For example, several years ago when equity costs were in the 14% range, future cash flows expected by investors had to be higher than in the current environment to support any given stock price. Stock prices will change if the relative valuation placed on future earnings by investors changes. Note that the value of $1.00 of cash flow expected by investors in one year is worth only $0.877 at a time when the cost of equity demanded by investors was 14% ($0.877 X 1.14 = $1.00), whereas the same $1.00 of earnings expected in one year is worth $0.909 when the cost of equity demanded by investors is 10% ($0.909 X 1.10 = $1.00).

The current stock price is equal to the sum of the net present value of all

future expected cash flows. As a result, stock prices change if the cost of equity changes.

Q. CAN YOU GIVE A SIMPLE EXAMPLE THAT ILLUSTRATES THE UNDERLYING PRINCIPLE BEHIND THE DCF METHOD?

A. Yes. DCF stands for Discounted Cash Flow. What is being discounted is the value of cash flow received in the future. This makes it possible to properly equate the future receipts of cash to the value of current cash. One thousand dollars received next year is worth less than the same amount received today. This is true, if for no other reason, because a person could take the $1,000 received today and put it in a bank account guaranteed by the federal government. Assuming a 3% interest rate, at the time of withdrawal the person would receive $1,030 from the bank. In this way, $1,000 today is worth the same as $1,030 received in one year. Because of this time value of money, the difference in value of $1,000 received next year versus $1,000 today is dependent upon the interest rate, or cost of capital.

The valuation explained above is directly applicable to a decision to purchase common stock. The essential differences between an investment in common stock and a deposit in a bank account are that the exact yield for common stock is unspecified and there is no federal guarantee on the funds. Because of these uncertainties, a stock investment is more risky. Nevertheless, the basic principle of the time value of money that exists for the bank account investment still applies for the common stock investment.

Whether an investor buys stock in a company or puts money in a bank account, he or she gives up cash today in exchange for the right to potential future gains. The investor in the bank account receives specified interest income, whereas the investor in common stock receives any dividends the company may pay plus the right to sell the stock at prevailing market prices. Today's stock price is the present

value of the expected dividends and the proceeds from eventual sale of the stock. It is the interest rate, or "discount rate," or "cost of equity," that makes the future anticipated dividends and future anticipated selling price equal to the present market price.

The simplified DCF formula is k = D/P + g where "k" equals the cost of equity, "D" equals the dividend, "P" equals market price and "g" equals the future anticipated rate of growth in dividends, earnings, book value, and stock price. This version of the DCF method is quantified by computing "D/P" (dividend yield), determining "g" and then adding these two results together.

Q. IS IT ALWAYS ACCEPTABLE TO APPLY THE SIMPLIFIED VERSION OF THE DCF METHOD?

A. No. Making a decision to use this simplified version of the DCF formula requires that the retention rate times return on book equity, or "b x r" approach be used to compute growth. This is because the "b x r" approach arrives at a future sustainable constant growth rate. Other techniques to compute growth rates, such as the historic rate of change in dividend or earnings, are from environments in which earnings, dividends, book value, and stock price all grew at varying rates. This excludes them from use in the simplified, or D/P + g version of the DCF formula unless they are interpreted with the utmost of care.

Q. IS IT GENERALLY PROPER TO USE THE D/P + G SIMPLIFIED VERSION OF THE DCF METHOD FOR PUBLIC UTILITIES?

A. Yes. For most regulated utilities, future expected business conditions are relatively stable. Earnings fluctuate to a certain degree based upon local weather and economic cycles, certain extraordinary events and the timing of rate cases. However, results generally tend to cycle back to a normal profit allowance as a result of

commission orders to either increase or decrease rates. This is in contrast to some non-utility companies that might have a fad product with a profit expectation for only a few years or a developing company with several early years of projected poor earnings.

Q. IS A FIVE-YEAR FORECASTED GROWTH RATE APPROPRIATE TO USE DIRECTLY IN THE SIMPLIFIED VERSION OF THE DCF MODEL?

A. No. Computing a compound annual growth rate starting from an historic period to a time such as five years in the future can result in erroneous results. Using the resultant 5 year growth rate as "g" in the simplified D/P + g formulation is a common mistake. Analysts' published growth rates are not constant growth rates. They include the impact of growth from a base year that may have abnormally depressed or abnormally high earnings. This is why analysts' projected growth rates are generally only usable in the complex version of the DCF method. It is incorrect to rely upon growth from an historic period for use in the DCF method. This is true because such growth is rarely sustainable. Because it is not sustainable, it is not reflected in stock prices. To be sustainable, the historic base period would have to contain a return on book equity and payout ratio that is exactly equal to the future anticipated return on book equity and payout ratio.

Q. IS THE EXPECTED RETURN ON BOOK EQUITY, OR "r," A KEY TO THE ACCURATE IMPLEMENTATION OF THE DCF MODEL?

A. Yes. Other things being equal, earnings per share are proportional to the earned return on book equity. Earnings per share directly impact the future cash flow expected by investors both because earnings provide the source of dividends, and because the future stock price is dependent upon future earnings and dividend prospects. Focusing on return on book equity is more reliable than other means of estimating sustainable growth rates as long as the value chosen for "r" is reflective of the return on book equity investors expect in the current financial environment, and under normal weather and economic conditions.

B. Determination of Future Expected Return on Book Equity, "r"

Q. WHAT EVIDENCE IS AVAILABLE TO INVESTORS TO ESTIMATE THE FUTURE EXPECTED LEVEL OF RETURN ON BOOK EQUITY?

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

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

My preference is to give the most weight to the returns on book equity forecast by securities analysts, especially when evaluating the aggregate data for a group of companies. However, examinations of historic earned returns on equity and allowed returns on equity are important checks to detect reporting errors or other problems with analysts' reports for any one company. Also, it is sometimes necessary to evaluate companies for which analysts' reports are not available.

Q. IS THE "r," OR RETURN ON BOOK EQUITY IN THE "b X r" DETERMINATION OF GROWTH, THE SAME AS THE COST OF EQUITY, OR "k"?

A. No. It is possible for the future expected return on book equity, "r," and the cost of equity, "k," to be substantially different. Some people mistakenly confuse the value of "r" in the "b x r" approach with the cost of equity.

The factor "r" helps quantify the growth rate that investors expect because the rate of earnings actually earned on equity has a great influence on the attained level of future cash flows. This differs from the cost of equity, "k," which reflects the return investors expect to receive on their market price investment. The return the investor will receive on the market price investment takes into consideration the future cash flows consistent with the achieved return on book equity, "r." If the market price is above book value, "k" will be less than "r," and if the market price is below book value, "k" will be higher than "r."

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

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

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

C. Use of Short-term Five-Year Analysts Growth Rate Forecasts to Estimate Future Growth

Q. SOME PEOPLE ATTEMPT TO USE RAW, UNADJUSTED ANALYSTS' SHORT-TERM, FIVE-YEAR GROWTH RATES AS A PROXY FOR THE FUTURE SUSTAINABLE GROWTH RATE IN A DCF FORMULA. IS THIS

2 Given the downtrend in interest rates 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.

Further, it should be noted that there are many differences between bonds and stock. In the 12 percent bond hypothetical, for 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.

APPROPRIATE?

A. No. Consider, for instance, the following example where weather conditions in 1990 were unfavorable, and as a result, a utility company only earned 10.0% on its book equity in that year, but investors believed the company was capable of earning an average of 12.0% on book equity in a normal year. In this case, the growth in earnings per share necessary to bring the 10.0% earned return on book equity up to 12.0% would unsustainably inflate analysts' estimates for growth over the next few years. Note that an increase from 10% to 12% return on book equity is a one-time growth in earnings per share of 20%. A non-recurring source of growth such as this, even spread out over five years, would still overstate the future sustainable growth rate by approximately 4%. If used in the DCF model this could overstate the cost of equity by up to 400 basis points. Once the return on book equity made its increase from 10% to 12%, this growth rate would not be sustainable because analysts would be aware that the cause of growth was a recovery of earnings from a time of abnormally depressed earnings to a time of more normal earnings. In this example, the analyst's growth forecast may be consistent with investor expectations, but it is still inappropriate to use that type of growth in the D/P +g simplified formulation of the DCF model because analysts never intended it to be a future sustainable growth rate.

Q. ARE ABNORMAL WEATHER CONDITIONS THE ONLY POTENTIAL SOURCE OF UNSUSTAINABLE GROWTH RATES?

A. No. Economic conditions, abnormal expenses, or an overall change in cost of capital rates also could have caused a modification to the earnings ability of utility companies.

Q. WILL THE USE OF A LARGE GROUP OF COMPARATIVE COMPANIES

HELP TO SMOOTH THE UPS AND DOWNS CAUSED BY YEARS OF ABNORMAL EARNINGS?

A. No. This is because weather patterns, economic conditions, and the overall levels of allowed returns on equity can and often do affect many of the companies in a similar way.

Q. CAN YOU PROVIDE TEXTBOOK SUPPORT FOR YOUR OBSERVATIONS THAT ANALYSTS' GROWTH RATES ARE NOT CONSTANT GROWTH RATE FORECASTS?

A. Yes. The textbook Intermediate Financial Management, by Brigham and Gapenski, The Dryden Press, 1990, at page 147 states that analysts' forecasts, such as the ones compiled by IBES "often assume non constant growth".

D. Proper Method to Determine Sustainable Growth for Use in The DCF Formula

Q. HOW SHOULD THE GROWTH RATES FOR USE IN THE SIMPLIFIED VERSION OF THE DCF MODEL BE ESTIMATED?

A. The future growth rate is dependent upon the future earnings a utility will achieve. The proper determination of the future growth rate, or "g" portion of the D/P + g formula, is to multiply the future expected earned return on book equity by the portion of these future expected earnings retained in the business rather than paid out as a dividend (retention rate). This results in the sustainable growth rate that is appropriate for use in the simplified version of the DCF method. Earnings retained in the business are what is available for reinvestment in utility assets.

Q. CAN YOU PROVIDE AN EXAMPLE OF HOW RETAINED EARNINGS AND

EARNED RETURN ON BOOK EQUITY COMBINE TO PRODUCE GROWTH?

A. Yes. Assume a company with a book value of $20.00 per share at the beginning of a year earns 10% on equity and pays a dividend of $1.50 per share. Its earnings in that year would be $2.00 (the $20.00 book value multiplied by 10%). Retained earnings would be $2.00 less $1.50 of dividends, or $0.50. Since the $0.50 represents a permanent increase in equity capital, the book value of the company at the end of the year would be $20.50 per share. In this way, by foregoing the additional potential $.50 dividend, the common equity holder has invested an additional $.50 in the business.

If the company anticipates continuing to earn 10% on its book equity, anticipated earnings in the next year would be $2.05 ($20.50 multiplied by 10%). In this example the growth in earnings is $2.05/$2.00 =1.025 or 2.5% growth. Mathematically, it is possible to express the growth caused by retained earnings as "b" times "r" where "b" equals the retention rate and "r" equals the future anticipated return on book equity. In this example, the retention rate "b" is $.50/$2.00, or 0.25, and "r" has been assumed to be 10%. The "b x r" result is therefore 0.25 x 10%, or 2.5% growth.

Note that it is proper to compare the cause of growth in earnings per share for a utility to the cause of growth of earnings in a savings account. If an investor has $1,000 in a savings account paying 3% interest, in the first year earnings will be $30. At the end of one year the account will contain $1,030. If the investor decides to leave the $30 in the account (or retain all earnings), then earnings in the next year will grow from $30 to $30.90 ($1,030 x 3%). Conversely, if the investor decides to withdraw the $30 of first-year earnings, earnings in the second year will not grow to $30.90 but will remain at $30. Exactly the same principle holds for determining the sustainable growth rate of a common stock investment. Earnings that are retained are reinvested in the business. The earnings produced from the assets purchased with the

reinvested earnings cause future earnings growth. Alternatively, the payment of earnings as a dividend makes them unavailable for reinvestment in assets that would create future earnings growth to occur. Therefore, the future sustainable growth rate, whether it be earnings per share for a company or the balance in a savings account, directly relates to "b" and "r."

E. Additional Factor Affecting Sustainable, Long-term Growth

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 will be the market price, not book value. The total common stock equity accounts include 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.

F. Market Price Relationship to Investors' Expectations of Return on Book Equity.

Q. DOES THE ORIGINAL COST OF THE ASSETS OWNED BY A COMPANY DETERMINE THE MARKET PRICE OF A COMPANY'S COMMON STOCK?

A. Only indirectly. Future cash flows, which are the direct determinant of stock price, are created by the earning ability of the assets owned by the company. Company management decides what to produce with the funds available to a company. Therefore, it is the perceived future success of management in earning

profits on assets, not merely the cost of the assets, that determines the market price for essentially any stock.

Before considering the impact of items such as unregulated activities, investment tax credits, financing costs, disallowed rate base or operating expenses, regulators should strive to set authorized earnings at the level required to result in a market-to-book ratio averaging approximately 1.0 in the long run. If regulators were to set earnings at a level that would cause investors to lower the market price below book value, the perceived earnings power of the assets would be less than their net original cost. Conversely, if regulators were to set earnings at a level that would cause investors to raise the market price above book value, this would mean investors would be perceiving that the profits on the assets would be high enough to be worth more than the original cost of the assets.

If the net present value of the future expected cash flows is equal in value to the original cost of the assets, then the market price will equal book value of the company's stocks and bonds. Conversely, if investors believe the net present value of the future cash flows is more (or less) than the book value of the assets owned by a company, then the market price of the company's stocks and bonds will be correspondingly more (or less) than the book value of the company's assets.

Q. ARE THERE ANY UNDESIRABLE RESULTS ASSOCIATED WITH SETTING A RETURN AT SOME LEVEL OTHER THAN THAT WHICH WOULD RESULT IN A MARKET PRICE EQUAL TO THE BOOK VALUE OF USED AND USEFUL UTILITY INVESTMENT?

A. Yes. If the market-to-book ratio target from regulated activities were less than 1.0, management might resist making new capital investments in order to minimize dilution. Conversely, a market-to-book ratio above 1.0 derived from the authorized return would also be an undesirable target for a regulated company. Not only would

it result in higher profits than appropriate, it also would give management an incentive to invest in unneeded new assets. Equity raised to finance the new assets would cause the book value to inflate. Therefore, if regulation permits a utility to increase its book value per share merely by purchasing new assets, a potential risk exists that a utility may purchase more assets than needed to provide safe and adequate service.

The DCF method measures the rate of return investors expect to earn on their market price investment. Market price will equal book value once investors believe that regulators will allow a utility company the opportunity to earn the same return on book value that the investors are demanding on market value.

G. Summary of Proper Implementation of DCF Method

Q. PLEASE SUMMARIZE WHAT NEEDS TO BE DETERMINED IN ORDER TO BE ABLE TO CORRECTLY APPLY THE D/P + g VERSION OF THE DCF METHOD TO ARRIVE AT AN INDICATED COST OF EQUITY?

A. Four determinations are part of the proper application of the D/P + g formulation of the DCF Method:

1. Dividend Yield (D/P);[3]

2. The return on book equity rate which investors anticipate a company will earn in the future;

3. The future expected retention rate; and

4. The impact of any sales of new equity at other than book value, a factor which needs to be reflected as an increment to the growth rate computed from the "b x r" computation.

Whether using the D/P +g simplified version of the DCF method, or the complex DCF method, it is essential that the above determinations be internally consistent.

Q. CAN YOU PROVIDE AN EXAMPLE?

A. Yes. Assume the following:

Market Price	=	$14.00/share
Book Value	=	$10.00/share
Dividend Rate	=	$ 1.00/share

The dividend yield is 7.14% ($1.00/$14.00).

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 determination of the only correct retention rate to use with the above assumptions is as follows:

[3]D represents the dividend rate, and P represents the market price of common stock.

Anticipated Return On Book Equity of 12.0% x Book Value of $10.00 = $1.20 EPS

Dividends of $1.00 / Earnings per Share of $1.20 = 0.833 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 for dividends or for reinvestment in the business. Dividends provide a current benefit to investors. Reinvested earnings provide a future benefit in the form of growth in earnings.

Q. CAN YOU PROVIDE AN EXAMPLE OF HOW AVOIDABLE ERRORS WOULD BE CREATED BY AN INCONSISTENCY BETWEEN THE RETENTION RATE, DIVIDEND RATE, AND FUTURE EXPECTED RETURN ON BOOK EQUITY?

A. Yes. Consider the following hypothetical facts:

1) dividend yield had been computed based upon a $0.75 per share dividend rate,

2) the future expected return on book equity was 13.0%,

3) book value was $10.00 per share.

On the basis of the above, the earnings per share determined to be typical of the future would be the 13% future expected return on book equity times the $10.00 book, or $1.30. This means that the sum of earnings available to pay dividends or for reinvestment in the business is $1.30. If, as has been assumed, we already counted $.75 of the available $1.30 in earnings to pay the dividend, then the only retention rate consistent with the other assumptions is ($1.30 - $ 0.75) / ($1.30), or 42.3%. In this hypothetical example, the only correct retention rate to use is 42.3%. A retention rate of anything but this 42.3% would result in an impossible inconsistency. For example, if someone was to conclude that the retention rate should be 25%, and had used the $.75 dividend in its dividend yield computation, earnings would have to be $1.00, because a $.75 dividend requires $1.00 in earnings in order for the retention rate to be equal to 25%. However, it was already assumed that investors expect the future return on book equity to be 13%. Therefore the earnings per share derived from this expectation is $1.30. Earnings for a company cannot be both $1.00 and $1.30 at the same time.

Q. IS IT POSSIBLE TO PRECISELY DETERMINE THE COST OF EQUITY?

A. Used properly, the DCF model is the most accurate available means to quantify the cost of equity. Even this method contains a certain degree of imprecision because it depends upon the determination of investors' expectations of future cash flow. Future cash flow is highly dependent upon future expected earnings, or return on book equity levels. Earnings levels are not guaranteed, and are not specified by

contract.

The greatest source of imprecision in arriving at the cost of equity in utility rate proceedings comes from the improper selection of techniques, or the misapplication of the selected techniques, rather than a difficulty in quantifying investors' expectations. For example, in the DCF method, if one approaches the quantification of investor growth expectations by merely observing historic growth rates or even short-term projections of growth rates, a misapplication of the DCF method likely would result. It is very helpful to properly quantify growth. Recognition that growth occurs because of earnings retained in the business and re-invested in used and useful assets, and the use of a realistic estimate of the future return on book equity are likely to produce relatively accurate estimates of growth.

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APPENDIX B

TESTIFYING EXPERIENCE OF JAMES A. ROTHSCHILD THROUGH OCTOBER, 1993

ALABAMA

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

ARIZONA

Southwest Gas Corporation; Rate of Return, Docket No. U-1551-92-253, March, 1993

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

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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

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FLORIDA

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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

Southern Bell Telephone Company, Docket No. 920260-TL, Rate of Return, November, 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.

Central Telephone Company of Illinois, ICC Docket No. 93-0252, Rate of Return, October, 1993.

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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.

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Illinois Bell Telephone Company, Dockets No. ICC 92-0448 and ICC _____, Rate of Return, July, 1993

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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.

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

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MAINE

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Bangor Hydro-Electric Company; Docket No. 93-62, Rate of Return, August, 1993

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

MARYLAND

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MASSACHUSETTS

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

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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

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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.

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Elizabethtown Water Company, Docket No. BRC WR93010007, OAL No. PUC 2905-93, Regulatory treatement of CWIP. May, 1993.

