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August 6, 1993

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

Re: Docket No. 920260-TL

Dear Mr. Tribble:

Enclosed is an original and twenty copies of Southern Bell Telephone and Telegraph Company's Amended Direct Testimony of Dr. Randall S. Billingsley and William B. Keck. Please file these documents in the above-captioned docket.

ACK
AFA
APP
CAF
CMU
CTR
EAG
LEG
LIN
OPC
RCH
SEC
WAS
OTH

The purpose of this amended filing is to correct certain errors that appeared in Dr. Billingsley's testimony. Since several numbers were affected in Dr. Billingsley's testimony and one of those numbers was carried over to Mr. Keck's testimony, we have elected to refile complete sets of the two testimonies, rather than try to substitute pages in the already filed materials. Please substitute these amended testimony filings for the originals filed on July 2, 1993, in this proceeding.

A copy of this letter is enclosed. Please mark it to indicate that the originals were filed and return the copy to me. Copies have been served on the parties shown on the attached Certificate of Service.

Sincerely,

R. Douglas Lackey

R. Douglas Lackey

Enclosures

cc: All Parties of Record
A. M. Lombardo
H. R. Anthony

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Keck
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Billingsley
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CERTIFICATE OF SERVICE
Docket No. 920260-TL
Docket No. 900960-TL
Docket No. 910163-TL
Docket No. 910727-TL

I HEREBY CERTIFY that a copy of the foregoing has been furnished by United States Mail this 6th day of August, 1993 to:

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R. Douglas Lackey (ej)

FILE COPY

SOUTHERN BELL TELEPHONE AND TELEGRAPH COMPANY
AMENDED TESTIMONY OF DR. RANDALL S. BILLINGSLEY
BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 920260-TL
AUGUST 6, 1993

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A. MY NAME IS RANDALL S. BILLINGSLEY. I AM VICE PRESIDENT OF THE ASSOCIATION OF INVESTMENT MANAGEMENT AND RESEARCH (AIMR) IN THE EDUCATION AND PROGRAMS DEPARTMENT. I AM CURRENTLY ON LEAVE FROM MY POSITION AS ASSOCIATE PROFESSOR OF FINANCE AT VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY. IN ADDITION TO THE DUTIES PERFORMED FOR THE ABOVE APPOINTMENTS, I ALSO ACT AS A FINANCIAL CONSULTANT IN THE AREAS OF COST OF CAPITAL ANALYSIS, FINANCIAL SECURITY ANALYSIS AND VALUATION, AND INVESTMENT ANALYSIS. MY BUSINESS ADDRESS IS ASSOCIATION FOR INVESTMENT MANAGEMENT AND RESEARCH, EDUCATION AND PROGRAMS DEPARTMENT, 5

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BOAR'S HEAD LANE, P. O. BOX 3668, CHARLOTTESVILLE, VIRGINIA 22903.

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL QUALIFICATIONS.

A. I RECEIVED A B.A. DEGREE IN ECONOMICS FROM TEXAS TECH UNIVERSITY IN 1976. I RECEIVED AN M.S. DEGREE IN ECONOMICS IN 1978 AND A PH.D. DEGREE IN 1982, BOTH FROM TEXAS A&M UNIVERSITY. WHILE COMPLETING MY PH.D., I WORKED AS A RESEARCH ASSOCIATE AT THE TEXAS TRANSPORTATION INSTITUTE DOING ECONOMIC POLICY RESEARCH. IN 1986, I RECEIVED THE CHARTERED FINANCIAL ANALYST (CFA) DESIGNATION. IN 1987, I WAS PROMOTED TO ASSOCIATE PROFESSOR OF FINANCE WITH TENURE AT VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY. I HAVE TAUGHT COURSES ON INVESTMENTS, FINANCIAL MARKETS, BANK MANAGEMENT, AND CORPORATE FINANCIAL MANAGEMENT. I HAVE BEEN ACTIVE IN TEACHING AT THE UNDERGRADUATE, MBA, AND PH.D. LEVELS. IN MID-1992, I EARNED THE CERTIFIED RATE OF RETURN ANALYST (CRRA) DESIGNATION. IN JANUARY OF 1993, I ACCEPTED THE POSITION OF VICE PRESIDENT AT AIMR. THE ORGANIZATION HAS A MEMBERSHIP OF OVER 22,500 INVESTMENT ANALYSTS, PORTFOLIO MANAGERS, AND