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

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South Jersey Gas Company; Docket No. 769-988, Accounting, February, 1977

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

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OHIO

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PENNSYLVANIA

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Columbia Gas of Pennsylvania; Docket No. R-78120724, Rate of Return, May, 1979

Dallas Water Co., Harvey's Lake Water Co, Noxen Water Co., Inc. & Shavertown Water Co. Inc., Docket Nos R-922326, R-922327, R-922328, R-922329, Rate of Return, September, 1992

Dauphin Consolidated Water Company; Docket No. R-780-50616, Rate of Return, August, 1978

Dauphin Consolidated Water Company; Docket No. R-860350, Rate of Return, July, 1986

Dauphin Consolidated Water Company; Docket No. R-912000, Rate of Return, September, 1991

Duquesne Light Company; Docket No. RID-373, Accounting and Rate of Return,

Duquesne Light Company; Docket No. R-80011069, Accounting and Rate of Return, June, 1979

Duquesne Light Company; Docket No. R-821945, Rate of Return, August, 1982

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Equitable Gas Company; Docket No. R-780040598, Rate of Return, September, 1978

General Telephone Company of Pennsylvania; Docket No. R-811512, Rate of Return

Mechanicsburg Water Company; Docket No. R-911946; Rate of Return, July, 1991

Mechanicaburg Water Company, Docket No. R-922502, Rate of Return, February, 1993

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National Fuel Gas Company; Docket No. R-77110514, Rate of Return, September, 1978

North Penn Gas Company, Docket No. R-922276, Rate of Return, September, 1992

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Pennsylvania Electric Company; Rate of Return, September, 1980

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Pennsylvania Gas & Water Company, Docket No. R-922404; Rate of Return, October, 1992

Pennsylvania Gas& Water Company; Docket No. R-922482; Rate of Return, January, 1993

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Peoples Natural Gas Company; Docket No. R-78010545, Rate of Return, August, 1978

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York Water Company, Docket No. R-922168, Rate of Return, June, 1992

RHODE ISLAND

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Blackstone Valley Electric Company, Docket No. 2016, Rate of Return, October, 1991

Block Island Power Company, Docket No. 1998, Interim Relief, Oral testimony only, March, 1991, Permanent relief accounting testimony , August, 1991

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Bristol & Warren Gas Company; Docket No. 1395R, Rate of Return, June, 1982

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Narraganestt Electric Corporation; Docket No. 1976, Rate of Return, October, 1990

Newport Electric Corporation; Docket No. 1410, Accounting, July, 1979

Newport Electric Corporation; Docket No. 1510, Rate of Return

Newport Electric Corporation; Docket No. 1801, Rate of Return, June, 1985

Newport Electric Corporation; Docket 2036, Rate of Return, April, 1992

Providence Gas Company; Docket No. 1971, Rate of Return, October, 1990

South County Gas Company, Docket No. 1854, Rate of Return, December, 1986

Wakefield Water Company, Docket No. 1734, Rate of Return, April, 1984

SOUTH CAROLINA

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VERMONT

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PEPCO; Formal Case No. 889, Rate of Return, January, 1990.

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SCHEDULES

Schedule 1, P. 1

Southern Bell
Overall Cost of Capital

Recommended Result Based on Optimal Capital Structure:

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate	Revenue Requirement Impact [G]
Long-term Debt	51.81% [A]	7.68% [D]	3.98%	3.98%
Short-term Debt	5.69% [C]	3.30% [E]	0.19%	0.19%
Common Equity	42.50% [F]	10.40% [B]	4.42%	7.18%
	100.00%		8.59%	11.35%

Based on Capital Structure Requested by Company
(Not Recommended. Provided for Comparison Purposes Only)

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate	Revenue Requirement Impact
Long-term Debt	33.20% [C]	7.68% [D]	2.55%	2.55%
Short-term Debt	5.79% [C]	3.30% [E]	0.19%	0.19%
Common Equity	61.01% [C]	9.70% [B]	5.92%	9.62%
	100.00%		8.66%	12.36%

Overall Cost of Capital for Florida Regulatory Purposes
Based Upon Optimal Capital Structure

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-term Debt	41.03%	7.68%	3.15%
Short Term Debt	4.51%	3.30%	0.15%
Common Equity	33.66%	10.40%	3.50%
Preferred Stock	0.00%		0.00%
Customer Deposits	1.38%	8.23%	0.11%
Cost Free Capital	16.63%		0.00%
Investment Tax Credits	2.60%	8.59%	0.22%
			7.14%

Source:

[A] 100% minus st.debt minus equity.
[B] Schedule 1, P. 2
[C] Keck Exhibit WBK-1, Page 1(Updated 10/1/93)
[D] Keck Exhibit WBK-2, (Updated 10/1/93)
[E] Keck Exhibit WBK-3 (Updated 10/1/93)
[F] See text
[G] Includes equity gross-up for state and federal income taxes.
State rate is 5.33357% per Sch. C-13, P. 1 of Mr. Reid. Federal rate = 35%

Southern Bell
Cost of Equity Summary

	Based Upon Average for Year Ended 9/30/93 Stock Prices		Based Upon Stock Prices on 9/30/93		Average
SIMPLIFIED DCF, OR D/P + g RESULTS:					
RHCs	10.48%	[A]	9.84%	[A]	10.16%
BELLSOUTH	10.01%	[B]	9.59%	[B]	9.80%
Average	10.24%		9.71%		
COMPLEX DCF RESULTS:					
RHCs	10.24%	[C]	9.61%	[D]	9.93%
BELLSOUTH	10.06%	[E]	9.70%	[F]	9.88%
Average	10.15%		9.66%		
Average of Comparative Telephone Companies	10.36%		9.73%		10.04%
Average of BellSouth Results Only	10.04%		9.64%		9.84%
Allowance for Financing Costs		0.10%			0.10%
Equity Cost Rate for Comparative Telephone Companies				10.00%	
Capital Structure Adjustment				-0.30%	
Cost of Equity Applicable to Company Requested Capital Structure				**9.70%**	

[A] Schedule 3, P. 1
[B] Schedule 3, P. 2
[C] Schedule 4, P. 1
[D] Schedule 4, P. 2
[E] Schedule 4, P. 3
[F] Schedule 4, P. 4
[G] Per BellSouth Annual Report to Stockholders for 1992, P.

BellSouth **Schedule 1, P. 3**
Summary of Cost of Equity
Using Various Approaches to Simplified DCF Method

DCF Method:	Indicated Growth Rates Unadjusted Low	Unadjusted High	Adjusted Low	Adjusted High	
"b x r"	4.66%	4.95%	5.42%	5.56%	[A]
Value Line Earnings Per Share from 1994 to 1996-98	5.83%	5.83%	5.53%	5.53%	[B]
Trend in Dividends Per Share	2.00%	4.00%	4.50%	5.00%	[C]
Zack's Consensus 5-year Earnings Per Share Growth Rates	6.10%	6.10%	4.31%	4.31%	[D]
Average	4.65%	5.22%	4.94%	5.10%	
Recommended Growth Rate			5.00%	5.50%	
Dividend Yield			4.30%	4.78%	[E]
Increment to Div. Yield for Growth to Next Year			0.12%	0.13%	[A]
Indicated Cost of Equity			9.42%	10.42%	
Allowance for Financing Costs				0.10%	[F]
Recommended Cost of Equity before Capital Structure Adjustment				10.00%	
Capital Structure Adjustment				-0.30%	G]
Cost of Equity Applicable to Company Requested Capital Structure				9.70%	

[A] Schedule 3, P. 1
[B] Schedule 5, P. 2
[C] Schedule 5, P. 1
[D] Schedule 5, P. 3
[E] Schedule 3, P. 1
[F] Schedule 1, P. 2
[G] See Text

Southern Bell
Estimated Capital Structure for Ratemaking Purposes
for 12 Months Ending 12/31/93
(Thousands of Dollars)

		Amount	Percent
Long-term Debt	[A]	1,659,759	41.03%
Short Term Debt	[A]	182,282	4.51%
Common Equity	[A]	1,361,509	33.66%
Preferred Stock	[B]	0	0.00%
Customer Deposits	[B]	55,679	1.38%
Cost Free Capital	[B]	681,040	16.83%
Investment Tax Credits	[B]	105,161	2.60%
		4,045,430	100.00%

Source:

[A] Total of Long-term Short-term Debt, and Common Equity per
Keck Exhibit WBK-4 (Updated 10/1/93) re-distributed at Optimal Capital Structure ratios.

[B] Keck Exhibit WBK-4 (Updated 10/1/93)

Schedule 2

FINANCIAL DATA ON BELLSOUTH

	1987	1988	1989	1990	1991	1992	Y/E 9/30/93	At 9/30/93
Market Price- High	$44.30	$43.90	$58.10	$59.30	$55.00	$55.40	$62.88	
Market Price- Low	$29.10	$35.80	$39.00	$49.00	$45.40	$43.40	$46.75	
Average	$36.70	$39.85	$48.55	$54.15	$50.20	$49.40	$54.81	$60.50
Book Value , Y/E	$24.89	$25.51	$27.21	$26.54	$27.01	$27.94	$28.41	$28.41
Book Value, Avg.		$25.20	$26.36	$26.88	$26.78	$27.48		
Earnings Per Share	$3.46	$3.51	$3.48	$3.38	$3.11	$3.38		
Dividends Per Share	$2.20	$2.36	$2.52	$2.68	$2.76	$2.76	$2.68	$2.68
Dividend Yield	5.99%	5.92%	5.19%	4.95%	5.50%	5.59%	4.89%	4.43%
Return on Equity		13.93%	13.20%	12.58%	11.62%	12.30%		
Market-to-Book		1.58	1.84	2.01	1.87	1.80	1.93	2.13

Value Line Future Expected Return on Equity: 14.00%

Return on Equity implied in Zack's Consensus Growth Rate= 14.43% [A]

Source: Value Line July 16, 1993, Page 751

[A] Schedule 2, Page 5

9/93 estimated by adding 75% of difference bet. '92 earnings and '92 dividends

Schedule 1, P. 2

Southern Bell
Cost of Equity Summary

	Based Upon Average for Year Ended 9/30/93 Stock Prices		Based Upon Stock Prices on 9/30/93		Average
SIMPLIFIED DCF, OR D/P + g RESULTS:					
RHCs	10.48%	[A]	9.84%	[A]	10.16%
BELLSOUTH	10.01%	[B]	9.59%	[B]	9.80%
Average	10.24%		9.71%		
COMPLEX DCF RESULTS:					
RHCs	10.24%	[C]	9.61%	[D]	9.93%
BELLSOUTH	10.06%	[E]	9.70%	[F]	9.88%
Average	10.15%		9.66%		
Average of Comparative Telephone Companies	10.36%		9.73%		10.04%
Average of BellSouth Results Only	10.04%		9.64%		9.84%

Equity Cost Rate for Comparative Telephone Companies	10.00%
Capital Structure Adjustment	-0.30%
Cost of Equity Applicable to Company Requested Capital Structure	**9.70%**

[A] Schedule 3, P. 1
[B] Schedule 3, P. 2
[C] Schedule 4, P. 1
[D] Schedule 4, P. 2
[E] Schedule 4, P. 3
[F] Schedule 4, P. 4

RHCs **Schedule 3, P. 1**

DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

		Based on Market Average for Year			Based on End of Period Market Price		
Basis for Future Expected :::: Return on Equity ::::		Zacks Consensus	Value Line	Recommended Expectation	Historical Actual	Value Line	Recommended Expectation
1 Dividend Yield On Market Price	[A]	4.78%	4.78%	4.78%	4.30%	4.30%	4.30%
2 Retention Ratio:							
a) Market-to-book	[A]	2.36	2.36	2.36	2.70	2.70	2.70
b) Div. Yld on Book	[B]	11.30%	11.30%	11.30%	11.59%	11.59%	11.59%
c) Return on Equity	[C]	16.53%	16.21%	16.25%	16.53%	16.21%	16.25%
d) Retention Rate	[D]	31.63%	30.31%	30.46%	29.89%	28.54%	28.70%
3 Reinvestment Growth	[E]	5.23%	4.91%	4.95%	4.94%	4.63%	4.66%
4 New Financing Growth	[F]	0.61%	0.61%	0.61%	0.76%	0.76%	0.76%
5 Total Estimate of Investor Anticipated Growth	[G]	5.84%	5.53%	5.56%	5.70%	5.39%	5.42%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.14%	0.13%	0.13%	0.12%	0.12%	0.12%
7 Indicated Cost of Equity	[I]	10.76%	10.44%	10.48%	10.12%	9.80%	9.84%

Sources:

[A] Schedule 6, P. 1

[B] Line 1 x Line 2a

[C] Zacks from Schedule 6, P. 4
Value Line from Schedule 6, 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 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 = 0.45% [J] times applicable m/b ratio

[G] Line 3 + Line 4

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

[I] Line 1 + Line 5 + Line 6

[J] Schedule 7

BELLSOUTH **Schedule 3, P. 2**

DISCOUNTED CASH FLOW (DCF) INDICATED COST OF EQUITY

		Based on Market Average for Year			Based on End of Period 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]	4.89%	4.89%	4.89%	4.43%	4.43%	4.43%
2 Retention Ratio:							
a) Market-to-book	[A]	1.93	1.93	1.93	2.13	2.13	2.13
b) Div. Yld on Book	[B]	9.43%	9.43%	9.43%	9.43%	9.43%	9.43%
c) Return on Equity	[C]	14.40%	14.00%	14.20%	14.40%	14.00%	14.20%
d) Retention Rate	[D]	34.48%	32.61%	33.56%	34.48%	32.61%	33.56%
3 Reinvestment Growth	[E]	4.97%	4.57%	4.77%	4.97%	4.57%	4.77%
4 New Financing Growth	[F]	0.23%	0.23%	0.23%	0.28%	0.28%	0.28%
5 Total Estimate of Investor Anticipated Growth	[G]	5.20%	4.80%	5.00%	5.25%	4.85%	5.05%
6 Increment to Dividend Yield for Growth to Next Year	[H]	0.13%	0.12%	0.12%	0.12%	0.11%	0.11%
7 Indicated Cost of Equity	[I]	10.21%	9.80%	10.01%	9.79%	9.38%	9.59%

Sources:

[A] Schedule 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 = 0.25% [J]

[G] Line 3 + Line 4

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

[I] Line 1 + Line 5 + Line 6

[J] Schedule 7

Schedule 4, P. 1 a

RHCs
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 Per Q.	Cash Fl. *from* Stock Trams.	Cash Fl. *from* Div.	Total Cash Flow
1992	$21.59													
1993.00	$21.85	30.46%	$0.62	$0.83	$0.22	0.27%	$0.03	$0.25	$51.62	2.36	3.84%	($51.62)		($51.62)
1993.25	$22.14	30.46%	$0.59	$0.84	$0.26	0.27%	$0.03	$0.29	$52.30	2.36	3.84%		$0.59	$0.59
1993.50	$22.44	30.46%	$0.59	$0.85	$0.26	0.27%	$0.03	$0.29	$53.00	2.36	3.84%		$0.59	$0.59
1993.75	$22.73	30.46%	$0.60	$0.87	$0.26	0.27%	$0.03	$0.30	$53.70	2.36	3.84%		$0.60	$0.60
1994.00	$23.04	30.46%	$0.61	$0.88	$0.27	0.27%	$0.04	$0.30	$54.42	2.36	3.84%		$0.61	$0.61
1994.25	$23.34	30.46%	$0.62	$0.89	$0.27	0.27%	$0.04	$0.31	$55.14	2.36	3.84%		$0.62	$0.62
1994.50	$23.65	30.46%	$0.63	$0.90	$0.27	0.27%	$0.04	$0.31	$55.88	2.36	3.84%		$0.63	$0.63
1994.75	$23.97	30.46%	$0.64	$0.91	$0.28	0.27%	$0.04	$0.31	$56.62	2.36	3.84%		$0.64	$0.64
1995.00	$24.29	30.46%	$0.64	$0.93	$0.28	0.27%	$0.04	$0.32	$57.37	2.36	3.84%		$0.64	$0.64
1995.25	$24.61	30.46%	$0.65	$0.94	$0.29	0.27%	$0.04	$0.32	$58.14	2.36	3.84%		$0.65	$0.65
1995.50	$24.94	30.46%	$0.66	$0.95	$0.29	0.27%	$0.04	$0.33	$58.91	2.36	3.84%		$0.66	$0.66
1995.75	$25.27	30.46%	$0.67	$0.96	$0.29	0.27%	$0.04	$0.33	$59.69	2.36	3.84%		$0.67	$0.67
1996.00	$25.61	30.46%	$0.68	$0.98	$0.30	0.27%	$0.04	$0.34	$60.49	2.36	3.84%		$0.68	$0.68
1996.25	$25.95	30.46%	$0.69	$0.99	$0.30	0.27%	$0.04	$0.34	$61.29	2.36	3.84%		$0.69	$0.69
1996.50	$26.29	30.46%	$0.70	$1.00	$0.31	0.27%	$0.04	$0.35	$62.11	2.36	3.84%		$0.70	$0.70
1996.75	$26.64	30.46%	$0.71	$1.02	$0.31	0.27%	$0.04	$0.35	$62.94	2.36	3.84%		$0.71	$0.71
1997.00	$27.00	30.46%	$0.72	$1.03	$0.31	0.27%	$0.04	$0.35	$63.77	2.36	3.84%		$0.72	$0.72
1997.25	$27.36	30.46%	$0.72	$1.04	$0.32	0.27%	$0.04	$0.36	$64.62	2.36	3.84%		$0.72	$0.72
1997.50	$27.72	30.46%	$0.73	$1.06	$0.32	0.27%	$0.04	$0.36	$65.48	2.36	3.84%		$0.73	$0.73
1997.75	$28.09	30.46%	$0.74	$1.07	$0.33	0.27%	$0.04	$0.37	$66.35	2.36	3.84%		$0.74	$0.74
1998.00	$28.46	30.46%	$0.75	$1.08	$0.33	0.27%	$0.04	$0.37	$67.24	2.36	3.84%		$0.75	$0.75
1998.25	$28.84	30.46%	$0.76	$1.10	$0.33	0.27%	$0.04	$0.38	$68.13	2.36	3.84%		$0.76	$0.76
1998.50	$29.22	30.46%	$0.77	$1.11	$0.34	0.27%	$0.04	$0.38	$69.04	2.36	3.84%		$0.77	$0.77
1998.75	$29.61	30.46%	$0.78	$1.13	$0.34	0.27%	$0.05	$0.39	$69.96	2.36	3.84%		$0.78	$0.78
1999.00	$30.01	30.46%	$0.80	$1.14	$0.35	0.27%	$0.05	$0.39	$70.89	2.36	3.84%		$0.80	$0.80
1999.25	$30.41	30.46%	$0.81	$1.16	$0.35	0.27%	$0.05	$0.40	$71.83	2.36	3.84%		$0.81	$0.81
1999.50	$30.81	30.46%	$0.82	$1.17	$0.36	0.27%	$0.05	$0.40	$72.78	2.36	3.84%		$0.82	$0.82
1999.75	$31.22	30.46%	$0.83	$1.19	$0.36	0.27%	$0.05	$0.41	$73.75	2.36	3.84%		$0.83	$0.83
2000.00	$31.64	30.46%	$0.84	$1.21	$0.37	0.27%	$0.05	$0.42	$74.73	2.36	3.84%		$0.84	$0.84
2000.25	$32.06	30.46%	$0.85	$1.22	$0.37	0.27%	$0.05	$0.42	$75.73	2.36	3.84%		$0.85	$0.85
2000.50	$32.48	30.46%	$0.86	$1.24	$0.38	0.27%	$0.05	$0.43	$76.74	2.36	3.84%		$0.86	$0.86
2000.75	$32.92	30.46%	$0.87	$1.25	$0.38	0.27%	$0.05	$0.43	$77.76	2.36	3.84%		$0.87	$0.87
2001.00	$33.35	30.46%	$0.88	$1.27	$0.39	0.27%	$0.05	$0.44	$78.79	2.36	3.84%		$0.88	$0.88
2001.25	$33.80	30.46%	$0.90	$1.29	$0.39	0.27%	$0.05	$0.44	$79.84	2.36	3.84%		$0.90	$0.90
2001.50	$34.25	30.46%	$0.91	$1.31	$0.40	0.27%	$0.05	$0.45	$80.90	2.36	3.84%		$0.91	$0.91
2001.75	$34.70	30.46%	$0.92	$1.32	$0.40	0.27%	$0.05	$0.46	$81.98	2.36	3.84%		$0.92	$0.92
2002.00	$35.16	30.46%	$0.93	$1.34	$0.41	0.27%	$0.05	$0.46	$83.07	2.36	3.84%		$0.93	$0.93
2002.25	$35.63	30.46%	$0.94	$1.36	$0.41	0.27%	$0.05	$0.47	$84.18	2.36	3.84%		$0.94	$0.94
2002.50	$36.11	30.46%	$0.96	$1.38	$0.42	0.27%	$0.05	$0.47	$85.30	2.36	3.84%		$0.96	$0.96
2002.75	$36.59	30.46%	$0.97	$1.39	$0.42	0.27%	$0.06	$0.48	$86.43	2.36	3.84%		$0.97	$0.97
2003.00	$37.07	30.46%	$0.98	$1.41	$0.43	0.27%	$0.06	$0.49	$87.58	2.36	3.84%		$0.98	$0.98
2003.25	$37.57	30.46%	$1.00	$1.43	$0.44	0.27%	$0.06	$0.49	$88.75	2.36	3.84%		$1.00	$1.00
2003.50	$38.07	30.46%	$1.01	$1.45	$0.44	0.27%	$0.06	$0.50	$89.93	2.36	3.84%		$1.01	$1.01
2003.75	$38.57	30.46%	$1.02	$1.47	$0.45	0.27%	$0.06	$0.51	$91.12	2.36	3.84%		$1.02	$1.02
2004.00	$39.09	30.46%	$1.04	$1.49	$0.45	0.27%	$0.06	$0.51	$92.34	2.36	3.84%		$1.04	$1.04
2004.25	$39.61	30.46%	$1.05	$1.51	$0.46	0.27%	$0.06	$0.52	$93.56	2.36	3.84%		$1.05	$1.05
2004.50	$40.13	30.46%	$1.06	$1.53	$0.47	0.27%	$0.06	$0.53	$94.81	2.36	3.84%		$1.06	$1.06

2004.75	$40.67	30.46%	$1.08	$1.55	$0.47	0.27%	$0.06	$0.53	$96.07	2.36	3.84%	$1.08	$1.08	***Schedule 4, P. 1***
2005.00	$41.21	30.46%	$1.09	$1.57	$0.48	0.27%	$0.06	$0.54	$97.35	2.36	3.84%	$1.09	$1.09	**b**
2005.25	$41.76	30.46%	$1.11	$1.59	$0.48	0.27%	$0.06	$0.55	$98.64	2.36	3.84%	$1.11	$1.11	
2005.50	$42.31	30.46%	$1.12	$1.61	$0.49	0.27%	$0.06	$0.56	$99.96	2.36	3.84%	$1.12	$1.12	
2005.75	$42.88	30.46%	$1.14	$1.63	$0.50	0.27%	$0.07	$0.56	$101.29	2.36	3.84%	$1.14	$1.14	
2006.00	$43.45	30.46%	$1.15	$1.66	$0.50	0.27%	$0.07	$0.57	$102.63	2.36	3.84%	$1.15	$1.15	
2006.25	$44.02	30.46%	$1.17	$1.68	$0.51	0.27%	$0.07	$0.58	$104.00	2.36	3.84%	$1.17	$1.17	
2006.50	$44.61	30.46%	$1.18	$1.70	$0.52	0.27%	$0.07	$0.59	$105.38	2.36	3.84%	$1.18	$1.18	
2006.75	$45.20	30.46%	$1.20	$1.72	$0.52	0.27%	$0.07	$0.59	$106.79	2.36	3.84%	$1.20	$1.20	
2007.00	$45.80	30.46%	$1.21	$1.75	$0.53	0.27%	$0.07	$0.60	$108.21	2.36	3.84%	$1.21	$1.21	
2007.25	$46.41	30.46%	$1.23	$1.77	$0.54	0.27%	$0.07	$0.61	$109.65	2.36	3.84%	$1.23	$1.23	
2007.50	$47.03	30.46%	$1.25	$1.79	$0.55	0.27%	$0.07	$0.62	$111.10	2.36	3.84%	$1.25	$1.25	
2007.75	$47.66	30.46%	$1.26	$1.82	$0.55	0.27%	$0.07	$0.63	$112.58	2.36	3.84%	$1.26	$1.26	
2008.00	$48.29	30.46%	$1.28	$1.84	$0.56	0.27%	$0.07	$0.63	$114.08	2.36	3.84%	$1.28	$1.28	
2008.25	$48.93	30.46%	$1.30	$1.86	$0.57	0.27%	$0.07	$0.64	$115.60	2.36	3.84%	$1.30	$1.30	
2008.50	$49.59	30.46%	$1.31	$1.89	$0.58	0.27%	$0.08	$0.65	$117.14	2.36	3.84%	$1.31	$1.31	
2008.75	$50.24	30.46%	$1.33	$1.91	$0.58	0.27%	$0.08	$0.66	$118.70	2.36	3.84%	$1.33	$1.33	
2009.00	$50.91	30.46%	$1.35	$1.94	$0.59	0.27%	$0.08	$0.67	$120.27	2.36	3.84%	$1.35	$1.35	
2009.25	$51.59	30.46%	$1.37	$1.97	$0.60	0.27%	$0.08	$0.68	$121.88	2.36	3.84%	$1.37	$1.37	
2009.50	$52.28	30.46%	$1.39	$1.99	$0.61	0.27%	$0.08	$0.69	$123.50	2.36	3.84%	$1.39	$1.39	
2009.75	$52.97	30.46%	$1.40	$2.02	$0.62	0.27%	$0.08	$0.70	$125.14	2.36	3.84%	$1.40	$1.40	
2010.00	$53.68	30.46%	$1.42	$2.05	$0.62	0.27%	$0.08	$0.70	$126.80	2.36	3.84%	$1.42	$1.42	
2010.25	$54.39	30.46%	$1.44	$2.07	$0.63	0.27%	$0.08	$0.71	$128.49	2.36	3.84%	$1.44	$1.44	
2010.50	$55.12	30.46%	$1.46	$2.10	$0.64	0.27%	$0.08	$0.72	$130.20	2.36	3.84%	$1.46	$1.46	
2010.75	$55.85	30.46%	$1.48	$2.13	$0.65	0.27%	$0.08	$0.73	$131.93	2.36	3.84%	$1.48	$1.48	
2011.00	$56.59	30.46%	$1.50	$2.16	$0.66	0.27%	$0.09	$0.74	$133.69	2.36	3.84%	$1.50	$1.50	
2011.25	$57.34	30.46%	$1.52	$2.19	$0.67	0.27%	$0.09	$0.75	$135.47	2.36	3.84%	$1.52	$1.52	
2011.50	$58.11	30.46%	$1.54	$2.21	$0.67	0.27%	$0.09	$0.76	$137.27	2.36	3.84%	$1.54	$1.54	
2011.75	$58.88	30.46%	$1.56	$2.24	$0.68	0.27%	$0.09	$0.77	$139.10	2.36	3.84%	$1.56	$1.56	
2012.00	$59.66	30.46%	$1.58	$2.27	$0.69	0.27%	$0.09	$0.78	$140.95	2.36	3.84%	$1.58	$1.58	
2012.25	$60.46	30.46%	$1.60	$2.30	$0.70	0.27%	$0.09	$0.79	$142.82	2.36	3.84%	$1.60	$1.60	
2012.50	$61.26	30.46%	$1.62	$2.33	$0.71	0.27%	$0.09	$0.80	$144.72	2.36	3.84%	$1.62	$1.62	
2012.75	$62.08	30.46%	$1.65	$2.37	$0.72	0.27%	$0.09	$0.82	$146.65	2.36	3.84%	$1.65	$1.65	
2013.00	$62.90	30.46%	$1.67	$2.40	$0.73	0.27%	$0.10	$0.83	$148.60	2.36	3.84%	$1.67	$1.67	
2013.25	$63.74	30.46%	$1.69	$2.43	$0.74	0.27%	$0.10	$0.84	$150.58	2.36	3.84%	$1.69	$1.69	
2013.50	$64.59	30.46%	$1.71	$2.46	$0.75	0.27%	$0.10	$0.85	$152.58	2.36	3.84%	$1.71	$1.71	
2013.75	$65.45	30.46%	$1.73	$2.49	$0.76	0.27%	$0.10	$0.86	$154.61	2.36	3.84%	$1.73	$1.73	
2014.00	$66.32	30.46%	$1.76	$2.53	$0.77	0.27%	$0.10	$0.87	$156.67	2.36	3.84%	$1.76	$1.76	
2014.25	$67.20	30.46%	$1.78	$2.56	$0.78	0.27%	$0.10	$0.88	$158.75	2.36	3.84%	$1.78	$1.78	
2014.50	$68.10	30.46%	$1.80	$2.60	$0.79	0.27%	$0.10	$0.89	$160.87	2.36	3.84%	$1.80	$1.80	
2014.75	$69.00	30.46%	$1.83	$2.63	$0.80	0.27%	$0.10	$0.91	$163.01	2.36	3.84%	$1.83	$1.83	
2015.00	$69.92	30.46%	$1.85	$2.66	$0.81	0.27%	$0.11	$0.92	$165.17	2.36	3.84%	$1.85	$1.85	
2015.25	$70.85	30.46%	$1.88	$2.70	$0.82	0.27%	$0.11	$0.93	$167.37	2.36	3.84%	$1.88	$1.88	
2015.50	$71.79	30.46%	$1.90	$2.74	$0.83	0.27%	$0.11	$0.94	$169.60	2.36	3.84%	$1.90	$1.90	
2015.75	$72.75	30.46%	$1.93	$2.77	$0.84	0.27%	$0.11	$0.96	$171.86	2.36	3.84%	$1.93	$1.93	
2016.00	$73.72	30.46%	$1.95	$2.81	$0.86	0.27%	$0.11	$0.97	$174.14	2.36	3.84%	$1.95	$1.95	
2016.25	$74.70	30.46%	$1.98	$2.85	$0.87	0.27%	$0.11	$0.98	$176.46	2.36	3.84%	$1.98	$1.98	
2016.50	$75.69	30.46%	$2.01	$2.88	$0.88	0.27%	$0.12	$0.99	$178.81	2.36	3.84%	$2.01	$2.01	
2016.75	$76.70	30.46%	$2.03	$2.92	$0.89	0.27%	$0.12	$1.01	$181.19	2.36	3.84%	$2.03	$2.03	
2017.00	$77.72	30.46%	$2.06	$2.96	$0.90	0.27%	$0.12	$1.02	$183.60	2.36	3.84%	$2.06	$2.06	
2017.25	$78.75	30.46%	$2.09	$3.00	$0.91	0.27%	$0.12	$1.03	$186.04	2.36	3.84%	$2.09	$2.09	
2017.50	$79.80	30.46%	$2.11	$3.04	$0.93	0.27%	$0.12	$1.05	$188.51	2.36	3.84%	$2.11	$2.11	
2017.75	$80.86	30.46%	$2.14	$3.08	$0.94	0.27%	$0.12	$1.06	$191.02	2.36	3.84%	$2.14	$2.14	
2018.00	$81.94	30.46%	$2.17	$3.12	$0.95	0.27%	$0.12	$1.08	$193.56	2.36	3.84%	$2.17	$2.17	
2018.25	$83.03	30.46%	$2.20	$3.16	$0.96	0.27%	$0.13	$1.09	$196.14	2.36	3.84%	$2.20	$2.20	
2018.50	$84.13	30.46%	$2.23	$3.21	$0.98	0.27%	$0.13	$1.10	$198.75	2.36	3.84%	$2.23	$2.23	
2018.75	$85.25	30.46%	$2.26	$3.25	$0.99	0.27%	$0.13	$1.12	$201.39	2.36	3.84%	$2.26	$2.26	
2019.00	$86.39	30.46%	$2.29	$3.29	$1.00	0.27%	$0.13	$1.13	$204.07	2.36	3.84%	$2.29	$2.29	

2019.25	$87.54	30.46%	$2.32	$3.34	$1.02	0.27%	$0.13	$1.15	$206.79	2.36	3.84%		$2.32	$2.32	Schedule 4, P. 1
2019.50	$88.70	30.46%	$2.35	$3.38	$1.03	0.27%	$0.13	$1.16	$209.54	2.36	3.84%		$2.35	$2.35	c
2019.75	$89.88	30.46%	$2.38	$3.43	$1.04	0.27%	$0.14	$1.18	$212.33	2.36	3.84%		$2.38	$2.38	
2020.00	$91.08	30.46%	$2.41	$3.47	$1.06	0.27%	$0.14	$1.20	$215.15	2.36	3.84%		$2.41	$2.41	
2020.25	$92.29	30.46%	$2.45	$3.52	$1.07	0.27%	$0.14	$1.21	$218.02	2.36	3.84%		$2.45	$2.45	
2020.50	$93.52	30.46%	$2.48	$3.56	$1.09	0.27%	$0.14	$1.23	$220.92	2.36	3.84%		$2.48	$2.48	
2020.75	$94.76	30.46%	$2.51	$3.61	$1.10	0.27%	$0.14	$1.24	$223.86	2.36	3.84%		$2.51	$2.51	
2021.00	$96.02	30.46%	$2.54	$3.66	$1.11	0.27%	$0.15	$1.26	$226.84	2.36	3.84%		$2.54	$2.54	
2021.25	$97.30	30.46%	$2.58	$3.71	$1.13	0.27%	$0.15	$1.28	$229.85	2.36	3.84%		$2.58	$2.58	
2021.50	$98.59	30.46%	$2.61	$3.76	$1.14	0.27%	$0.15	$1.29	$232.91	2.36	3.84%		$2.61	$2.61	
2021.75	$99.91	30.46%	$2.65	$3.81	$1.16	0.27%	$0.15	$1.31	$236.01	2.36	3.84%		$2.65	$2.65	
2022.00	$101.23	30.46%	$2.68	$3.86	$1.18	0.27%	$0.15	$1.33	$239.15	2.36	3.84%		$2.68	$2.68	
2022.25	$102.58	30.46%	$2.72	$3.91	$1.19	0.27%	$0.16	$1.35	$242.33	2.36	3.84%		$2.72	$2.72	
2022.50	$103.95	30.46%	$2.75	$3.96	$1.21	0.27%	$0.16	$1.36	$245.56	2.36	3.84%		$2.75	$2.75	
2022.75	$105.33	30.46%	$2.79	$4.01	$1.22	0.27%	$0.16	$1.38	$248.82	2.36	3.84%		$2.79	$2.79	
2023.00	$106.73	30.46%	$2.83	$4.07	$1.24	0.27%	$0.16	$1.40	$252.13	2.36	3.84%		$2.83	$2.83	
2023.25	$108.15	30.46%	$2.87	$4.12	$1.26	0.27%	$0.16	$1.42	$255.49	2.36	3.84%		$2.87	$2.87	
2023.50	$109.59	30.46%	$2.90	$4.18	$1.27	0.27%	$0.17	$1.44	$258.89	2.36	3.84%		$2.90	$2.90	
2023.75	$111.05	30.46%	$2.94	$4.23	$1.29	0.27%	$0.17	$1.46	$262.33	2.36	3.84%		$2.94	$2.94	
2024.00	$112.53	30.46%	$2.98	$4.29	$1.31	0.27%	$0.17	$1.48	$265.82	2.36	3.84%		$2.98	$2.98	
2024.25	$114.02	30.46%	$3.02	$4.35	$1.32	0.27%	$0.17	$1.50	$269.36	2.36	3.84%		$3.02	$3.02	
2024.50	$115.54	30.46%	$3.06	$4.40	$1.34	0.27%	$0.18	$1.52	$272.94	2.36	3.84%		$3.06	$3.06	
2024.75	$117.08	30.46%	$3.10	$4.46	$1.36	0.27%	$0.18	$1.54	$276.58	2.36	3.84%		$3.10	$3.10	
2025.00	$118.64	30.46%	$3.14	$4.52	$1.38	0.27%	$0.18	$1.56	$280.26	2.36	3.84%		$3.14	$3.14	
2025.25	$120.21	30.46%	$3.19	$4.58	$1.40	0.27%	$0.18	$1.58	$283.99	2.36	3.84%		$3.19	$3.19	
2025.50	$121.81	30.46%	$3.23	$4.64	$1.41	0.27%	$0.19	$1.60	$287.76	2.36	3.84%		$3.23	$3.23	
2025.75	$123.43	30.46%	$3.27	$4.70	$1.43	0.27%	$0.19	$1.62	$291.59	2.36	3.84%		$3.27	$3.27	
2026.00	$125.08	30.46%	$3.31	$4.77	$1.45	0.27%	$0.19	$1.64	$295.47	2.36	3.84%		$3.31	$3.31	
2026.25	$126.74	30.46%	$3.36	$4.83	$1.47	0.27%	$0.19	$1.66	$299.40	2.36	3.84%		$3.36	$3.36	
2026.50	$128.43	30.46%	$3.40	$4.89	$1.49	0.27%	$0.20	$1.69	$303.39	2.36	3.84%		$3.40	$3.40	
2026.75	$130.14	30.46%	$3.45	$4.96	$1.51	0.27%	$0.20	$1.71	$307.42	2.36	3.84%		$3.45	$3.45	
2027.00	$131.87	30.46%	$3.49	$5.03	$1.53	0.27%	$0.20	$1.73	$311.51	2.36	3.84%		$3.49	$3.49	
2027.25	$133.62	30.46%	$3.54	$5.09	$1.55	0.27%	$0.20	$1.75	$315.66	2.36	3.84%		$3.54	$3.54	
2027.50	$135.40	30.46%	$3.59	$5.16	$1.57	0.27%	$0.21	$1.78	$319.86	2.36	3.84%		$3.59	$3.59	
2027.75	$137.20	30.46%	$3.64	$5.23	$1.59	0.27%	$0.21	$1.80	$324.12	2.36	3.84%		$3.64	$3.64	
2028.00	$139.03	30.46%	$3.68	$5.30	$1.61	0.27%	$0.21	$1.83	$328.43	2.36	3.84%		$3.68	$3.68	
2028.25	$140.88	30.46%	$3.73	$5.37	$1.64	0.27%	$0.21	$1.85	$332.80	2.36	3.84%		$3.73	$3.73	
2028.50	$142.75	30.46%	$3.78	$5.44	$1.66	0.27%	$0.22	$1.87	$337.23	2.36	3.84%		$3.78	$3.78	
2028.75	$144.65	30.46%	$3.83	$5.51	$1.68	0.27%	$0.22	$1.90	$341.71	2.36	3.84%		$3.83	$3.83	
2029.00	$146.57	30.46%	$3.88	$5.59	$1.70	0.27%	$0.22	$1.92	$346.26	2.36	3.84%		$3.88	$3.88	
2029.25	$148.52	30.46%	$3.94	$5.66	$1.72	0.27%	$0.23	$1.95	$350.87	2.36	3.84%		$3.94	$3.94	
2029.50	$150.50	30.46%	$3.99	$5.74	$1.75	0.27%	$0.23	$1.98	$355.53	2.36	3.84%		$3.99	$3.99	
2029.75	$152.50	30.46%	$4.04	$5.81	$1.77	0.27%	$0.23	$2.00	$360.26	2.36	3.84%		$4.04	$4.04	
2030.00	$154.53	30.46%	$4.09	$5.89	$1.79	0.27%	$0.24	$2.03	$365.06	2.36	3.84%		$4.09	$4.09	
2030.25	$156.59	30.46%	$4.15	$5.97	$1.82	0.27%	$0.24	$2.06	$369.92	2.36	3.84%		$4.15	$4.15	
2030.50	$158.67	30.46%	$4.20	$6.05	$1.84	0.27%	$0.24	$2.08	$374.84	2.36	3.84%		$4.20	$4.20	
2030.75	$160.78	30.46%	$4.26	$6.13	$1.87	0.27%	$0.24	$2.11	$379.82	2.36	3.84%		$4.26	$4.26	
2031.00	$162.92	30.46%	$4.32	$6.21	$1.89	0.27%	$0.25	$2.14	$384.88	2.36	3.84%		$4.32	$4.32	
2031.25	$165.09	30.46%	$4.37	$6.29	$1.92	0.27%	$0.25	$2.17	$390.00	2.36	3.84%		$4.37	$4.37	
2031.50	$167.29	30.46%	$4.43	$6.38	$1.94	0.27%	$0.25	$2.20	$395.19	2.36	3.84%		$4.43	$4.43	
2031.75	$169.51	30.46%	$4.49	$6.46	$1.97	0.27%	$0.26	$2.23	$400.45	2.36	3.84%		$4.49	$4.49	
2032.00	$171.77	30.46%	$4.55	$6.55	$1.99	0.27%	$0.26	$2.26	$405.77	2.36	3.84%		$4.55	$4.55	
2032.25	$174.05	30.46%	$4.61	$6.63	$2.02	0.27%	$0.26	$2.29	$411.17	2.36	3.84%		$4.61	$4.61	
2032.50	$176.37	30.46%	$4.67	$6.72	$2.05	0.27%	$0.27	$2.32	$416.64	2.36	3.84%		$4.67	$4.67	
2032.75	$178.72	30.46%	$4.74	$6.81	$2.07	0.27%	$0.27	$2.35	$422.19	2.36	3.84%		$4.74	$4.74	
2033.00	$181.09	30.46%	$4.80	$6.90	$2.10	0.27%	$0.28	$2.38	$427.81	2.36	3.84%	$427.81	$4.80	$432.60	
											Internal Rate of Return			10.24%	