OTHER INSTITUTIONAL INVESTMENT DECISION-MAKERS. OUR MEMBERS ARE EMPLOYED BY BROKER-DEALERS, BANKS, MUTUAL FUNDS, INVESTMENT MANAGEMENT FIRMS, INSURANCE COMPANIES, PUBLIC AND PRIVATE PENSION FUNDS, AND OTHER INVESTMENT ENTERPRISES. AIMR PROVIDES CONTINUING EDUCATION SEMINARS AND ADMINISTERS THE CHARTERED FINANCIAL ANALYST PROGRAM, WHICH IS A WIDELY RECOGNIZED THREE-YEAR CURRICULUM AND SET OF EXAMINATIONS THAT DEVELOP INVESTMENT ANALYSIS SKILLS. MY RESPONSIBILITIES INCLUDE THE DESIGN AND OFFERING OF CONTINUING EDUCATION PROGRAMS TO MEET THE NEEDS OF AIMR'S MEMBERS IN PARTICULAR AND THE INVESTMENT INDUSTRY IN GENERAL. I ALSO DIRECT THE DEVELOPMENT AND DESIGN OF EDUCATION TECHNOLOGY PROJECTS. THESE PROJECTS INLCUDE VIDEOS, PERSONAL COMPUTER SOFTWARE, AND MULTIMEDIA PRODUCTS ON VARIOUS INVESTMENT TOPICS.

Q. HAVE YOU PUBLISHED ANY RESEARCH IN THE AREA OF FINANCE?

A. YES, I HAVE PUBLISHED OVER TWENTY ARTICLES IN VARIOUS PROFESSIONAL JOURNALS. MY ARTICLES HAVE BEEN PUBLISHED IN THE JOURNAL OF BANKING AND

FINANCE, JOURNAL OF BANK RESEARCH, JOURNAL OF FINANCIAL RESEARCH, JOURNAL OF FUTURES MARKETS, JOURNAL OF THE INSTITUTE OF CERTIFIED FINANCIAL PLANNERS, JOURNAL OF PORTFOLIO MANAGEMENT, FINANCIAL MANAGEMENT, FINANCIAL REVIEW, FUTURES, MANAGERIAL FINANCE, QUARTERLY JOURNAL OF BUSINESS AND ECONOMICS, AND STRATEGY AND EXECUTIVE ACTION. MY RESEARCH HAS BEEN CITED IN THE WALL STREET JOURNAL, ABSTRACTED IN THE JOURNAL OF ECONOMIC LITERATURE AND THE CFA DIGEST, AND REPRINTED IN CFA READINGS IN DERIVATIVE SECURITIES.

Q. DESCRIBE THE NATURE AND SCOPE OF YOUR ACTIVITIES IN THE FINANCE PROFESSION.

A. MY WORK WITH AIMR BRINGS ME INTO FREQUENT CONTACT WITH A VARIETY OF INVESTMENT PROFESSIONALS. I DEAL WITH PORTFOLIO MANAGERS AND SECURITY ANALYSTS IN THE COURSE OF PLANNING CONTINUING EDUCATION PROGRAMS, DEVELOPING EDUCATION TECHNOLOGY PROJECTS, AND IN DISCUSSING NEW DEVELOPMENTS IN THE INVESTMENT INDUSTRY.

IN ADDITION TO CONDUCTING FINANCIAL RESEARCH FOR PUBLICATION, I HAVE ACTED AS AN ARTICLE REVIEWER

FOR NUMEROUS PROFESSIONAL JOURNALS AND HAVE HAD A NUMBER OF MY STUDIES PRESENTED AT FINANCE CONFERENCES. FURTHER, I HAVE RECEIVED TEACHING AWARDS AT BOTH THE UNDERGRADUATE AND GRADUATE LEVELS. I SERVED AS A MEMBER OF THE CANDIDATE CURRICULUM COMMITTEE OF THE INSTITUTE OF CHARTERED FINANCIAL ANALYSTS, THE GOVERNING BODY OF THE CFA PROGRAM, FOR TWO YEARS. MY FINANCIAL CONSULTING CLIENTS IN ADDITION TO SOUTHERN BELL TELEPHONE AND TELEGRAPH COMPANY (SOUTHERN BELL) HAVE INCLUDED AIMR, BELL ATLANTIC, THE FINANCIAL ANALYSTS' REVIEW OF THE UNITED STATES, THE INSTITUTE OF CHARTERED FINANCIAL ANALYSTS, AND UNION BANK OF SWITZERLAND. IN MY CAPACITY AS A CONSULTANT TO FINANCIAL ANALYSTS' REVIEW, I HAVE CONDUCTED SEMINARS ON EQUITY VALUATION AND ANALYSIS IN THE UNITED STATES, ASIA AND EUROPE.