Schedule 4, P. 2
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RHCs
FULL DCF METHOD
Based on End of Period 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 Per Q.	Cash Fl. from Stock Trans.	Cash Fl. from Div.	Total Cash Flow
										M/B Chane				
1992	$21.59									0.00				
1993.00	$21.85	28.70%	$0.62	$0.83	$0.22	0.30%	$0.04	$0.26	$58.89	2.70	3.84%	($58.89)		($58.89)
1993.25	$22.13	28.70%	$0.60	$0.84	$0.24	0.30%	$0.04	$0.28	$59.65	2.70	3.84%		$0.60	$0.60
1993.50	$22.42	28.70%	$0.61	$0.85	$0.25	0.30%	$0.04	$0.29	$60.43	2.70	3.84%		$0.61	$0.61
1993.75	$22.71	28.70%	$0.62	$0.87	$0.25	0.30%	$0.04	$0.29	$61.21	2.70	3.84%		$0.62	$0.62
1994.00	$23.01	28.70%	$0.63	$0.88	$0.25	0.30%	$0.04	$0.30	$62.01	2.70	3.84%		$0.63	$0.63
1994.25	$23.31	28.70%	$0.63	$0.89	$0.25	0.30%	$0.04	$0.30	$62.82	2.70	3.84%		$0.63	$0.63
1994.50	$23.61	28.70%	$0.64	$0.90	$0.26	0.30%	$0.04	$0.30	$63.63	2.70	3.84%		$0.64	$0.64
1994.75	$23.92	28.70%	$0.65	$0.91	$0.26	0.30%	$0.05	$0.31	$64.46	2.70	3.84%		$0.65	$0.65
1995.00	$24.23	28.70%	$0.66	$0.92	$0.27	0.30%	$0.05	$0.31	$65.30	2.70	3.84%		$0.66	$0.66
1995.25	$24.54	28.70%	$0.67	$0.94	$0.27	0.30%	$0.05	$0.31	$66.15	2.70	3.84%		$0.67	$0.67
1995.50	$24.86	28.70%	$0.68	$0.95	$0.27	0.30%	$0.05	$0.32	$67.01	2.70	3.84%		$0.68	$0.68
1995.75	$25.19	28.70%	$0.68	$0.96	$0.28	0.30%	$0.05	$0.32	$67.88	2.70	3.84%		$0.68	$0.68
1996.00	$25.51	28.70%	$0.69	$0.97	$0.28	0.30%	$0.05	$0.33	$68.76	2.70	3.84%		$0.69	$0.69
1996.25	$25.84	28.70%	$0.70	$0.99	$0.28	0.30%	$0.05	$0.33	$69.65	2.70	3.84%		$0.70	$0.70
1996.50	$26.18	28.70%	$0.71	$1.00	$0.29	0.30%	$0.05	$0.34	$70.56	2.70	3.84%		$0.71	$0.71
1996.75	$26.52	28.70%	$0.72	$1.01	$0.29	0.30%	$0.05	$0.34	$71.48	2.70	3.84%		$0.72	$0.72
1997.00	$26.87	28.70%	$0.73	$1.02	$0.29	0.30%	$0.05	$0.34	$72.40	2.70	3.84%		$0.73	$0.73
1997.25	$27.21	28.70%	$0.74	$1.04	$0.30	0.30%	$0.05	$0.35	$73.35	2.70	3.84%		$0.74	$0.74
1997.50	$27.57	28.70%	$0.75	$1.05	$0.30	0.30%	$0.05	$0.35	$74.30	2.70	3.84%		$0.75	$0.75
1997.75	$27.93	28.70%	$0.76	$1.06	$0.31	0.30%	$0.05	$0.36	$75.26	2.70	3.84%		$0.76	$0.76
1998.00	$28.29	28.70%	$0.77	$1.08	$0.31	0.30%	$0.05	$0.36	$76.24	2.70	3.84%		$0.77	$0.77
1998.25	$28.66	28.70%	$0.78	$1.09	$0.31	0.30%	$0.05	$0.37	$77.23	2.70	3.84%		$0.78	$0.78
1998.50	$29.03	28.70%	$0.79	$1.11	$0.32	0.30%	$0.05	$0.37	$78.24	2.70	3.84%		$0.79	$0.79
1998.75	$29.41	28.70%	$0.80	$1.12	$0.32	0.30%	$0.06	$0.38	$79.26	2.70	3.84%		$0.80	$0.80
1999.00	$29.79	28.70%	$0.81	$1.14	$0.33	0.30%	$0.06	$0.38	$80.29	2.70	3.84%		$0.81	$0.81
1999.25	$30.18	28.70%	$0.82	$1.15	$0.33	0.30%	$0.06	$0.39	$81.33	2.70	3.84%		$0.82	$0.82
1999.50	$30.57	28.70%	$0.83	$1.17	$0.33	0.30%	$0.06	$0.39	$82.39	2.70	3.84%		$0.83	$0.83
1999.75	$30.97	28.70%	$0.84	$1.18	$0.34	0.30%	$0.06	$0.40	$83.46	2.70	3.84%		$0.84	$0.84
2000.00	$31.37	28.70%	$0.85	$1.20	$0.34	0.30%	$0.06	$0.40	$84.54	2.70	3.84%		$0.85	$0.85
2000.25	$31.78	28.70%	$0.86	$1.21	$0.35	0.30%	$0.06	$0.41	$85.64	2.70	3.84%		$0.86	$0.86
2000.50	$32.19	28.70%	$0.87	$1.23	$0.35	0.30%	$0.06	$0.41	$86.75	2.70	3.84%		$0.87	$0.87
2000.75	$32.61	28.70%	$0.89	$1.24	$0.36	0.30%	$0.06	$0.42	$87.88	2.70	3.84%		$0.89	$0.89
2001.00	$33.03	28.70%	$0.90	$1.26	$0.36	0.30%	$0.06	$0.42	$89.02	2.70	3.84%		$0.90	$0.90
2001.25	$33.46	28.70%	$0.91	$1.28	$0.37	0.30%	$0.06	$0.43	$90.18	2.70	3.84%		$0.91	$0.91
2001.50	$33.90	28.70%	$0.92	$1.29	$0.37	0.30%	$0.06	$0.43	$91.35	2.70	3.84%		$0.92	$0.92
2001.75	$34.34	28.70%	$0.93	$1.31	$0.38	0.30%	$0.06	$0.44	$92.54	2.70	3.84%		$0.93	$0.93
2002.00	$34.78	28.70%	$0.95	$1.33	$0.38	0.30%	$0.07	$0.45	$93.74	2.70	3.84%		$0.95	$0.95
2002.25	$35.24	28.70%	$0.96	$1.34	$0.39	0.30%	$0.07	$0.45	$94.96	2.70	3.84%		$0.96	$0.96
2002.50	$35.69	28.70%	$0.97	$1.36	$0.39	0.30%	$0.07	$0.46	$96.20	2.70	3.84%		$0.97	$0.97
2002.75	$36.16	28.70%	$0.98	$1.38	$0.40	0.30%	$0.07	$0.46	$97.45	2.70	3.84%		$0.98	$0.98
2003.00	$36.63	28.70%	$1.00	$1.40	$0.40	0.30%	$0.07	$0.47	$98.71	2.70	3.84%		$1.00	$1.00
2003.25	$37.10	28.70%	$1.01	$1.41	$0.41	0.30%	$0.07	$0.48	$100.00	2.70	3.84%		$1.01	$1.01
2003.50	$37.59	28.70%	$1.02	$1.43	$0.41	0.30%	$0.07	$0.48	$101.30	2.70	3.84%		$1.02	$1.02
2003.75	$38.07	28.70%	$1.03	$1.45	$0.42	0.30%	$0.07	$0.49	$102.61	2.70	3.84%		$1.03	$1.03
2004.00	$38.57	28.70%	$1.05	$1.47	$0.42	0.30%	$0.07	$0.49	$103.95	2.70	3.84%		$1.05	$1.05
2004.25	$39.07	28.70%	$1.06	$1.49	$0.43	0.30%	$0.07	$0.50	$105.30	2.70	3.84%		$1.06	$1.06
2004.50	$39.58	28.70%	$1.08	$1.51	$0.43	0.30%	$0.07	$0.51	$106.67	2.70	3.84%		$1.08	$1.08

2004.75	$40.09	28.70%	$1.09	$1.53	$0.44	0.30%	$0.08	$0.51	$108.05	2.70	3.84%	$1.09	$1.09	Schedule 4, P. 2
2005.00	$40.61	28.70%	$1.10	$1.55	$0.44	0.30%	$0.08	$0.52	$109.46	2.70	3.84%	$1.10	$1.10	b
2005.25	$41.14	28.70%	$1.12	$1.57	$0.45	0.30%	$0.08	$0.53	$110.88	2.70	3.84%	$1.12	$1.12	
2005.50	$41.68	28.70%	$1.13	$1.59	$0.46	0.30%	$0.08	$0.53	$112.32	2.70	3.84%	$1.13	$1.13	
2005.75	$42.22	28.70%	$1.15	$1.61	$0.46	0.30%	$0.08	$0.54	$113.78	2.70	3.84%	$1.15	$1.15	
2006.00	$42.77	28.70%	$1.16	$1.63	$0.47	0.30%	$0.08	$0.55	$115.26	2.70	3.84%	$1.16	$1.16	
2006.25	$43.32	28.70%	$1.18	$1.65	$0.47	0.30%	$0.08	$0.56	$116.76	2.70	3.84%	$1.18	$1.18	
2006.50	$43.89	28.70%	$1.19	$1.67	$0.48	0.30%	$0.08	$0.56	$118.28	2.70	3.84%	$1.19	$1.19	
2006.75	$44.46	28.70%	$1.21	$1.69	$0.49	0.30%	$0.08	$0.57	$119.82	2.70	3.84%	$1.21	$1.21	
2007.00	$45.04	28.70%	$1.22	$1.72	$0.49	0.30%	$0.09	$0.58	$121.37	2.70	3.84%	$1.22	$1.22	
2007.25	$45.62	28.70%	$1.24	$1.74	$0.50	0.30%	$0.09	$0.59	$122.95	2.70	3.84%	$1.24	$1.24	
2007.50	$46.21	28.70%	$1.26	$1.76	$0.51	0.30%	$0.09	$0.59	$124.55	2.70	3.84%	$1.26	$1.26	
2007.75	$46.81	28.70%	$1.27	$1.78	$0.51	0.30%	$0.09	$0.60	$126.17	2.70	3.84%	$1.27	$1.27	
2008.00	$47.42	28.70%	$1.29	$1.81	$0.52	0.30%	$0.09	$0.61	$127.81	2.70	3.84%	$1.29	$1.29	
2008.25	$48.04	28.70%	$1.31	$1.83	$0.53	0.30%	$0.09	$0.62	$129.47	2.70	3.84%	$1.31	$1.31	
2008.50	$48.66	28.70%	$1.32	$1.85	$0.53	0.30%	$0.09	$0.62	$131.15	2.70	3.84%	$1.32	$1.32	
2008.75	$49.30	28.70%	$1.34	$1.88	$0.54	0.30%	$0.09	$0.63	$132.86	2.70	3.84%	$1.34	$1.34	
2009.00	$49.94	28.70%	$1.36	$1.90	$0.55	0.30%	$0.09	$0.64	$134.59	2.70	3.84%	$1.36	$1.36	
2009.25	$50.59	28.70%	$1.37	$1.93	$0.55	0.30%	$0.10	$0.65	$136.33	2.70	3.84%	$1.37	$1.37	
2009.50	$51.24	28.70%	$1.39	$1.95	$0.56	0.30%	$0.10	$0.66	$138.11	2.70	3.84%	$1.39	$1.39	
2009.75	$51.91	28.70%	$1.41	$1.98	$0.57	0.30%	$0.10	$0.67	$139.90	2.70	3.84%	$1.41	$1.41	
2010.00	$52.59	28.70%	$1.43	$2.00	$0.58	0.30%	$0.10	$0.67	$141.72	2.70	3.84%	$1.43	$1.43	
2010.25	$53.27	28.70%	$1.45	$2.03	$0.58	0.30%	$0.10	$0.68	$143.56	2.70	3.84%	$1.45	$1.45	
2010.50	$53.96	28.70%	$1.47	$2.06	$0.59	0.30%	$0.10	$0.69	$145.43	2.70	3.84%	$1.47	$1.47	
2010.75	$54.66	28.70%	$1.49	$2.08	$0.60	0.30%	$0.10	$0.70	$147.32	2.70	3.84%	$1.49	$1.49	
2011.00	$55.37	28.70%	$1.50	$2.11	$0.61	0.30%	$0.10	$0.71	$149.23	2.70	3.84%	$1.50	$1.50	
2011.25	$56.09	28.70%	$1.52	$2.14	$0.61	0.30%	$0.11	$0.72	$151.17	2.70	3.84%	$1.52	$1.52	
2011.50	$56.82	28.70%	$1.54	$2.17	$0.62	0.30%	$0.11	$0.73	$153.14	2.70	3.84%	$1.54	$1.54	
2011.75	$57.56	28.70%	$1.56	$2.19	$0.63	0.30%	$0.11	$0.74	$155.13	2.70	3.84%	$1.56	$1.56	
2012.00	$58.31	28.70%	$1.58	$2.22	$0.64	0.30%	$0.11	$0.75	$157.15	2.70	3.84%	$1.58	$1.58	
2012.25	$59.07	28.70%	$1.61	$2.25	$0.65	0.30%	$0.11	$0.76	$159.19	2.70	3.84%	$1.61	$1.61	
2012.50	$59.83	28.70%	$1.63	$2.28	$0.65	0.30%	$0.11	$0.77	$161.26	2.70	3.84%	$1.63	$1.63	
2012.75	$60.61	28.70%	$1.65	$2.31	$0.66	0.30%	$0.11	$0.78	$163.35	2.70	3.84%	$1.65	$1.65	
2013.00	$61.40	28.70%	$1.67	$2.34	$0.67	0.30%	$0.12	$0.79	$165.48	2.70	3.84%	$1.67	$1.67	
2013.25	$62.20	28.70%	$1.69	$2.37	$0.68	0.30%	$0.12	$0.80	$167.63	2.70	3.84%	$1.69	$1.69	
2013.50	$63.01	28.70%	$1.71	$2.40	$0.69	0.30%	$0.12	$0.81	$169.81	2.70	3.84%	$1.71	$1.71	
2013.75	$63.83	28.70%	$1.73	$2.43	$0.70	0.30%	$0.12	$0.82	$172.02	2.70	3.84%	$1.73	$1.73	
2014.00	$64.66	28.70%	$1.76	$2.46	$0.71	0.30%	$0.12	$0.83	$174.25	2.70	3.84%	$1.76	$1.76	
2014.25	$65.50	28.70%	$1.78	$2.50	$0.72	0.30%	$0.12	$0.84	$176.52	2.70	3.84%	$1.78	$1.78	
2014.50	$66.35	28.70%	$1.80	$2.53	$0.73	0.30%	$0.13	$0.85	$178.81	2.70	3.84%	$1.80	$1.80	
2014.75	$67.21	28.70%	$1.83	$2.56	$0.74	0.30%	$0.13	$0.86	$181.14	2.70	3.84%	$1.83	$1.83	
2015.00	$68.08	28.70%	$1.85	$2.59	$0.74	0.30%	$0.13	$0.87	$183.49	2.70	3.84%	$1.85	$1.85	
2015.25	$68.97	28.70%	$1.87	$2.63	$0.75	0.30%	$0.13	$0.89	$185.88	2.70	3.84%	$1.87	$1.87	
2015.50	$69.87	28.70%	$1.90	$2.66	$0.76	0.30%	$0.13	$0.90	$188.29	2.70	3.84%	$1.90	$1.90	
2015.75	$70.77	28.70%	$1.92	$2.70	$0.77	0.30%	$0.13	$0.91	$190.74	2.70	3.84%	$1.92	$1.92	
2016.00	$71.69	28.70%	$1.95	$2.73	$0.78	0.30%	$0.14	$0.92	$193.22	2.70	3.84%	$1.95	$1.95	
2016.25	$72.63	28.70%	$1.97	$2.77	$0.79	0.30%	$0.14	$0.93	$195.73	2.70	3.84%	$1.97	$1.97	
2016.50	$73.57	28.70%	$2.00	$2.80	$0.80	0.30%	$0.14	$0.94	$198.27	2.70	3.84%	$2.00	$2.00	
2016.75	$74.53	28.70%	$2.03	$2.84	$0.82	0.30%	$0.14	$0.96	$200.85	2.70	3.84%	$2.03	$2.03	
2017.00	$75.49	28.70%	$2.05	$2.88	$0.83	0.30%	$0.14	$0.97	$203.46	2.70	3.84%	$2.05	$2.05	
2017.25	$76.48	28.70%	$2.08	$2.91	$0.84	0.30%	$0.14	$0.98	$206.11	2.70	3.84%	$2.08	$2.08	
2017.50	$77.47	28.70%	$2.11	$2.95	$0.85	0.30%	$0.15	$0.99	$208.79	2.70	3.84%	$2.11	$2.11	
2017.75	$78.48	28.70%	$2.13	$2.99	$0.86	0.30%	$0.15	$1.01	$211.50	2.70	3.84%	$2.13	$2.13	
2018.00	$79.50	28.70%	$2.16	$3.03	$0.87	0.30%	$0.15	$1.02	$214.25	2.70	3.84%	$2.16	$2.16	
2018.25	$80.53	28.70%	$2.19	$3.07	$0.88	0.30%	$0.15	$1.03	$217.04	2.70	3.84%	$2.19	$2.19	
2018.50	$81.58	28.70%	$2.22	$3.11	$0.89	0.30%	$0.15	$1.05	$219.86	2.70	3.84%	$2.22	$2.22	
2018.75	$82.64	28.70%	$2.25	$3.15	$0.90	0.30%	$0.16	$1.06	$222.71	2.70	3.84%	$2.25	$2.25	
2019.00	$83.71	28.70%	$2.27	$3.19	$0.92	0.30%	$0.16	$1.07	$225.61	2.70	3.84%	$2.27	$2.27	

2019.25	$84.80	28.70%	$2.30	$3.23	$0.93	0.30%	$0.16	$1.09	$228.54	2.70	3.84%		$2.30	$2.30	Schedule 4, P. 2
2019.50	$85.90	28.70%	$2.33	$3.27	$0.94	0.30%	$0.16	$1.10	$231.51	2.70	3.84%		$2.33	$2.33	c
2019.75	$87.02	28.70%	$2.36	$3.32	$0.95	0.30%	$0.16	$1.12	$234.52	2.70	3.84%		$2.36	$2.36	
2020.00	$88.15	28.70%	$2.40	$3.36	$0.96	0.30%	$0.17	$1.13	$237.57	2.70	3.84%		$2.40	$2.40	
2020.25	$89.30	28.70%	$2.43	$3.40	$0.98	0.30%	$0.17	$1.15	$240.66	2.70	3.84%		$2.43	$2.43	
2020.50	$90.46	28.70%	$2.46	$3.45	$0.99	0.30%	$0.17	$1.16	$243.79	2.70	3.84%		$2.46	$2.46	
2020.75	$91.63	28.70%	$2.49	$3.49	$1.00	0.30%	$0.17	$1.18	$246.96	2.70	3.84%		$2.49	$2.49	
2021.00	$92.82	28.70%	$2.52	$3.54	$1.02	0.30%	$0.18	$1.19	$250.17	2.70	3.84%		$2.52	$2.52	
2021.25	$94.03	28.70%	$2.56	$3.58	$1.03	0.30%	$0.18	$1.21	$253.42	2.70	3.84%		$2.56	$2.56	
2021.50	$95.25	28.70%	$2.59	$3.63	$1.04	0.30%	$0.18	$1.22	$256.71	2.70	3.84%		$2.59	$2.59	
2021.75	$96.49	28.70%	$2.62	$3.68	$1.06	0.30%	$0.18	$1.24	$260.05	2.70	3.84%		$2.62	$2.62	
2022.00	$97.75	28.70%	$2.66	$3.73	$1.07	0.30%	$0.18	$1.25	$263.43	2.70	3.84%		$2.66	$2.66	
2022.25	$99.02	28.70%	$2.69	$3.77	$1.08	0.30%	$0.19	$1.27	$266.85	2.70	3.84%		$2.69	$2.69	
2022.50	$100.30	28.70%	$2.73	$3.82	$1.10	0.30%	$0.19	$1.29	$270.32	2.70	3.84%		$2.73	$2.73	
2022.75	$101.61	28.70%	$2.76	$3.87	$1.11	0.30%	$0.19	$1.30	$273.84	2.70	3.84%		$2.76	$2.76	
2023.00	$102.93	28.70%	$2.80	$3.92	$1.13	0.30%	$0.19	$1.32	$277.40	2.70	3.84%		$2.80	$2.80	
2023.25	$104.27	28.70%	$2.83	$3.97	$1.14	0.30%	$0.20	$1.34	$281.00	2.70	3.84%		$2.83	$2.83	
2023.50	$105.62	28.70%	$2.87	$4.03	$1.16	0.30%	$0.20	$1.36	$284.66	2.70	3.84%		$2.87	$2.87	
2023.75	$106.99	28.70%	$2.91	$4.08	$1.17	0.30%	$0.20	$1.37	$288.36	2.70	3.84%		$2.91	$2.91	
2024.00	$108.38	28.70%	$2.95	$4.13	$1.19	0.30%	$0.21	$1.39	$292.10	2.70	3.84%		$2.95	$2.95	
2024.25	$109.79	28.70%	$2.98	$4.18	$1.20	0.30%	$0.21	$1.41	$295.90	2.70	3.84%		$2.98	$2.98	
2024.50	$111.22	28.70%	$3.02	$4.24	$1.22	0.30%	$0.21	$1.43	$299.75	2.70	3.84%		$3.02	$3.02	
2024.75	$112.67	28.70%	$3.06	$4.29	$1.23	0.30%	$0.21	$1.45	$303.64	2.70	3.84%		$3.06	$3.06	
2025.00	$114.13	28.70%	$3.10	$4.35	$1.25	0.30%	$0.22	$1.46	$307.59	2.70	3.84%		$3.10	$3.10	
2025.25	$115.61	28.70%	$3.14	$4.41	$1.26	0.30%	$0.22	$1.48	$311.59	2.70	3.84%		$3.14	$3.14	
2025.50	$117.12	28.70%	$3.18	$4.46	$1.28	0.30%	$0.22	$1.50	$315.64	2.70	3.84%		$3.18	$3.18	
2025.75	$118.64	28.70%	$3.22	$4.52	$1.30	0.30%	$0.22	$1.52	$319.74	2.70	3.84%		$3.22	$3.22	
2026.00	$120.18	28.70%	$3.27	$4.58	$1.31	0.30%	$0.23	$1.54	$323.90	2.70	3.84%		$3.27	$3.27	
2026.25	$121.74	28.70%	$3.31	$4.64	$1.33	0.30%	$0.23	$1.56	$328.11	2.70	3.84%		$3.31	$3.31	
2026.50	$123.33	28.70%	$3.35	$4.70	$1.35	0.30%	$0.23	$1.58	$332.37	2.70	3.84%		$3.35	$3.35	
2026.75	$124.93	28.70%	$3.39	$4.76	$1.37	0.30%	$0.24	$1.60	$336.70	2.70	3.84%		$3.39	$3.39	
2027.00	$126.55	28.70%	$3.44	$4.82	$1.38	0.30%	$0.24	$1.62	$341.07	2.70	3.84%		$3.44	$3.44	
2027.25	$128.20	28.70%	$3.48	$4.89	$1.40	0.30%	$0.24	$1.65	$345.51	2.70	3.84%		$3.48	$3.48	
2027.50	$129.87	28.70%	$3.53	$4.95	$1.42	0.30%	$0.25	$1.67	$350.00	2.70	3.84%		$3.53	$3.53	
2027.75	$131.55	28.70%	$3.57	$5.01	$1.44	0.30%	$0.25	$1.69	$354.55	2.70	3.84%		$3.57	$3.57	
2028.00	$133.26	28.70%	$3.62	$5.08	$1.46	0.30%	$0.25	$1.71	$359.16	2.70	3.84%		$3.62	$3.62	
2028.25	$135.00	28.70%	$3.67	$5.15	$1.48	0.30%	$0.26	$1.73	$363.82	2.70	3.84%		$3.67	$3.67	
2028.50	$136.75	28.70%	$3.72	$5.21	$1.50	0.30%	$0.26	$1.75	$368.55	2.70	3.84%		$3.72	$3.72	
2028.75	$138.53	28.70%	$3.76	$5.28	$1.52	0.30%	$0.26	$1.78	$373.34	2.70	3.84%		$3.76	$3.76	
2029.00	$140.33	28.70%	$3.81	$5.35	$1.54	0.30%	$0.27	$1.80	$378.20	2.70	3.84%		$3.81	$3.81	
2029.25	$142.15	28.70%	$3.86	$5.42	$1.56	0.30%	$0.27	$1.82	$383.11	2.70	3.84%		$3.86	$3.86	
2029.50	$144.00	28.70%	$3.91	$5.49	$1.58	0.30%	$0.27	$1.85	$388.09	2.70	3.84%		$3.91	$3.91	
2029.75	$145.87	28.70%	$3.96	$5.56	$1.60	0.30%	$0.28	$1.87	$393.14	2.70	3.84%		$3.96	$3.96	
2030.00	$147.77	28.70%	$4.02	$5.63	$1.62	0.30%	$0.28	$1.90	$398.25	2.70	3.84%		$4.02	$4.02	
2030.25	$149.69	28.70%	$4.07	$5.71	$1.64	0.30%	$0.28	$1.92	$403.43	2.70	3.84%		$4.07	$4.07	
2030.50	$151.64	28.70%	$4.12	$5.78	$1.66	0.30%	$0.29	$1.95	$408.67	2.70	3.84%		$4.12	$4.12	
2030.75	$153.61	28.70%	$4.17	$5.85	$1.68	0.30%	$0.29	$1.97	$413.98	2.70	3.84%		$4.17	$4.17	
2031.00	$155.60	28.70%	$4.23	$5.93	$1.70	0.30%	$0.29	$2.00	$419.36	2.70	3.84%		$4.23	$4.23	
2031.25	$157.63	28.70%	$4.28	$6.01	$1.72	0.30%	$0.30	$2.02	$424.81	2.70	3.84%		$4.28	$4.28	
2031.50	$159.68	28.70%	$4.34	$6.09	$1.75	0.30%	$0.30	$2.05	$430.34	2.70	3.84%		$4.34	$4.34	
2031.75	$161.75	28.70%	$4.40	$6.17	$1.77	0.30%	$0.31	$2.08	$435.93	2.70	3.84%		$4.40	$4.40	
2032.00	$163.85	28.70%	$4.45	$6.25	$1.79	0.30%	$0.31	$2.10	$441.60	2.70	3.84%		$4.45	$4.45	
2032.25	$165.98	28.70%	$4.51	$6.33	$1.82	0.30%	$0.31	$2.13	$447.34	2.70	3.84%		$4.51	$4.51	
2032.50	$168.14	28.70%	$4.57	$6.41	$1.84	0.30%	$0.32	$2.16	$453.15	2.70	3.84%		$4.57	$4.57	
2032.75	$170.33	28.70%	$4.63	$6.49	$1.86	0.30%	$0.32	$2.19	$459.04	2.70	3.84%		$4.63	$4.63	
2033.00	$172.54	28.70%	$4.69	$6.58	$1.89	0.30%	$0.33	$2.21	$465.01	2.70	3.84%	$465.01	$4.69	$469.70	
											Internal Rate of Return			9.61%	

Schedule 4, P. 3 a

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 Trams.	Cash Fl. from Div.	Total Cash Flow
1992														
1993	$18.00		$2.68							1.93	3.38%			
1993.25	$18.22	33.56%	$0.41	$0.61	$0.21	0.22%	$0.02	$0.22	$35.17	1.93	3.38%	($35.17)		($35.17)
1993.5	$18.45	33.56%	$0.41	$0.62	$0.21	0.24%	$0.02	$0.23	$35.61	1.93	3.38%		$0.41	$0.41
1993.75	$18.68	33.56%	$0.42	$0.63	$0.21	0.24%	$0.02	$0.23	$36.06	1.93	3.38%		$0.42	$0.42
1994	$18.92	33.56%	$0.42	$0.63	$0.21	0.24%	$0.02	$0.23	$36.51	1.93	3.38%		$0.42	$0.42
1994.25	$19.16	33.56%	$0.43	$0.64	$0.22	0.24%	$0.02	$0.24	$36.97	1.93	3.38%		$0.43	$0.43
1994.5	$19.40	33.56%	$0.43	$0.65	$0.22	0.24%	$0.02	$0.24	$37.43	1.93	3.38%		$0.43	$0.43
1994.75	$19.64	33.56%	$0.44	$0.66	$0.22	0.24%	$0.02	$0.24	$37.90	1.93	3.38%		$0.44	$0.44
1995	$19.89	33.56%	$0.44	$0.67	$0.22	0.24%	$0.02	$0.25	$38.38	1.93	3.38%		$0.44	$0.44
1995.25	$20.14	33.56%	$0.45	$0.68	$0.23	0.24%	$0.02	$0.25	$38.86	1.93	3.38%		$0.45	$0.45
1995.5	$20.39	33.56%	$0.45	$0.68	$0.23	0.24%	$0.02	$0.25	$39.35	1.93	3.38%		$0.45	$0.45
1995.75	$20.65	33.56%	$0.46	$0.69	$0.23	0.24%	$0.02	$0.26	$39.84	1.93	3.38%		$0.46	$0.46
1996	$20.91	33.56%	$0.47	$0.70	$0.24	0.24%	$0.02	$0.26	$40.34	1.93	3.38%		$0.47	$0.47
1996.25	$21.17	33.56%	$0.47	$0.71	$0.24	0.24%	$0.02	$0.26	$40.85	1.93	3.38%		$0.47	$0.47
1996.5	$21.44	33.56%	$0.48	$0.72	$0.24	0.24%	$0.02	$0.27	$41.36	1.93	3.38%		$0.48	$0.48
1996.75	$21.71	33.56%	$0.48	$0.73	$0.24	0.24%	$0.03	$0.27	$41.88	1.93	3.38%		$0.48	$0.48
1997	$21.98	33.56%	$0.49	$0.74	$0.25	0.24%	$0.03	$0.27	$42.41	1.93	3.38%		$0.49	$0.49
1997.25	$22.25	33.56%	$0.50	$0.75	$0.25	0.24%	$0.03	$0.28	$42.94	1.93	3.38%		$0.50	$0.50
1997.5	$22.53	33.56%	$0.50	$0.76	$0.25	0.24%	$0.03	$0.28	$43.48	1.93	3.38%		$0.50	$0.50
1997.75	$22.82	33.56%	$0.51	$0.77	$0.26	0.24%	$0.03	$0.28	$44.03	1.93	3.38%		$0.51	$0.51
1998	$23.10	33.56%	$0.51	$0.77	$0.26	0.24%	$0.03	$0.29	$44.58	1.93	3.38%		$0.51	$0.51
1998.25	$23.39	33.56%	$0.52	$0.78	$0.26	0.24%	$0.03	$0.29	$45.14	1.93	3.38%		$0.52	$0.52
1998.5	$23.69	33.56%	$0.53	$0.79	$0.27	0.24%	$0.03	$0.29	$45.71	1.93	3.38%		$0.53	$0.53
1998.75	$23.99	33.56%	$0.53	$0.80	$0.27	0.24%	$0.03	$0.30	$46.28	1.93	3.38%		$0.53	$0.53
1999	$24.29	33.56%	$0.54	$0.81	$0.27	0.24%	$0.03	$0.30	$46.87	1.93	3.38%		$0.54	$0.54
1999.25	$24.59	33.56%	$0.55	$0.82	$0.28	0.24%	$0.03	$0.31	$47.46	1.93	3.38%		$0.55	$0.55
1999.5	$24.90	33.56%	$0.55	$0.84	$0.28	0.24%	$0.03	$0.31	$48.05	1.93	3.38%		$0.55	$0.55
1999.75	$25.21	33.56%	$0.56	$0.85	$0.28	0.24%	$0.03	$0.31	$48.66	1.93	3.38%		$0.56	$0.56
2000	$25.53	33.56%	$0.57	$0.86	$0.29	0.24%	$0.03	$0.32	$49.27	1.93	3.38%		$0.57	$0.57
2000.25	$25.85	33.56%	$0.58	$0.87	$0.29	0.24%	$0.03	$0.32	$49.89	1.93	3.38%		$0.58	$0.58
2000.5	$26.18	33.56%	$0.58	$0.88	$0.29	0.24%	$0.03	$0.32	$50.51	1.93	3.38%		$0.58	$0.58
2000.75	$26.51	33.56%	$0.59	$0.89	$0.30	0.24%	$0.03	$0.33	$51.15	1.93	3.38%		$0.59	$0.59
2001	$26.84	33.56%	$0.60	$0.90	$0.30	0.24%	$0.03	$0.33	$51.79	1.93	3.38%		$0.60	$0.60
2001.25	$27.18	33.56%	$0.61	$0.91	$0.31	0.24%	$0.03	$0.34	$52.44	1.93	3.38%		$0.61	$0.61
2001.5	$27.52	33.56%	$0.61	$0.92	$0.31	0.24%	$0.03	$0.34	$53.10	1.93	3.38%		$0.61	$0.61
2001.75	$27.86	33.56%	$0.62	$0.93	$0.31	0.24%	$0.03	$0.35	$53.77	1.93	3.38%		$0.62	$0.62
2002	$28.21	33.56%	$0.63	$0.95	$0.32	0.24%	$0.03	$0.35	$54.44	1.93	3.38%		$0.63	$0.63
2002.25	$28.57	33.56%	$0.64	$0.96	$0.32	0.24%	$0.03	$0.35	$55.13	1.93	3.38%		$0.64	$0.64
2002.5	$28.93	33.56%	$0.64	$0.97	$0.33	0.24%	$0.03	$0.36	$55.82	1.93	3.38%		$0.64	$0.64
2002.75	$29.29	33.56%	$0.65	$0.98	$0.33	0.24%	$0.03	$0.36	$56.52	1.93	3.38%		$0.65	$0.65
2003	$29.66	33.56%	$0.66	$0.99	$0.33	0.24%	$0.03	$0.37	$57.23	1.93	3.38%		$0.66	$0.66
2003.25	$30.03	33.56%	$0.67	$1.01	$0.34	0.24%	$0.03	$0.37	$57.95	1.93	3.38%		$0.67	$0.67
2003.5	$30.41	33.56%	$0.68	$1.02	$0.34	0.24%	$0.04	$0.38	$58.68	1.93	3.38%		$0.68	$0.68
2003.75	$30.79	33.56%	$0.69	$1.03	$0.35	0.24%	$0.04	$0.38	$59.42	1.93	3.38%		$0.69	$0.69
2004	$31.18	33.56%	$0.69	$1.05	$0.35	0.24%	$0.04	$0.39	$60.16	1.93	3.38%		$0.69	$0.69
2004.25	$31.57	33.56%	$0.70	$1.06	$0.36	0.24%	$0.04	$0.39	$60.92	1.93	3.38%		$0.70	$0.70
2004.5	$31.97	33.56%	$0.71	$1.07	$0.36	0.24%	$0.04	$0.40	$61.68	1.93	3.38%		$0.71	$0.71
2004.75	$32.37	33.56%	$0.72	$1.09	$0.36	0.24%	$0.04	$0.40	$62.46	1.93	3.38%		$0.72	$0.72