MORE DETAILS ON MY QUALIFICATIONS MAY BE FOUND IN BILLINGSLEY EXHIBIT RSB-3 (APPENDIX A).

Q. HAVE YOU PREPARED EXHIBITS TO ACCOMPANY THIS TESTIMONY?

A. YES, MY FIVE EXHIBITS CONSIST OF TWO SCHEDULES AND

THREE APPENDICES, WHICH WERE PREPARED BY ME OR UNDER MY DIRECTION AND SUPERVISION.

II. PURPOSE AND SUMMARY OF CONCLUSIONS

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. MY PURPOSE IS TO PROVIDE THE FLORIDA PUBLIC SERVICE COMMISSION (COMMISSION) WITH A DETERMINATION OF THE COST OF EQUITY CAPITAL FOR SOUTHERN BELL.

Q. PLEASE DESCRIBE THE APPROACHES THAT YOU USED TO DETERMINE SOUTHERN BELL'S COST OF EQUITY CAPITAL AND SUMMARIZE YOUR CONCLUSIONS.

A. MY ANALYSIS USES OBJECTIVE MARKET DATA TO DETERMINE SOUTHERN BELL'S COST OF EQUITY CAPITAL FROM TWO DISTINCT BUT COMPLEMENTARY APPROACHES. SINCE BELLSOUTH TELECOMMUNICATIONS, DOING BUSINESS IN FLORIDA AS SOUTHERN BELL, IS A SUBSIDIARY OF BELLSOUTH, IT DOES NOT HAVE EQUITY TRADING IN THE MARKET. THUS, THERE IS NO DIRECT MARKET EVIDENCE ON SOUTHERN BELL'S COST OF EQUITY CAPITAL. IN THE FIRST APPROACH I APPLY THE DISCOUNTED CASH FLOW (DCF) MODEL TO A GROUP OF FIRMS IDENTIFIED TO

BE OF COMPARABLE RISK TO SOUTHERN BELL. AN AVERAGE COST OF EQUITY CAPITAL IS CALCULATED BY APPLYING THE DCF MODEL TO THIS GROUP OF COMPARABLE FIRMS IN ORDER TO PROVIDE AN OBJECTIVE, MARKET-DETERMINED COST OF EQUITY CAPITAL FOR SOUTHERN BELL. THE SECOND APPROACH I USE IS A RISK PREMIUM APPROACH THAT INCLUDES EVIDENCE AS TO THE CHANGE IN THE RISK PREMIUM RESULTING FROM CHANGES IN THE LEVEL OF INTEREST RATES.

MY ANALYSIS DETERMINES THE COST OF EQUITY FOR SOUTHERN BELL TO BE 13.93% TO 13.99% USING THE COMPARABLE FIRM GROUP DCF MODEL APPROACH. THE RISK PREMIUM APPROACH, WHICH INCLUDES AN EXPLICIT ADJUSTMENT TO THE RISK PREMIUM FOR THE RECENT DECLINE IN INTEREST RATES, INDICATES A COST OF EQUITY CAPITAL FOR SOUTHERN BELL OF 13.90% TO 14.18%.

FROM THESE ANALYSES, I CONCLUDE THAT THE CURRENT COST OF EQUITY CAPITAL FOR SOUTHERN BELL IS WITHIN THE RANGE OF 13.90% TO 14.18% WITH A MIDPOINT OF 14.04%. BASED ON MY UNDERSTANDING THAT THIS COMMISSION SET SOUTHERN BELL'S RATES AT AN EQUITY RETURN OF 13.2% IN 1988 AND 1990, IT IS MY OPINION

THAT THE COST OF EQUITY IS ACTUALLY HIGHER THAN THAT, ALTHOUGH IT STILL REMAINS IN THE RANGE OF 11.5% TO 16.0% ESTABLISHED BY THIS COMMISSION IN 1988.