2005	$32.77	33.56%	$0.73	$1.10	$0.37	0.24%	$0.04	$0.41	$63.24	1.93	3.38%		$0.73	$0.73 Schedule 4, P. 3
2005.25	$33.19	33.56%	$0.74	$1.11	$0.37	0.24%	$0.04	$0.41	$64.04	1.93	3.38%		$0.74	$0.74 b
2005.5	$33.60	33.56%	$0.75	$1.13	$0.38	0.24%	$0.04	$0.42	$64.84	1.93	3.38%		$0.75	$0.75
2005.75	$34.02	33.56%	$0.76	$1.14	$0.38	0.24%	$0.04	$0.42	$65.66	1.93	3.38%		$0.76	$0.76
2006	$34.45	33.56%	$0.77	$1.16	$0.39	0.24%	$0.04	$0.43	$66.48	1.93	3.38%		$0.77	$0.77
2006.25	$34.89	33.56%	$0.78	$1.17	$0.39	0.24%	$0.04	$0.43	$67.32	1.93	3.38%		$0.78	$0.78
2006.5	$35.32	33.56%	$0.79	$1.18	$0.40	0.24%	$0.04	$0.44	$68.16	1.93	3.38%		$0.79	$0.79
2006.75	$35.77	33.56%	$0.80	$1.20	$0.40	0.24%	$0.04	$0.44	$69.02	1.93	3.38%		$0.80	$0.80
2007	$36.22	33.56%	$0.81	$1.21	$0.41	0.24%	$0.04	$0.45	$69.89	1.93	3.38%		$0.81	$0.81
2007.25	$36.67	33.56%	$0.82	$1.23	$0.41	0.24%	$0.04	$0.46	$70.77	1.93	3.38%		$0.82	$0.82
2007.5	$37.13	33.56%	$0.83	$1.25	$0.42	0.24%	$0.04	$0.46	$71.65	1.93	3.38%		$0.83	$0.83
2007.75	$37.60	33.56%	$0.84	$1.26	$0.42	0.24%	$0.04	$0.47	$72.55	1.93	3.38%		$0.84	$0.84
2008	$38.07	33.56%	$0.85	$1.28	$0.43	0.24%	$0.04	$0.47	$73.47	1.93	3.38%		$0.85	$0.85
2008.25	$38.55	33.56%	$0.86	$1.29	$0.43	0.24%	$0.04	$0.48	$74.39	1.93	3.38%		$0.86	$0.86
2008.5	$39.03	33.56%	$0.87	$1.31	$0.44	0.24%	$0.05	$0.48	$75.32	1.93	3.38%		$0.87	$0.87
2008.75	$39.53	33.56%	$0.88	$1.33	$0.44	0.24%	$0.05	$0.49	$76.27	1.93	3.38%		$0.88	$0.88
2009	$40.02	33.56%	$0.89	$1.34	$0.45	0.24%	$0.05	$0.50	$77.23	1.93	3.38%		$0.89	$0.89
2009.25	$40.52	33.56%	$0.90	$1.36	$0.46	0.24%	$0.05	$0.50	$78.20	1.93	3.38%		$0.90	$0.90
2009.5	$41.03	33.56%	$0.91	$1.38	$0.46	0.24%	$0.05	$0.51	$79.18	1.93	3.38%		$0.91	$0.91
2009.75	$41.55	33.56%	$0.93	$1.39	$0.47	0.24%	$0.05	$0.52	$80.18	1.93	3.38%		$0.93	$0.93
2010	$42.07	33.56%	$0.94	$1.41	$0.47	0.24%	$0.05	$0.52	$81.18	1.93	3.38%		$0.94	$0.94
2010.25	$42.60	33.56%	$0.95	$1.43	$0.48	0.24%	$0.05	$0.53	$82.20	1.93	3.38%		$0.95	$0.95
2010.5	$43.14	33.56%	$0.96	$1.45	$0.49	0.24%	$0.05	$0.54	$83.24	1.93	3.38%		$0.96	$0.96
2010.75	$43.68	33.56%	$0.97	$1.47	$0.49	0.24%	$0.05	$0.54	$84.28	1.93	3.38%		$0.97	$0.97
2011	$44.23	33.56%	$0.99	$1.48	$0.50	0.24%	$0.05	$0.55	$85.34	1.93	3.38%		$0.99	$0.99
2011.25	$44.78	33.56%	$1.00	$1.50	$0.50	0.24%	$0.05	$0.56	$86.41	1.93	3.38%		$1.00	$1.00
2011.5	$45.34	33.56%	$1.01	$1.52	$0.51	0.24%	$0.05	$0.56	$87.50	1.93	3.38%		$1.01	$1.01
2011.75	$45.91	33.56%	$1.02	$1.54	$0.52	0.24%	$0.05	$0.57	$88.60	1.93	3.38%		$1.02	$1.02
2012	$46.49	33.56%	$1.04	$1.56	$0.52	0.24%	$0.05	$0.58	$89.71	1.93	3.38%		$1.04	$1.04
2012.25	$47.08	33.56%	$1.05	$1.58	$0.53	0.24%	$0.05	$0.58	$90.84	1.93	3.38%		$1.05	$1.05
2012.5	$47.67	33.56%	$1.06	$1.60	$0.54	0.24%	$0.05	$0.59	$91.98	1.93	3.38%		$1.06	$1.06
2012.75	$48.27	33.56%	$1.08	$1.62	$0.54	0.24%	$0.06	$0.60	$93.14	1.93	3.38%		$1.08	$1.08
2013	$48.87	33.56%	$1.09	$1.64	$0.55	0.24%	$0.06	$0.61	$94.31	1.93	3.38%		$1.09	$1.09
2013.25	$49.49	33.56%	$1.10	$1.66	$0.56	0.24%	$0.06	$0.61	$95.49	1.93	3.38%		$1.10	$1.10
2013.5	$50.11	33.56%	$1.12	$1.68	$0.56	0.24%	$0.06	$0.62	$96.69	1.93	3.38%		$1.12	$1.12
2013.75	$50.74	33.56%	$1.13	$1.70	$0.57	0.24%	$0.06	$0.63	$97.91	1.93	3.38%		$1.13	$1.13
2014	$51.38	33.56%	$1.15	$1.72	$0.58	0.24%	$0.06	$0.64	$99.14	1.93	3.38%		$1.15	$1.15
2014.25	$52.02	33.56%	$1.16	$1.74	$0.59	0.24%	$0.06	$0.65	$100.38	1.93	3.38%		$1.16	$1.16
2014.5	$52.67	33.56%	$1.17	$1.77	$0.59	0.24%	$0.06	$0.65	$101.65	1.93	3.38%		$1.17	$1.17
2014.75	$53.34	33.56%	$1.19	$1.79	$0.60	0.24%	$0.06	$0.66	$102.92	1.93	3.38%		$1.19	$1.19
2015	$54.01	33.56%	$1.20	$1.81	$0.61	0.24%	$0.06	$0.67	$104.22	1.93	3.38%		$1.20	$1.20
2015.25	$54.69	33.56%	$1.22	$1.83	$0.62	0.24%	$0.06	$0.68	$105.53	1.93	3.38%		$1.22	$1.22
2015.5	$55.37	33.56%	$1.23	$1.86	$0.62	0.24%	$0.06	$0.69	$106.85	1.93	3.38%		$1.23	$1.23
2015.75	$56.07	33.56%	$1.25	$1.88	$0.63	0.24%	$0.06	$0.70	$108.19	1.93	3.38%		$1.25	$1.25
2016	$56.77	33.56%	$1.27	$1.90	$0.64	0.24%	$0.07	$0.70	$109.55	1.93	3.38%		$1.27	$1.27
2016.25	$57.49	33.56%	$1.28	$1.93	$0.65	0.24%	$0.07	$0.71	$110.93	1.93	3.38%		$1.28	$1.28
2016.5	$58.21	33.56%	$1.30	$1.95	$0.66	0.24%	$0.07	$0.72	$112.32	1.93	3.38%		$1.30	$1.30
2016.75	$58.94	33.56%	$1.31	$1.98	$0.66	0.24%	$0.07	$0.73	$113.74	1.93	3.38%		$1.31	$1.31
2017	$59.68	33.56%	$1.33	$2.00	$0.67	0.24%	$0.07	$0.74	$115.16	1.93	3.38%		$1.33	$1.33
2017.25	$60.43	33.56%	$1.35	$2.03	$0.68	0.24%	$0.07	$0.75	$116.61	1.93	3.38%		$1.35	$1.35
2017.5	$61.19	33.56%	$1.36	$2.05	$0.69	0.24%	$0.07	$0.76	$118.08	1.93	3.38%		$1.36	$1.36
2017.75	$61.96	33.56%	$1.38	$2.08	$0.70	0.24%	$0.07	$0.77	$119.56	1.93	3.38%		$1.38	$1.38
2018	$62.74	33.56%	$1.40	$2.10	$0.71	0.24%	$0.07	$0.78	$121.06	1.93	3.38%		$1.40	$1.40
2018.25	$63.53	33.56%	$1.42	$2.13	$0.72	0.24%	$0.07	$0.79	$122.58	1.93	3.38%		$1.42	$1.42
2018.5	$64.32	33.56%	$1.43	$2.16	$0.72	0.24%	$0.07	$0.80	$124.12	1.93	3.38%		$1.43	$1.43
2018.75	$65.13	33.56%	$1.45	$2.18	$0.73	0.24%	$0.08	$0.81	$125.68	1.93	3.38%		$1.45	$1.45
2019	$65.95	33.56%	$1.47	$2.21	$0.74	0.24%	$0.08	$0.82	$127.26	1.93	3.38%		$1.47	$1.47
2019.25	$66.78	33.56%	$1.49	$2.24	$0.75	0.24%	$0.08	$0.83	$128.86	1.93	3.38%		$1.49	$1.49

2019.5	$67.62	33.56%	$1.51	$2.27	$0.76	0.24%	$0.08	$0.84	$130.48	1.93	3.38%		$1.51	$1.51	Schedule 4, P. 3
2019.75	$68.47	33.56%	$1.53	$2.30	$0.77	0.24%	$0.08	$0.85	$132.12	1.93	3.38%		$1.53	$1.53	c
2020	$69.33	33.56%	$1.55	$2.33	$0.78	0.24%	$0.08	$0.86	$133.78	1.93	3.38%		$1.55	$1.55	
2020.25	$70.20	33.56%	$1.56	$2.35	$0.79	0.24%	$0.08	$0.87	$135.46	1.93	3.38%		$1.56	$1.56	
2020.5	$71.08	33.56%	$1.58	$2.38	$0.80	0.24%	$0.08	$0.88	$137.16	1.93	3.38%		$1.58	$1.58	
2020.75	$71.97	33.56%	$1.60	$2.41	$0.81	0.24%	$0.08	$0.89	$138.89	1.93	3.38%		$1.60	$1.60	
2021	$72.88	33.56%	$1.62	$2.44	$0.82	0.24%	$0.08	$0.90	$140.63	1.93	3.38%		$1.62	$1.62	
2021.25	$73.79	33.56%	$1.64	$2.48	$0.83	0.24%	$0.09	$0.92	$142.40	1.93	3.38%		$1.64	$1.64	
2021.5	$74.72	33.56%	$1.67	$2.51	$0.84	0.24%	$0.09	$0.93	$144.19	1.93	3.38%		$1.67	$1.67	
2021.75	$75.66	33.56%	$1.69	$2.54	$0.85	0.24%	$0.09	$0.94	$146.00	1.93	3.38%		$1.69	$1.69	
2022	$76.61	33.56%	$1.71	$2.57	$0.86	0.24%	$0.09	$0.95	$147.84	1.93	3.38%		$1.71	$1.71	
2022.25	$77.57	33.56%	$1.73	$2.60	$0.87	0.24%	$0.09	$0.96	$149.69	1.93	3.38%		$1.73	$1.73	
2022.5	$78.55	33.56%	$1.75	$2.63	$0.88	0.24%	$0.09	$0.97	$151.57	1.93	3.38%		$1.75	$1.75	
2022.75	$79.54	33.56%	$1.77	$2.67	$0.90	0.24%	$0.09	$0.99	$153.48	1.93	3.38%		$1.77	$1.77	
2023	$80.54	33.56%	$1.79	$2.70	$0.91	0.24%	$0.09	$1.00	$155.41	1.93	3.38%		$1.79	$1.79	
2023.25	$81.55	33.56%	$1.82	$2.74	$0.92	0.24%	$0.09	$1.01	$157.36	1.93	3.38%		$1.82	$1.82	
2023.5	$82.57	33.56%	$1.84	$2.77	$0.93	0.24%	$0.10	$1.02	$159.34	1.93	3.38%		$1.84	$1.84	
2023.75	$83.61	33.56%	$1.86	$2.80	$0.94	0.24%	$0.10	$1.04	$161.34	1.93	3.38%		$1.86	$1.86	
2024	$84.66	33.56%	$1.89	$2.84	$0.95	0.24%	$0.10	$1.05	$163.37	1.93	3.38%		$1.89	$1.89	
2024.25	$85.72	33.56%	$1.91	$2.88	$0.96	0.24%	$0.10	$1.06	$165.42	1.93	3.38%		$1.91	$1.91	
2024.5	$86.80	33.56%	$1.93	$2.91	$0.98	0.24%	$0.10	$1.08	$167.50	1.93	3.38%		$1.93	$1.93	
2024.75	$87.89	33.56%	$1.96	$2.95	$0.99	0.24%	$0.10	$1.09	$169.60	1.93	3.38%		$1.96	$1.96	
2025	$89.00	33.56%	$1.98	$2.99	$1.00	0.24%	$0.10	$1.10	$171.73	1.93	3.38%		$1.98	$1.98	
2025.25	$90.11	33.56%	$2.01	$3.02	$1.01	0.24%	$0.10	$1.12	$173.89	1.93	3.38%		$2.01	$2.01	
2025.5	$91.25	33.56%	$2.03	$3.06	$1.03	0.24%	$0.11	$1.13	$176.08	1.93	3.38%		$2.03	$2.03	
2025.75	$92.39	33.56%	$2.06	$3.10	$1.04	0.24%	$0.11	$1.15	$178.29	1.93	3.38%		$2.06	$2.06	
2026	$93.55	33.56%	$2.09	$3.14	$1.05	0.24%	$0.11	$1.16	$180.53	1.93	3.38%		$2.09	$2.09	
2026.25	$94.73	33.56%	$2.11	$3.18	$1.07	0.24%	$0.11	$1.18	$182.80	1.93	3.38%		$2.11	$2.11	
2026.5	$95.92	33.56%	$2.14	$3.22	$1.08	0.24%	$0.11	$1.19	$185.09	1.93	3.38%		$2.14	$2.14	
2026.75	$97.12	33.56%	$2.16	$3.26	$1.09	0.24%	$0.11	$1.21	$187.42	1.93	3.38%		$2.16	$2.16	
2027	$98.35	33.56%	$2.19	$3.30	$1.11	0.24%	$0.11	$1.22	$189.77	1.93	3.38%		$2.19	$2.19	
2027.25	$99.58	33.56%	$2.22	$3.34	$1.12	0.24%	$0.11	$1.24	$192.16	1.93	3.38%		$2.22	$2.22	
2027.5	$100.83	33.56%	$2.25	$3.38	$1.13	0.24%	$0.12	$1.25	$194.57	1.93	3.38%		$2.25	$2.25	
2027.75	$102.10	33.56%	$2.28	$3.42	$1.15	0.24%	$0.12	$1.27	$197.02	1.93	3.38%		$2.28	$2.28	
2028	$103.38	33.56%	$2.30	$3.47	$1.16	0.24%	$0.12	$1.28	$199.49	1.93	3.38%		$2.30	$2.30	
2028.25	$104.68	33.56%	$2.33	$3.51	$1.18	0.24%	$0.12	$1.30	$202.00	1.93	3.38%		$2.33	$2.33	
2028.5	$106.00	33.56%	$2.36	$3.56	$1.19	0.24%	$0.12	$1.32	$204.54	1.93	3.38%		$2.36	$2.36	
2028.75	$107.33	33.56%	$2.39	$3.60	$1.21	0.24%	$0.12	$1.33	$207.11	1.93	3.38%		$2.39	$2.39	
2029	$108.68	33.56%	$2.42	$3.65	$1.22	0.24%	$0.13	$1.35	$209.71	1.93	3.38%		$2.42	$2.42	
2029.25	$110.04	33.56%	$2.45	$3.69	$1.24	0.24%	$0.13	$1.37	$212.35	1.93	3.38%		$2.45	$2.45	
2029.5	$111.43	33.56%	$2.48	$3.74	$1.25	0.24%	$0.13	$1.38	$215.01	1.93	3.38%		$2.48	$2.48	
2029.75	$112.83	33.56%	$2.51	$3.78	$1.27	0.24%	$0.13	$1.40	$217.72	1.93	3.38%		$2.51	$2.51	
2030	$114.24	33.56%	$2.55	$3.83	$1.29	0.24%	$0.13	$1.42	$220.45	1.93	3.38%		$2.55	$2.55	
2030.25	$115.68	33.56%	$2.58	$3.88	$1.30	0.24%	$0.13	$1.44	$223.22	1.93	3.38%		$2.58	$2.58	
2030.5	$117.13	33.56%	$2.61	$3.93	$1.32	0.24%	$0.14	$1.45	$226.03	1.93	3.38%		$2.61	$2.61	
2030.75	$118.60	33.56%	$2.64	$3.98	$1.33	0.24%	$0.14	$1.47	$228.87	1.93	3.38%		$2.64	$2.64	
2031	$120.09	33.56%	$2.68	$4.03	$1.35	0.24%	$0.14	$1.49	$231.74	1.93	3.38%		$2.68	$2.68	
2031.25	$121.60	33.56%	$2.71	$4.08	$1.37	0.24%	$0.14	$1.51	$234.65	1.93	3.38%		$2.71	$2.71	
2031.5	$123.13	33.56%	$2.74	$4.13	$1.39	0.24%	$0.14	$1.53	$237.60	1.93	3.38%		$2.74	$2.74	
2031.75	$124.68	33.56%	$2.78	$4.18	$1.40	0.24%	$0.14	$1.55	$240.59	1.93	3.38%		$2.78	$2.78	
2032	$126.24	33.56%	$2.81	$4.23	$1.42	0.24%	$0.15	$1.57	$243.61	1.93	3.38%		$2.81	$2.81	
2032.25	$127.83	33.56%	$2.85	$4.29	$1.44	0.24%	$0.15	$1.59	$246.67	1.93	3.38%		$2.85	$2.85	
2032.5	$129.44	33.56%	$2.88	$4.34	$1.46	0.24%	$0.15	$1.61	$249.77	1.93	3.38%		$2.88	$2.88	
2032.75	$131.06	33.56%	$2.92	$4.40	$1.48	0.24%	$0.15	$1.63	$252.91	1.93	3.38%		$2.92	$2.92	
2033	$132.71	33.56%	$2.96	$4.45	$1.49	0.24%	$0.15	$1.65	$256.09	1.93	3.38%	$256.09	$2.96	$259.05	
											Internal Rate of Return			10.06%	

Schedule 4, P. 4 a

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 *Trans.*	Cash Fl. from Div.	Total Cash Flow
										M/B Chane				
1992	$27.94									0.00				
1993	$18.00	33.56%	$2.68	$0.78					$60.50	2.13	3.38%			
1993.25	$18.23	33.56%	$0.41	$0.61	$0.21	0.24%	$0.02	$0.23	$38.82	2.13	3.38%	($38.82)		($38.82)
1993.5	$18.46	33.56%	$0.41	$0.62	$0.21	0.27%	$0.03	$0.23	$39.32	2.13	3.38%		$0.41	$0.41
1993.75	$18.70	33.56%	$0.42	$0.63	$0.21	0.27%	$0.03	$0.24	$39.83	2.13	3.38%		$0.42	$0.42
1994	$18.94	33.56%	$0.42	$0.64	$0.21	0.27%	$0.03	$0.24	$40.34	2.13	3.38%		$0.42	$0.42
1994.25	$19.18	33.56%	$0.43	$0.64	$0.22	0.27%	$0.03	$0.24	$40.85	2.13	3.38%		$0.43	$0.43
1994.5	$19.43	33.56%	$0.43	$0.65	$0.22	0.27%	$0.03	$0.25	$41.38	2.13	3.38%		$0.43	$0.43
1994.75	$19.68	33.56%	$0.44	$0.66	$0.22	0.27%	$0.03	$0.25	$41.91	2.13	3.38%		$0.44	$0.44
1995	$19.93	33.56%	$0.44	$0.67	$0.22	0.27%	$0.03	$0.25	$42.44	2.13	3.38%		$0.44	$0.44
1995.25	$20.18	33.56%	$0.45	$0.68	$0.23	0.27%	$0.03	$0.26	$42.99	2.13	3.38%		$0.45	$0.45
1995.5	$20.44	33.56%	$0.46	$0.69	$0.23	0.27%	$0.03	$0.26	$43.54	2.13	3.38%		$0.46	$0.46
1995.75	$20.70	33.56%	$0.46	$0.69	$0.23	0.27%	$0.03	$0.26	$44.10	2.13	3.38%		$0.46	$0.46
1996	$20.97	33.56%	$0.47	$0.70	$0.24	0.27%	$0.03	$0.27	$44.66	2.13	3.38%		$0.47	$0.47
1996.25	$21.24	33.56%	$0.47	$0.71	$0.24	0.27%	$0.03	$0.27	$45.24	2.13	3.38%		$0.47	$0.47
1996.5	$21.51	33.56%	$0.48	$0.72	$0.24	0.27%	$0.03	$0.27	$45.82	2.13	3.38%		$0.48	$0.48
1996.75	$21.79	33.56%	$0.49	$0.73	$0.25	0.27%	$0.03	$0.28	$46.40	2.13	3.38%		$0.49	$0.49
1997	$22.07	33.56%	$0.49	$0.74	$0.25	0.27%	$0.03	$0.28	$47.00	2.13	3.38%		$0.49	$0.49
1997.25	$22.35	33.56%	$0.50	$0.75	$0.25	0.27%	$0.03	$0.28	$47.60	2.13	3.38%		$0.50	$0.50
1997.5	$22.63	33.56%	$0.50	$0.76	$0.25	0.27%	$0.03	$0.29	$48.21	2.13	3.38%		$0.50	$0.50
1997.75	$22.93	33.56%	$0.51	$0.77	$0.26	0.27%	$0.03	$0.29	$48.83	2.13	3.38%		$0.51	$0.51
1998	$23.22	33.56%	$0.52	$0.78	$0.26	0.27%	$0.03	$0.29	$49.45	2.13	3.38%		$0.52	$0.52
1998.25	$23.52	33.56%	$0.52	$0.79	$0.26	0.27%	$0.03	$0.30	$50.09	2.13	3.38%		$0.52	$0.52
1998.5	$23.82	33.56%	$0.53	$0.80	$0.27	0.27%	$0.03	$0.30	$50.73	2.13	3.38%		$0.53	$0.53
1998.75	$24.12	33.56%	$0.54	$0.81	$0.27	0.27%	$0.03	$0.31	$51.38	2.13	3.38%		$0.54	$0.54
1999	$24.43	33.56%	$0.54	$0.82	$0.27	0.27%	$0.03	$0.31	$52.04	2.13	3.38%		$0.54	$0.54
1999.25	$24.75	33.56%	$0.55	$0.83	$0.28	0.27%	$0.03	$0.31	$52.71	2.13	3.38%		$0.55	$0.55
1999.5	$25.06	33.56%	$0.56	$0.84	$0.28	0.27%	$0.04	$0.32	$53.38	2.13	3.38%		$0.56	$0.56
1999.75	$25.38	33.56%	$0.57	$0.85	$0.29	0.27%	$0.04	$0.32	$54.07	2.13	3.38%		$0.57	$0.57
2000	$25.71	33.56%	$0.57	$0.86	$0.29	0.27%	$0.04	$0.33	$54.76	2.13	3.38%		$0.57	$0.57
2000.25	$26.04	33.56%	$0.58	$0.87	$0.29	0.27%	$0.04	$0.33	$55.46	2.13	3.38%		$0.58	$0.58
2000.5	$26.37	33.56%	$0.59	$0.88	$0.30	0.27%	$0.04	$0.33	$56.17	2.13	3.38%		$0.59	$0.59
2000.75	$26.71	33.56%	$0.60	$0.90	$0.30	0.27%	$0.04	$0.34	$56.89	2.13	3.38%		$0.60	$0.60
2001	$27.05	33.56%	$0.60	$0.91	$0.30	0.27%	$0.04	$0.34	$57.62	2.13	3.38%		$0.60	$0.60
2001.25	$27.40	33.56%	$0.61	$0.92	$0.31	0.27%	$0.04	$0.35	$58.36	2.13	3.38%		$0.61	$0.61
2001.5	$27.75	33.56%	$0.62	$0.93	$0.31	0.27%	$0.04	$0.35	$59.11	2.13	3.38%		$0.62	$0.62
2001.75	$28.11	33.56%	$0.63	$0.94	$0.32	0.27%	$0.04	$0.36	$59.87	2.13	3.38%		$0.63	$0.63
2002	$28.47	33.56%	$0.63	$0.95	$0.32	0.27%	$0.04	$0.36	$60.63	2.13	3.38%		$0.63	$0.63
2002.25	$28.83	33.56%	$0.64	$0.97	$0.32	0.27%	$0.04	$0.36	$61.41	2.13	3.38%		$0.64	$0.64
2002.5	$29.20	33.56%	$0.65	$0.98	$0.33	0.27%	$0.04	$0.37	$62.20	2.13	3.38%		$0.65	$0.65
2002.75	$29.58	33.56%	$0.66	$0.99	$0.33	0.27%	$0.04	$0.37	$62.99	2.13	3.38%		$0.66	$0.66
2003	$29.96	33.56%	$0.67	$1.00	$0.34	0.27%	$0.04	$0.38	$63.80	2.13	3.38%		$0.67	$0.67
2003.25	$30.34	33.56%	$0.68	$1.02	$0.34	0.27%	$0.04	$0.38	$64.62	2.13	3.38%		$0.68	$0.68
2003.5	$30.73	33.56%	$0.68	$1.03	$0.35	0.27%	$0.04	$0.39	$65.45	2.13	3.38%		$0.68	$0.68
2003.75	$31.12	33.56%	$0.69	$1.04	$0.35	0.27%	$0.04	$0.39	$66.29	2.13	3.38%		$0.69	$0.69
2004	$31.52	33.56%	$0.70	$1.06	$0.35	0.27%	$0.04	$0.40	$67.14	2.13	3.38%		$0.70	$0.70
2004.25	$31.93	33.56%	$0.71	$1.07	$0.36	0.27%	$0.04	$0.40	$68.00	2.13	3.38%		$0.71	$0.71
2004.5	$32.33	33.56%	$0.72	$1.08	$0.36	0.27%	$0.05	$0.41	$68.87	2.13	3.38%		$0.72	$0.72
2004.75	$32.75	33.56%	$0.73	$1.10	$0.37	0.27%	$0.05	$0.41	$69.75	2.13	3.38%		$0.73	$0.73