III. REGULATORY AND ECONOMIC STANDARDS USED IN COST OF EQUITY ANALYSIS

Q. WHAT REGULATORY STANDARDS GUIDE THE DETERMINATION OF THE COST OF EQUITY CAPITAL FOR A PUBLIC UTILITY?

A. TWO IMPORTANT SUPREME COURT DECISIONS, BLUEFIELD AND HOPE, PROVIDE THE ESSENTIAL STANDARDS THAT ARE APPLIED IN THE REGULATION OF A PUBLIC UTILITY'S ALLOWED RATE OF RETURN. THE FIRST STANDARD IS THAT A PUBLIC UTILITY SHOULD BE ALLOWED EARNINGS OPPORTUNITIES SUFFICIENT TO ENABLE IT TO ATTRACT CAPITAL ON REASONABLE TERMS. THE SECOND STANDARD IS THAT A PUBLIC UTILITY SHOULD BE ALLOWED THE OPPORTUNITY OF EARNING AT A LEVEL COMPARABLE TO OTHER FIRMS OF CORRESPONDING RISKS.

Q. PLEASE ELABORATE ON THE FIRST STANDARD.

A. THE FIRST REGULATORY STANDARD IS BASED ON THE

BLUEFIELD CASE, WHICH STATED THAT A PUBLIC UTILITY'S:

> "... RETURN SHOULD BE REASONABLY SUFFICIENT TO ASSURE CONFIDENCE IN THE FINANCIAL SOUNDNESS OF THE UTILITY AND SHOULD BE ADEQUATE, UNDER EFFICIENT AND ECONOMICAL MANAGEMENT, TO MAINTAIN AND SUPPORT ITS CREDIT AND ENABLE IT TO RAISE THE MONEY NECESSARY FOR THE PROPER DISCHARGE OF ITS PUBLIC DUTIES."

THIS CASE ESTABLISHES THE REGULATORY STANDARD THAT A PUBLIC UTILITY'S ALLOWED RATE OF RETURN SHOULD BE SUFFICIENT TO PERMIT IT TO ATTRACT THE CAPITAL THAT IT NEEDS TO MEET ITS RESPONSIBILITIES. IN ORDER TO MAINTAIN THE ABILITY TO ATTRACT CAPITAL, A PUBLIC UTILITY MUST ASSURE THAT ITS FINANCIAL INTEGRITY IS NOT COMPROMISED.

Q. PLEASE DISCUSS THE SECOND STANDARD.

A. THE SECOND STANDARD IS BASED ON THE HOPE CASE, WHICH STATED THAT:

"... THE RETURN TO THE EQUITY OWNER SHOULD BE COMMENSURATE WITH RETURNS ON INVESTMENTS IN OTHER ENTERPRISES HAVING CORRESPONDING RISKS. THAT RETURN, MOREOVER, SHOULD BE SUFFICIENT TO ASSURE CONFIDENCE IN THE FINANCIAL INTEGRITY OF THE ENTERPRISE, SO AS TO MAINTAIN ITS CREDIT AND TO ATTRACT CAPITAL."

THE HOPE CASE CONSEQUENTLY ESTABLISHES THE STANDARD THAT A PUBLIC UTILITY'S ALLOWED RATE OF RETURN WILL NOT BE APPROPRIATE UNLESS IT IS COMPARABLE TO THE RETURNS OF INVESTMENTS OF COMPARABLE RISK. IN TERMS OF THE CURRENT PROCEEDINGS, THIS STANDARD IMPLIES THAT SOUTHERN BELL'S ALLOWED RATE OF RETURN SHOULD BE COMMENSURATE WITH THE EXPECTED RATE OF RETURN ASSOCIATED WITH THE RISK FACED BY EQUITY HOLDERS IN FIRMS OF COMPARABLE RISK.

Q. WHAT ECONOMIC STANDARDS ARE RELEVANT IN DETERMINING THE COST OF EQUITY CAPITAL?

A. SEVERAL FUNDAMENTAL ECONOMIC STANDARDS ARE USED TO

DETERMINE THE COST OF EQUITY CAPITAL. THESE STANDARDS ARE IMPLIED BY THE CONCEPTS OF OPPORTUNITY COST, THE RISK/RETURN TRADE-OFF, AND MARKET EFFICIENCY. IF THE PROCESS USED TO ESTABLISH THE COST OF EQUITY IS NOT CONSISTENT WITH THOSE STANDARDS, THEN THE RESULTING ESTIMATE WILL BE BIASED. SUCH A COST OF EQUITY WOULD NOT TREAT RATEPAYERS FAIRLY AND COULD DAMAGE THE ABILITY OF SOUTHERN BELL TO RAISE FUNDS, THEREBY COMPROMISING THE FIRM'S CAPACITY TO CONTINUE PROVIDING APPROPRIATE TELECOMMUNICATIONS SERVICES IN THE STATE OF FLORIDA.