2005	$33.17	33.56%	$0.74	$1.11	$0.37	0.27%	$0.05	$0.42	$70.65	2.13	3.38%	$0.74	$0.74	Schedule 4, P. 4
2005.25	$33.59	33.56%	$0.75	$1.13	$0.38	0.27%	$0.05	$0.43	$71.55	2.13	3.38%	$0.75	$0.75	b
2005.5	$34.02	33.56%	$0.76	$1.14	$0.38	0.27%	$0.05	$0.43	$72.47	2.13	3.38%	$0.76	$0.76	
2005.75	$34.46	33.56%	$0.77	$1.16	$0.39	0.27%	$0.05	$0.44	$73.40	2.13	3.38%	$0.77	$0.77	
2006	$34.90	33.56%	$0.78	$1.17	$0.39	0.27%	$0.05	$0.44	$74.34	2.13	3.38%	$0.78	$0.78	
2006.25	$35.35	33.56%	$0.79	$1.19	$0.40	0.27%	$0.05	$0.45	$75.29	2.13	3.38%	$0.79	$0.79	
2006.5	$35.80	33.56%	$0.80	$1.20	$0.40	0.27%	$0.05	$0.45	$76.26	2.13	3.38%	$0.80	$0.80	
2006.75	$36.26	33.56%	$0.81	$1.22	$0.41	0.27%	$0.05	$0.46	$77.23	2.13	3.38%	$0.81	$0.81	
2007	$36.73	33.56%	$0.82	$1.23	$0.41	0.27%	$0.05	$0.46	$78.22	2.13	3.38%	$0.82	$0.82	
2007.25	$37.20	33.56%	$0.83	$1.25	$0.42	0.27%	$0.05	$0.47	$79.23	2.13	3.38%	$0.83	$0.83	
2007.5	$37.67	33.56%	$0.84	$1.26	$0.42	0.27%	$0.05	$0.48	$80.24	2.13	3.38%	$0.84	$0.84	
2007.75	$38.16	33.56%	$0.85	$1.28	$0.43	0.27%	$0.05	$0.48	$81.27	2.13	3.38%	$0.85	$0.85	
2008	$38.65	33.56%	$0.86	$1.30	$0.43	0.27%	$0.05	$0.49	$82.31	2.13	3.38%	$0.86	$0.86	
2008.25	$39.14	33.56%	$0.87	$1.31	$0.44	0.27%	$0.05	$0.50	$83.37	2.13	3.38%	$0.87	$0.87	
2008.5	$39.64	33.56%	$0.88	$1.33	$0.45	0.27%	$0.06	$0.50	$84.44	2.13	3.38%	$0.88	$0.88	
2008.75	$40.15	33.56%	$0.89	$1.35	$0.45	0.27%	$0.06	$0.51	$85.52	2.13	3.38%	$0.89	$0.89	
2009	$40.67	33.56%	$0.91	$1.36	$0.46	0.27%	$0.06	$0.51	$86.62	2.13	3.38%	$0.91	$0.91	
2009.25	$41.19	33.56%	$0.92	$1.38	$0.46	0.27%	$0.06	$0.52	$87.73	2.13	3.38%	$0.92	$0.92	
2009.5	$41.72	33.56%	$0.93	$1.40	$0.47	0.27%	$0.06	$0.53	$88.85	2.13	3.38%	$0.93	$0.93	
2009.75	$42.25	33.56%	$0.94	$1.42	$0.48	0.27%	$0.06	$0.53	$89.99	2.13	3.38%	$0.94	$0.94	
2010	$42.79	33.56%	$0.95	$1.44	$0.48	0.27%	$0.06	$0.54	$91.14	2.13	3.38%	$0.95	$0.95	
2010.25	$43.34	33.56%	$0.97	$1.45	$0.49	0.27%	$0.06	$0.55	$92.31	2.13	3.38%	$0.97	$0.97	
2010.5	$43.90	33.56%	$0.98	$1.47	$0.49	0.27%	$0.06	$0.56	$93.49	2.13	3.38%	$0.98	$0.98	
2010.75	$44.46	33.56%	$0.99	$1.49	$0.50	0.27%	$0.06	$0.56	$94.69	2.13	3.38%	$0.99	$0.99	
2011	$45.03	33.56%	$1.00	$1.51	$0.51	0.27%	$0.06	$0.57	$95.91	2.13	3.38%	$1.00	$1.00	
2011.25	$45.61	33.56%	$1.02	$1.53	$0.51	0.27%	$0.06	$0.58	$97.14	2.13	3.38%	$1.02	$1.02	
2011.5	$46.19	33.56%	$1.03	$1.55	$0.52	0.27%	$0.06	$0.58	$98.38	2.13	3.38%	$1.03	$1.03	
2011.75	$46.78	33.56%	$1.04	$1.57	$0.53	0.27%	$0.07	$0.59	$99.64	2.13	3.38%	$1.04	$1.04	
2012	$47.38	33.56%	$1.06	$1.59	$0.53	0.27%	$0.07	$0.60	$100.92	2.13	3.38%	$1.06	$1.06	
2012.25	$47.99	33.56%	$1.07	$1.61	$0.54	0.27%	$0.07	$0.61	$102.21	2.13	3.38%	$1.07	$1.07	
2012.5	$48.60	33.56%	$1.08	$1.63	$0.55	0.27%	$0.07	$0.62	$103.52	2.13	3.38%	$1.08	$1.08	
2012.75	$49.23	33.56%	$1.10	$1.65	$0.55	0.27%	$0.07	$0.62	$104.85	2.13	3.38%	$1.10	$1.10	
2013	$49.86	33.56%	$1.11	$1.67	$0.56	0.27%	$0.07	$0.63	$106.19	2.13	3.38%	$1.11	$1.11	
2013.25	$50.50	33.56%	$1.13	$1.69	$0.57	0.27%	$0.07	$0.64	$107.56	2.13	3.38%	$1.13	$1.13	
2013.5	$51.14	33.56%	$1.14	$1.72	$0.58	0.27%	$0.07	$0.65	$108.93	2.13	3.38%	$1.14	$1.14	
2013.75	$51.80	33.56%	$1.15	$1.74	$0.58	0.27%	$0.07	$0.66	$110.33	2.13	3.38%	$1.15	$1.15	
2014	$52.46	33.56%	$1.17	$1.76	$0.59	0.27%	$0.07	$0.66	$111.74	2.13	3.38%	$1.17	$1.17	
2014.25	$53.14	33.56%	$1.18	$1.78	$0.60	0.27%	$0.07	$0.67	$113.18	2.13	3.38%	$1.18	$1.18	
2014.5	$53.82	33.56%	$1.20	$1.80	$0.61	0.27%	$0.08	$0.68	$114.63	2.13	3.38%	$1.20	$1.20	
2014.75	$54.51	33.56%	$1.21	$1.83	$0.61	0.27%	$0.08	$0.69	$116.10	2.13	3.38%	$1.21	$1.21	
2015	$55.21	33.56%	$1.23	$1.85	$0.62	0.27%	$0.08	$0.70	$117.58	2.13	3.38%	$1.23	$1.23	
2015.25	$55.91	33.56%	$1.25	$1.88	$0.63	0.27%	$0.08	$0.71	$119.09	2.13	3.38%	$1.25	$1.25	
2015.5	$56.63	33.56%	$1.26	$1.90	$0.64	0.27%	$0.08	$0.72	$120.62	2.13	3.38%	$1.26	$1.26	
2015.75	$57.36	33.56%	$1.28	$1.92	$0.65	0.27%	$0.08	$0.73	$122.16	2.13	3.38%	$1.28	$1.28	
2016	$58.09	33.56%	$1.29	$1.95	$0.65	0.27%	$0.08	$0.74	$123.73	2.13	3.38%	$1.29	$1.29	
2016.25	$58.84	33.56%	$1.31	$1.97	$0.66	0.27%	$0.08	$0.74	$125.32	2.13	3.38%	$1.31	$1.31	
2016.5	$59.59	33.56%	$1.33	$2.00	$0.67	0.27%	$0.08	$0.75	$126.92	2.13	3.38%	$1.33	$1.33	
2016.75	$60.35	33.56%	$1.34	$2.02	$0.68	0.27%	$0.08	$0.76	$128.55	2.13	3.38%	$1.34	$1.34	
2017	$61.13	33.56%	$1.36	$2.05	$0.69	0.27%	$0.09	$0.77	$130.20	2.13	3.38%	$1.36	$1.36	
2017.25	$61.91	33.56%	$1.38	$2.08	$0.70	0.27%	$0.09	$0.78	$131.87	2.13	3.38%	$1.38	$1.38	
2017.5	$62.71	33.56%	$1.40	$2.10	$0.71	0.27%	$0.09	$0.79	$133.56	2.13	3.38%	$1.40	$1.40	
2017.75	$63.51	33.56%	$1.42	$2.13	$0.71	0.27%	$0.09	$0.80	$135.27	2.13	3.38%	$1.42	$1.42	
2018	$64.32	33.56%	$1.43	$2.16	$0.72	0.27%	$0.09	$0.81	$137.00	2.13	3.38%	$1.43	$1.43	
2018.25	$65.15	33.56%	$1.45	$2.18	$0.73	0.27%	$0.09	$0.82	$138.76	2.13	3.38%	$1.45	$1.45	
2018.5	$65.98	33.56%	$1.47	$2.21	$0.74	0.27%	$0.09	$0.84	$140.54	2.13	3.38%	$1.47	$1.47	
2018.75	$66.83	33.56%	$1.49	$2.24	$0.75	0.27%	$0.09	$0.85	$142.34	2.13	3.38%	$1.49	$1.49	
2019	$67.69	33.56%	$1.51	$2.27	$0.76	0.27%	$0.09	$0.86	$144.16	2.13	3.38%	$1.51	$1.51	
2019.25	$68.55	33.56%	$1.53	$2.30	$0.77	0.27%	$0.10	$0.87	$146.01	2.13	3.38%	$1.53	$1.53	

2019.5	$69.43	33.56%	$1.55	$2.33	$0.78	0.27%	$0.10	$0.88	$147.88	2.13	3.38%		$1.55	$1.55	Schedule 4, P. 4
2019.75	$70.32	33.56%	$1.57	$2.36	$0.79	0.27%	$0.10	$0.89	$149.78	2.13	3.38%		$1.57	$1.57	c
2020	$71.22	33.56%	$1.59	$2.39	$0.80	0.27%	$0.10	$0.90	$151.70	2.13	3.38%		$1.59	$1.59	
2020.25	$72.14	33.56%	$1.61	$2.42	$0.81	0.27%	$0.10	$0.91	$153.64	2.13	3.38%		$1.61	$1.61	
2020.5	$73.06	33.56%	$1.63	$2.45	$0.82	0.27%	$0.10	$0.92	$155.61	2.13	3.38%		$1.63	$1.63	
2020.75	$74.00	33.56%	$1.65	$2.48	$0.83	0.27%	$0.10	$0.94	$157.61	2.13	3.38%		$1.65	$1.65	
2021	$74.95	33.56%	$1.67	$2.51	$0.84	0.27%	$0.11	$0.95	$159.63	2.13	3.38%		$1.67	$1.67	
2021.25	$75.91	33.56%	$1.69	$2.55	$0.85	0.27%	$0.11	$0.96	$161.67	2.13	3.38%		$1.69	$1.69	
2021.5	$76.88	33.56%	$1.71	$2.58	$0.87	0.27%	$0.11	$0.97	$163.75	2.13	3.38%		$1.71	$1.71	
2021.75	$77.87	33.56%	$1.74	$2.61	$0.88	0.27%	$0.11	$0.99	$165.85	2.13	3.38%		$1.74	$1.74	
2022	$78.86	33.56%	$1.76	$2.64	$0.89	0.27%	$0.11	$1.00	$167.97	2.13	3.38%		$1.76	$1.76	
2022.25	$79.87	33.56%	$1.78	$2.68	$0.90	0.27%	$0.11	$1.01	$170.12	2.13	3.38%		$1.78	$1.78	
2022.5	$80.90	33.56%	$1.80	$2.71	$0.91	0.27%	$0.11	$1.02	$172.31	2.13	3.38%		$1.80	$1.80	
2022.75	$81.94	33.56%	$1.83	$2.75	$0.92	0.27%	$0.11	$1.04	$174.51	2.13	3.38%		$1.83	$1.83	
2023	$82.99	33.56%	$1.85	$2.78	$0.93	0.27%	$0.12	$1.05	$176.75	2.13	3.38%		$1.85	$1.85	
2023.25	$84.05	33.56%	$1.87	$2.82	$0.95	0.27%	$0.12	$1.06	$179.02	2.13	3.38%		$1.87	$1.87	
2023.5	$85.13	33.56%	$1.90	$2.86	$0.96	0.27%	$0.12	$1.08	$181.31	2.13	3.38%		$1.90	$1.90	
2023.75	$86.22	33.56%	$1.92	$2.89	$0.97	0.27%	$0.12	$1.09	$183.64	2.13	3.38%		$1.92	$1.92	
2024	$87.32	33.56%	$1.95	$2.93	$0.98	0.27%	$0.12	$1.11	$185.99	2.13	3.38%		$1.95	$1.95	
2024.25	$88.44	33.56%	$1.97	$2.97	$1.00	0.27%	$0.12	$1.12	$188.37	2.13	3.38%		$1.97	$1.97	
2024.5	$89.58	33.56%	$2.00	$3.00	$1.01	0.27%	$0.13	$1.13	$190.79	2.13	3.38%		$2.00	$2.00	
2024.75	$90.72	33.56%	$2.02	$3.04	$1.02	0.27%	$0.13	$1.15	$193.23	2.13	3.38%		$2.02	$2.02	
2025	$91.89	33.56%	$2.05	$3.08	$1.03	0.27%	$0.13	$1.16	$195.71	2.13	3.38%		$2.05	$2.05	
2025.25	$93.07	33.56%	$2.07	$3.12	$1.05	0.27%	$0.13	$1.18	$198.22	2.13	3.38%		$2.07	$2.07	
2025.5	$94.26	33.56%	$2.10	$3.16	$1.06	0.27%	$0.13	$1.19	$200.76	2.13	3.38%		$2.10	$2.10	
2025.75	$95.47	33.56%	$2.13	$3.20	$1.07	0.27%	$0.13	$1.21	$203.33	2.13	3.38%		$2.13	$2.13	
2026	$96.69	33.56%	$2.15	$3.24	$1.09	0.27%	$0.14	$1.22	$205.94	2.13	3.38%		$2.15	$2.15	
2026.25	$97.93	33.56%	$2.18	$3.28	$1.10	0.27%	$0.14	$1.24	$208.58	2.13	3.38%		$2.18	$2.18	
2026.5	$99.18	33.56%	$2.21	$3.33	$1.12	0.27%	$0.14	$1.26	$211.25	2.13	3.38%		$2.21	$2.21	
2026.75	$100.46	33.56%	$2.24	$3.37	$1.13	0.27%	$0.14	$1.27	$213.96	2.13	3.38%		$2.24	$2.24	
2027	$101.74	33.56%	$2.27	$3.41	$1.15	0.27%	$0.14	$1.29	$216.70	2.13	3.38%		$2.27	$2.27	
2027.25	$103.05	33.56%	$2.30	$3.46	$1.16	0.27%	$0.14	$1.30	$219.48	2.13	3.38%		$2.30	$2.30	
2027.5	$104.37	33.56%	$2.33	$3.50	$1.17	0.27%	$0.15	$1.32	$222.30	2.13	3.38%		$2.33	$2.33	
2027.75	$105.71	33.56%	$2.36	$3.55	$1.19	0.27%	$0.15	$1.34	$225.15	2.13	3.38%		$2.36	$2.36	
2028	$107.06	33.56%	$2.39	$3.59	$1.20	0.27%	$0.15	$1.35	$228.03	2.13	3.38%		$2.39	$2.39	
2028.25	$108.43	33.56%	$2.42	$3.64	$1.22	0.27%	$0.15	$1.37	$230.95	2.13	3.38%		$2.42	$2.42	
2028.5	$109.82	33.56%	$2.45	$3.68	$1.24	0.27%	$0.15	$1.39	$233.91	2.13	3.38%		$2.45	$2.45	
2028.75	$111.23	33.56%	$2.48	$3.73	$1.25	0.27%	$0.16	$1.41	$236.91	2.13	3.38%		$2.48	$2.48	
2029	$112.66	33.56%	$2.51	$3.78	$1.27	0.27%	$0.16	$1.43	$239.95	2.13	3.38%		$2.51	$2.51	
2029.25	$114.10	33.56%	$2.54	$3.83	$1.28	0.27%	$0.16	$1.44	$243.03	2.13	3.38%		$2.54	$2.54	
2029.5	$115.56	33.56%	$2.58	$3.88	$1.30	0.27%	$0.16	$1.46	$246.14	2.13	3.38%		$2.58	$2.58	
2029.75	$117.05	33.56%	$2.61	$3.93	$1.32	0.27%	$0.16	$1.48	$249.30	2.13	3.38%		$2.61	$2.61	
2030	$118.55	33.56%	$2.64	$3.98	$1.33	0.27%	$0.17	$1.50	$252.49	2.13	3.38%		$2.64	$2.64	
2030.25	$120.07	33.56%	$2.68	$4.03	$1.35	0.27%	$0.17	$1.52	$255.73	2.13	3.38%		$2.68	$2.68	
2030.5	$121.60	33.56%	$2.71	$4.08	$1.37	0.27%	$0.17	$1.54	$259.01	2.13	3.38%		$2.71	$2.71	
2030.75	$123.16	33.56%	$2.74	$4.13	$1.39	0.27%	$0.17	$1.56	$262.33	2.13	3.38%		$2.74	$2.74	
2031	$124.74	33.56%	$2.78	$4.18	$1.40	0.27%	$0.17	$1.58	$265.69	2.13	3.38%		$2.78	$2.78	
2031.25	$126.34	33.56%	$2.82	$4.24	$1.42	0.27%	$0.18	$1.60	$269.09	2.13	3.38%		$2.82	$2.82	
2031.5	$127.96	33.56%	$2.85	$4.29	$1.44	0.27%	$0.18	$1.62	$272.54	2.13	3.38%		$2.85	$2.85	
2031.75	$129.60	33.56%	$2.89	$4.35	$1.46	0.27%	$0.18	$1.64	$276.04	2.13	3.38%		$2.89	$2.89	
2032	$131.26	33.56%	$2.93	$4.40	$1.48	0.27%	$0.18	$1.66	$279.58	2.13	3.38%		$2.93	$2.93	
2032.25	$132.94	33.56%	$2.96	$4.46	$1.50	0.27%	$0.19	$1.68	$283.16	2.13	3.38%		$2.96	$2.96	
2032.5	$134.65	33.56%	$3.00	$4.52	$1.52	0.27%	$0.19	$1.70	$286.79	2.13	3.38%		$3.00	$3.00	
2032.75	$136.37	33.56%	$3.04	$4.57	$1.53	0.27%	$0.19	$1.73	$290.47	2.13	3.38%		$3.04	$3.04	
2033	$138.12	33.56%	$3.08	$4.63	$1.55	0.27%	$0.19	$1.75	$294.19	2.13	3.38%	$294.19	$3.08	$297.27	
											Internal Rate of Return			9.70%	