Q. WHAT IS THE CONCEPT OF OPPORTUNITY COST AND HOW DOES THE COST OF EQUITY CAPITAL DEPEND ON ITS RECOGNITION?

A. INVESTORS HAVE THE OPPORTUNITY TO PUT THEIR MONEY TO WORK IN A VARIETY OF DIFFERENT INVESTMENTS. THE DECISION TO PUT MONEY IN ONE INVESTMENT IMPLIES THAT ANOTHER INVESTMENT OPPORTUNITY MUST BE GIVEN UP. THUS, THE OPPORTUNITY COST OF MAKING AN INVESTMENT IS THE OPPORTUNITY (EXPECTED RETURN) FOREGONE ON THE NEXT BEST ALTERNATIVE.

THE OPPORTUNITY AFFORDED BY AN INVESTMENT MUST BE MEASURED IN LIGHT OF THE TIME VALUE OF MONEY. THIS ACKNOWLEDGES THAT THE VALUE OF A DOLLAR TO BE RECEIVED IN A YEAR IS NOT WORTH A DOLLAR TODAY. THIS IS BECAUSE INVESTORS HAVE THE OPPORTUNITY TO INVEST LESS THAN A DOLLAR TODAY AT SOME POSITIVE EXPECTED RETURN IN ORDER TO GENERATE A DOLLAR A YEAR FROM TODAY. MONEY HAS A TIME VALUE THAT REFLECTS THE BENEFITS OF AN INVESTOR'S OTHER COMPETING INVESTMENT ALTERNATIVES.

THE COST OF EQUITY CAPITAL IS AN OPPORTUNITY COST FROM THE EQUITY INVESTOR'S VIEWPOINT. WHEN AN INVESTOR CONSIDERS INVESTING MONEY IN A STOCK, CARE IS TAKEN TO EVALUATE THE EXPECTED RETURN ON THE NEXT BEST ALTERNATIVE INVESTMENT THAT MUST BE FOREGONE IF THE STOCK IS BOUGHT. AN INVESTOR HAS A TARGET REQUIRED RATE OF RETURN THAT IS INFLUENCED BY THAT OPPORTUNITY COST. IF AN INVESTOR DOES NOT EXPECT A STOCK TO MEET THE TARGET OR MINIMALLY ACCEPTABLE RETURN, THEN THE STOCK WILL NOT BE PURCHASED BY THAT INVESTOR. IN ORDER TO MEET INVESTORS' RETURN EXPECTATIONS, THE FIRM MUST REINVEST THE FUNDS SUPPLIED BY THOSE INVESTORS AT AN EXPECTED RATE OF RETURN NO LESS THAN THAT

EXPECTED BY INVESTORS.

THE STANDARD THAT EMERGES FOR COST OF EQUITY CAPITAL ANALYSIS IS THAT ANY ESTIMATE SHOULD CONSIDER THE OPPORTUNITY COSTS FACED BY EQUITY INVESTORS. THE COST OF EQUITY CAPITAL CANNOT BE DETERMINED IN ISOLATION. IT SHOULD RESPECT EQUITY INVESTORS' OTHER INVESTMENT ALTERNATIVES. IN THE CASE OF SOUTHERN BELL, THE COMPANY'S ALLOWED RATE OF RETURN MUST MEET INVESTORS' RETURN REQUIREMENTS, AS REFLECTED IN THE COST OF EQUITY CAPITAL, OR INVESTORS WILL NOT SUPPLY THE FIRM WITH THEIR CAPITAL. THIS WOULD EFFECTIVELY DENY SOUTHERN BELL ACCESS TO THE CAPITAL MARKET ON REASONABLE TERMS. THUS, THE REGULATORY STANDARD OF CAPITAL ATTRACTION DISCUSSED PREVIOUSLY IN MY TESTIMONY WOULD BE VIOLATED.

Q. HOW DOES THE RISK/RETURN TRADE-OFF APPLY TO COST OF EQUITY CAPITAL ANALYSIS?

A. THE RISK/RETURN TRADE-OFF IS A DESCRIPTION OF HOW INVESTORS BEHAVE GIVEN WHAT THEY LIKE AND WHAT THEY DISLIKE ABOUT INVESTMENTS. INVESTORS GENERALLY PREFER HIGHER TO LOWER RETURNS AND PREFER LESS TO

MORE RISK. THIS IMPLIES THAT INVESTORS WILL NOT TAKE ON ADDITIONAL RISK UNLESS THEY EXPECT TO EARN HIGHER RETURNS. THUS, INVESTORS TRADE-OFF WHAT THEY LIKE (HIGHER EXPECTED RETURNS) AGAINST WHAT THEY DISLIKE (HIGHER RISKS) IN MAKING INVESTMENT DECISIONS. IN EVERYDAY TERMS, INVESTORS CANNOT GET MORE OF WHAT THEY LIKE UNLESS THEY ARE WILLING TO TAKE ON MORE OF WHAT THEY DISLIKE.