DIVGR.XLS

Actual and Projected Dividends Per Share **Schedule 5, P. 1**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993 Value Line Estimate	1994	1995	1996	1997
AMOUNT:																
Ameritech			$2.00	$2.20	$2.40	$2.55	$2.76	$2.98	$3.22	$3.43	$3.56	$3.70	$3.85	$4.00	$4.15	$4.30
Bell Atlantic			$1.60	$1.70	$1.80	$1.92	$2.04	$2.20	$2.36	$2.52	$2.60	$2.68	$2.80	$2.93	$3.07	$3.20
BellSouth			$1.72	$1.88	$2.04	$2.20	$2.36	$2.52	$2.68	$2.76	$2.76	$2.76	$2.88	$3.04	$3.19	$3.35
NYNEX			$3.00	$3.20	$3.48	$3.72	$4.04	$4.36	$4.56	$4.56	$4.64	$4.72	$4.84	$5.06	$5.28	$5.50
Pacific Telesis			$1.35	$1.43	$1.52	$1.64	$1.76	$1.88	$2.02	$2.14	$2.18	$2.18	$2.22	$2.35	$2.47	$2.60
S.W. Bell			$0.93	$1.00	$1.07	$1.16	$1.24	$1.30	$1.38	$1.42	$1.46	$1.50	$1.57	$1.66	$1.75	$1.84
U.S. West			$1.35	$1.43	$1.50	$1.64	$1.76	$1.88	$2.00	$2.08	$2.12	$2.14	$2.20	$2.30	$2.40	$2.50

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
PERCENT CHANGE FROM PRIOR YEAR:															
Ameritech			10.00%	9.09%	6.25%	8.24%	7.97%	8.05%	6.52%	3.79%	3.93%	4.05%	3.90%	3.75%	3.61%
Bell Atlantic			6.25%	5.88%	6.67%	6.25%	7.84%	7.27%	6.78%	3.17%	3.08%	4.48%	4.76%	4.55%	4.35%
BellSouth			9.30%	8.51%	7.84%	7.27%	6.78%	6.35%	2.99%	0.00%	0.00%	4.35%	5.44%	5.16%	4.91%
NYNEX			6.67%	8.75%	6.90%	8.60%	7.92%	4.59%	0.00%	1.75%	1.72%	2.54%	4.55%	4.35%	4.17%
Pacific Telesis			5.93%	6.29%	7.89%	7.32%	6.82%	7.45%	5.94%	1.87%	0.00%	1.83%	5.71%	5.40%	5.12%
S.W. Bell			7.53%	7.00%	8.41%	6.90%	4.84%	6.15%	2.90%	2.82%	2.74%	4.67%	5.73%	5.42%	5.14%
U.S. West			5.93%	4.90%	9.33%	7.32%	6.82%	6.38%	4.00%	1.92%	0.94%	2.80%	4.55%	4.35%	4.17%
AVERAGE			7.37%	7.20%	7.61%	7.41%	7.00%	6.61%	4.16%	2.19%	1.77%	3.53%	4.95%	4.71%	4.50%

Source: Value Line

Value Line
Forecasted Earnings Per Share
and ROE

	Earnings Per Share		Annual	Return on Book Equity		Growth in EPS Due to Non-recurring Growth in ROE	EPS Growth
	1994	1996-98	Growth in EPS	1994	1996-98		
Ameritech	$5.50	$6.35	4.91%	18.00%	16.50%	-2.86%	7.77%
Bell Atlantic	$2.80	$3.20	4.55%	19.00%	19.00%	0.00%	4.55%
BellSouth	$2.88	$3.35	5.17%	13.00%	14.00%	2.50%	2.67%
NYNEX	$7.05	$8.65	7.06%	13.50%	14.50%	2.41%	4.64%
Pacific Telesis	$2.22	$2.60	5.41%	16.50%	16.50%	0.00%	5.41%
S.W. Bell	$2.60	$3.25	7.72%	18.50%	18.50%	0.00%	7.72%
U.S. West	$3.15	$3.75	5.98%	14.50%	14.50%	0.00%	5.98%
			5.83%	16.14%	16.21%	0.29%	5.53%

Source: Value Line, July 16, 1993

Schedule 5, P. 3

Analysts' Consensus Growth Rate

	Zack's Consensus 5 Yr. Growth Rate	Return on Book Equity 1992	Return on Book Equity 1996-98	*Growth in* EPS from 1992 to 1996-98 Due to Non-recurring Growth in ROE	*Sustainable Earnings* Growth Based on Zack's Consensus Growth Rate
Ameritech	5.70%	19.30%	16.50%	-3.09%	8.79%
Bell Atlantic	6.90%	17.70%	19.00%	1.43%	5.47%
BellSouth	6.00%	12.00%	14.00%	3.13%	2.87%
NYNEX	5.60%	13.50%	14.50%	1.44%	4.16%
Pacific Telesis	5.70%	13.80%	16.50%	3.64%	2.06%
S.W. Bell	6.90%	14.00%	18.50%	5.73%	1.17%
U.S. West	5.90%	14.30%	14.50%	0.28%	5.62%
AVERAGE	6.10%	14.94%	16.21%	1.79%	4.31%
MEDIAN	5.90%				4.16%

Source of Return on Book for 1992 and proj. for 1996-98 is Value Line

Comparative Telephone Companies-Prior AT&T Bell Companies **Schedule 6, P. 1**
Selected Financial Data

	[1] Book Per Sh. Dec. 90 [A]	[2] Book Per Sh. Dec. 91 [A]	[3] Book Per Sh. Dec. 92 [A]	[4] At 9/30/93 [B]	[5] Market High for Y/E 9/30/93 [B]	[6] Price Low for Y/E 9/30/93 [B]	[7] Market to Book Year End [C]	[8] Avg. for Year [C]	[9] Div. Rate [C]	[10] Dividend Yield Year End [D]	[11] Avg. for Year [D]
Ameritech	$29.25	$30.37	$25.88	$85.63	$91.13	$63.38	3.31	2.75	$3.68	4.30%	4.76%
Bell Atlantic	$22.71	$19.77	$18.00	$63.75	$64.88	$44.50	3.54	2.90	$2.68	4.20%	4.90%
BellSouth	$26.54	$27.01	$27.94	$60.50	$62.88	$46.75	2.17	1.99	$2.76	4.56%	5.04%
NYNEX	$22.86	$22.39	$23.51	$45.88	$48.88	$39.50	1.95	1.93	$2.36	5.14%	5.34%
Pacific Telesis	$18.53	$19.27	$20.37	$54.13	$56.50	$39.50	2.66	2.42	$2.18	4.03%	4.54%
S.W. Bell	$14.31	$14.76	$15.51	$43.00	$47.00	$31.75	2.77	2.60	$1.51	3.51%	3.83%
U.S. West	$23.48	$23.39	$19.95	$49.25	$49.25	$35.25	2.47	1.95	$2.14	4.35%	5.07%
AVERAGE	**$22.53**	**$22.42**	**$21.59**	**$57.45**	**$60.07**	**$42.95**	**2.70**	**2.36**	**$2.47**	**4.30%**	**4.78%**

Source [A] Value Line, 7/16/93
[B] New York Times
[C] Market price divided by book value
[D] Dividend rate divided by market price

Comparative Telephone Companies-Prior AT&T Bell Companies **Schedule 6, P. 2**
Earnings Per Share and Return on Equity

	[1] EPS 1991 [A]	[2] EPS 1992 [A]	[3] Return on Eq. 1992 [B]	[4] Value Line Future Exp. Return on Equity [A]	Return on Equity 1991
Ameritech	$4.64	$5.02	17.85%	16.50%	15.57%
Bell Atlantic	$3.41	$3.23	17.10%	19.00%	16.05%
BellSouth	$3.11	$3.38	12.30%	14.00%	11.62%
NYNEX	$2.86	$3.20	13.95%	14.50%	12.62%
Pacific Telesis	$2.81	$2.83	14.28%	16.50%	14.87%
S.W. Bell	$1.93	$2.17	14.34%	18.50%	13.28%
U.S. West	$1.38	$2.81	12.97%	14.50%	5.89%
Average	**$2.88**	**$3.23**	**14.68%**	**16.21%**	**12.84%**

Source: [A Value Line, 7/16/93
[B] Earnings Per Share divded by average book value. Book value shown on Schedule 6, P. 1

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

	Total Debt at 12/31/92 (Millions)	Book Value 12/31/92	Shares Outstanding 12/31/92 (Millions)	Total Common Equity 12/31/92 (Millions)	Total Capital 12/31/92 (Millions)	ercentage Common Equity 12/31/92
Ameritech	6,703.9	25.88	270.17	6,992.0	13,695.9	51.05%
Bell Atlantic	10,052.0	18.00	434.20	7,815.6	17,867.6	43.74%
BellSouth	8,994.0	27.94	493.79	13,796.5	22,790.5	60.54%
NYNEX	8,437.6	47.01	206.83	9,723.1	18,160.7	53.54%
Pacific Telesis	6,461.0	20.37	405.09	8,251.7	14,712.7	56.09%
S.W. Bell	6,995.0	30.92	300.89	9,303.5	16,298.5	57.08%
U.S. West	8,863.1	19.95	414.46	8,268.5	17,131.6	48.26%
AVERAGE						52.90%

Source: Value Line

Return on Equity Implied in Zack's Consensus Growth Rates

Schedule 6, P. 4

	Y/E Book Dec. 92 [A]	Earnings 1992 [A]	Dividends 1992 [A]	Zack's Consens. 5 Year Growth [B]	Y/E Book in 1996 at Zack's Growth [C]	Y/E Book in 1997 at Zack's Growth [C]	Earnings 1997 at Zack's Growth [D]	Return on Equity to achieve Zack's Growth
Ameritech	$25.88	$5.02	$3.40	5.70%	$33.34	$35.47	$6.62	19.25%
Bell Atlantic	$18.00	$3.23	$2.48	6.90%	$21.55	$22.60	$4.51	20.42%
BellSouth	$27.94	$3.38	$2.74	6.00%	$30.91	$31.76	$4.52	14.43%
NYNEX	$23.51	$3.20	$2.28	5.60%	$27.73	$28.94	$4.20	14.83%
Pacific Telesis	$20.37	$2.83	$2.11	5.70%	$23.68	$24.63	$3.73	15.46%
S.W. Bell	$15.51	$2.17	$1.46	6.90%	$18.87	$19.87	$3.03	15.64%
U.S. West	$19.95	$2.81	$2.06	5.90%	$23.42	$24.42	$3.74	15.65%
							Average	16.53%

Source: [A Value Line, 7/16/93
[B Zack's Research as reported in Dow Jones News Retrieval computer database 9/25/93
[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 1992 earnings per share, escalated at Zack's consensus growth rate

Schedule 7

COMPARATIVE TELEPHONE COMPANIES
EXTERNAL FINANCING RATE
(Millions of Shares)

Common Stock Outstanding	**1992**	**1995-97**	**Compound Annual Growth**
Ameritech	270.17	280.00	0.72%
Bell Atlantic	434.20	435.00	0.04%
BellSouth	493.79	500.00	0.25%
NYNEX	206.83	206.50	-0.03%
Pacific Telesis	405.09	420.00	0.73%
S.W. Bell	599.75	600.00	0.01%
U.S. West	414.46	440.00	1.20%
	403.47	411.64	
	Average		0.42%
	Round to		0.45%

Source:
Value Line

Schedule 8, P. 1

Summary of Risk Premium Equations
Including All Electric Companies

				Indicated Cost of Equity
Equation based on 30 Year Treasury Rate				
Cost of Equity = 1.331 X Interest Rate + .589 X Ext. Fin.Rate - 0.24%				
Interest Rate=	6.03%			
Interest Rate X	1.331	=	8.03%	
Ext. Fin. Rate =	0.84%			
Ext. Fin. Rate X	0.589	=	0.50%	
Constant			-0.24%	
				8.28%
Equation based on 5 Year Treasury Rate				
Cost of Equity = 0.657 X Interest Rate + .5706 X Ext. Fin.Rate + 5.58%				
Interest Rate=	4.77%			
Interest Rate X	0.657	=	3.13%	
Ext. Fin. Rate =	0.84%			
Ext. Fin. Rate X	0.5706	=	0.48%	
Constant			5.58%	
				9.20%
***Equation based on* 1 Year Treasury Rate**				
Cost of Equity = 0.3853 X Interest Rate + .5730 X Ext. Fin.Rate + 8.05%				
Interest Rate=	3.44%			
Interest Rate X	0.3853	=	1.33%	
Ext. Fin. Rate =	0.84%			
Ext. Fin. Rate X	0.573	=	0.48%	
Constant			8.05%	
				9.86%
	Average of 3			9.11%

Source:

Regression analysis of cost of equity for all electric companies covered by Value Line vs interest rate and external financing rate.

All equations have an F that is significant to at least 99.99% and an r squares between 0.45 and .60 .

Allowance for financing costs from OPC Ex. (A)-3, P. 1

Summary of Risk Premium Equations **Schedule 8, P. 2**
Excluding 10% of companies with highest risk premium
and 10% lowest risk premium:

					Indicated Cost of Equity
Equation based on 30 Year Treasury Rate					
Cost of Equity = 1.166 X Interest Rate + .3087 X Ext. Fin.Rate - 0.91%					
	Interest Rate=	6.03%			
	Interest Rate X	1.166	=	7.03%	
	Ext. Fin. Rate =	0.84%			
	Ext. Fin. Rate X	0.3087	=	0.26%	
	Constant			0.91%	
					8.20%
Equation based on 5 Year Treasury Rate					
Cost of Equity = 0.5699 X Interest Rate + .3073 X Ext. Fin.Rate + .0605%					
	Interest Rate=	4.77%			
	Interest Rate X	0.5699	=	2.72%	
	Ext. Fin. Rate =	0.84%			
	Ext. Fin. Rate X	0.3073	=	0.26%	
	Constant			6.05%	
					9.03%
Equation based on 1 Year Treasury Rate					
Cost of Equity = 0.3264 X Interest Rate + ..3073 X Ext. Fin.Rate + 8.24%					
	Interest Rate=	3.44%			
	Interest Rate X	0.3264	=	1.12%	
	Ext. Fin. Rate =	0.84%			
	Ext. Fin. Rate X	0.3073	=	0.26%	
	Constant			8.24%	
					9.62%
	Average of 3				8.95%

Source:

Regression analysis of cost of equity for all electric companies covered by Value Line vs interest rate and external financing rate.

All equations have an F that is significant to at least 99.99% and an r squares between 0.45 and .60 .

Allowance for financing costs from OPC Ex. (A)-3, P. 1

ANALYSIS OF EFFECT OF LEVERAGE ON OVERALL COST OF CAPITAL
BASED ON THE ACTUAL ESTIMATED RATE OF CHANGE IN THE COST OF EQUITY
OF 0.04% PER 1% CHANGE IN THE
COMMON EQUITY RATIO

Bond Rating		Ratio	Marginal Cost	Weighted Cost	Pre-tax Cost
BB	Equity, Common	35.00%	11.00%	3.85%	6.26%
	Debt	65.00%	8.30%	5.40%	5.40%
		100.00%		9.25%	11.65%
BBB	Equity, Common	44.00%	10.64%	4.68%	7.61%
	Debt	56.00%	7.30%	4.09%	4.09%
		56.00%		8.77%	11.70%
A	Equity, Common	54.00%	10.24%	5.53%	8.99%
	Debt	46.00%	7.00%	3.22%	3.22%
		46.00%		8.75%	12.21%
AA	Equity, Common	60.00%	10.00%	6.00%	9.75%
	Debt	40.00%	6.89%	2.76%	2.76%
		40.00%		8.76%	12.51%

Source:
Income to revenue factor

For equity	0.615331
For debt	1

Based on 35% corporate income tax rate.

Summary of Equations Used to Estimate

Impact of Capital Structure on Cost of Equity

Dependent Variable *DCF Cost of Equity*

Sample Data:
All electric utilities covered by Value Line
First Issue of Each Year from 1989 through 1993
Cost of equity computed using b x r method.
Value Line future roe used for "r".
Excluded companies *w/o key data*, or co. with 0 dividend.

Independent Variables

	SV	Interest on 30 Yr. Treas.	Common Eq. %	Sust. Payout Ratio	Dividend to Book	% AFUDC	Constant	F Stat.	R Squared	Std. Error
Equation #1a	-0.362	1.309	-0.031	-0.047			0.048	180	0.62	0.0097
Signific. of T& F	*0.0000*	*0.0000*	*0.0001*	*0.0000*			*0.0000*	*0.0000*		
T	*-4.674*	*18.476*	*-4.228*	*-12.108*			*6.61*			
Equation #2a	-0.3474	1.231	-0.0424	-0.0789	0.2777		0.0556	159	0.64	0.0094
Signific. of T& F	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*		*0.0000*	*0.0000*		
T	*-4.617*	*17.501*	*-4.617*	*-11.249*	*5.367*		*7.621*			
Equation #3a	-0.490	1.376	-0.0277		-0.21248		0.0265	130	0.54	0.0107
Signific of T.	*0.000*	*0.0000*	*0.0009*		*0.0000*		*0.0005*	*0.0000*		
T	*-5.836*	*17.6*	*-3.3520*		*-6.729*		*3.519*			
Equation #4a	-0.3589	1.2544	-0.0167	-0.0458		0.015375	0.0429	172	0.66	0.0092
Signific of T.	*0.0000*	*0.0000*	*0.0207*	*0.0000*		*0.0000*	*0.0000*	*0.0000*		
T	*-4.901*	*16.601*	*-2.322*	*-12.424*		*7.311*	*6.279*			
Equation #5a	-0.3451	1.1838	-0.0279	-0.0753	0.266	0.0147	0.037	157	0.68	0.0089
Signific of T.	0.0000	*0.0000*	*0.0001*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*		
T	-4.849	*17.703*	*-3.827*	*-11.315*	*5.304*	*7.199*	*5.312*			
Equation #6a	-0.5899	1.26	-0.0266			0.0165	0.013312	131	0.54	0.0107
Signific of T.	0.0000	*0.0000*	*0.0014*			*0.0000*	*0.0737*	*0.0000*		
T	-7.185	*16.176*	*-3.219*			*6.779*	*1.793*			
Equation #7a	-0.6016	1.32	-0.0424				0.0175	145	0.49	0.0112
Signific of T.	0	*0.0000*	*0.0000*				*0.0251*			
T	*-6.975*	*16.224*	*-5.071*				*2.248*			
Equation #8a	-0.559	1.33					-0.002363	193	0.46	0.0115
Signific of T.	0	*0.0000*					*0.7323*	*0.0000*		
T	-6.648	*15.895*					*-0.002363*			
Equation #9a	-0.995		-0.045				0.127332	53	0.19	0.0141
Signific of T.	*0*		*0.0000*				*0.0000*	*0.0000*		
T	-9.554		*-4.282*				*26.423*			