INVESTORS ARE AWARE OF THE DANGERS OF VIOLATING THE RISK/RETURN TRADE-OFF. IF AN INVESTMENT'S EXPECTED RETURN IS NOT COMMENSURATE WITH ITS RISK, INVESTORS WILL LOOK ELSEWHERE FOR INVESTMENT OPPORTUNITIES. INVESTORS SEEKING TO MEASURE OPPORTUNITY COSTS MUST DEVELOP SOME CRITERION FOR JUDGING WHAT MAKES INVESTMENTS COMPARABLE SO THAT THEY CAN IDENTIFY THE "NEXT BEST ALTERNATIVE FOREGONE," AS DISCUSSED ABOVE. THE PRIMARY CRITERION IS RISK. INVESTORS WILL EVALUATE INVESTMENTS OF COMPARABLE RISK AND SEEK THE INVESTMENT YIELDING THE HIGHEST EXPECTED RETURN FOR A GIVEN LEVEL OF RISK. THUS, OPPORTUNITY COSTS CAN ONLY BE MEASURED ACCURATELY WHEN THE RISKINESS OF COMPETING INVESTMENTS IS TAKEN INTO CONSIDERATION.

THE STANDARD FOR COST OF CAPITAL ANALYSIS IMPLIED BY THE RISK/RETURN TRADE-OFF IS THAT A FIRM MUST MEET THE RETURN REQUIREMENTS THAT EQUITY HOLDERS IMPOSE AFTER HAVING EVALUATED OTHER INVESTMENTS OF COMPARABLE RISK. IF A FIRM DOES NOT MEET INVESTORS' RISK-ADJUSTED EXPECTED RETURNS, THOSE INVESTORS WILL MOVE THEIR MONEY TO ALTERNATIVE INVESTMENTS OF SIMILAR RISK THAT ARE GENERATING HIGHER RETURNS. THIS STANDARD ASSERTS THAT SOUTHERN BELL SHOULD HAVE THE OPPORTUNITY TO EARN A RETURN THAT IS COMMENSURATE WITH ITS RISK AND, BY IMPLICATION, COMPARABLE TO THE EXPECTED RETURNS OF OTHER FIRMS OF COMPARABLE RISK.

Q. WHAT IMPLICATIONS DO OPPORTUNITY COSTS AND THE RISK/RETURN TRADE-OFF JOINTLY HAVE FOR DETERMINING THE COST OF EQUITY?

A. THE JOINT PRESENCE OF OPPORTUNITY COSTS AND THE RISK/RETURN TRADE-OFF IMPLIES THE STANDARD THAT INVESTMENTS OF COMPARABLE RISK ARE EXPECTED TO GENERATE COMPARABLE RETURNS. IF THEY DO NOT, INVESTORS WILL PURCHASE THE STOCKS OF FIRMS YIELDING HIGHER RETURNS AND WILL SELL THE STOCKS OF FIRMS YIELDING LOWER RETURNS UNTIL THE RETURNS

REFLECTED BY THE PRICES ARE THE SAME. THIS STANDARD IS THE RESULT OF A LARGE NUMBER OF INVESTORS MEASURING THEIR OPPORTUNITY COSTS BY COMPARING INVESTMENTS WITH FULL KNOWLEDGE THAT RELEVANT ALTERNATIVES ARE DEFINED ON THE BASIS OF COMPARABLE RISKINESS.

THIS STANDARD IMPLIES THAT GROUPS OF FIRMS COMPARABLE IN RISK TO SOUTHERN BELL SHOULD HAVE AVERAGE EXPECTED COSTS OF EQUITY CAPITAL THAT ARE COMPARABLE TO SOUTHERN BELL'S EXPECTED COST OF EQUITY CAPITAL. THIS STANDARD IS THE BASIS FOR THE COMMON PRACTICE OF APPLYING THE DCF MODEL TO A GROUP OF COMPARABLE FIRMS.

Q. WHAT IS MEANT BY THE TERM "MARKET EFFICIENCY" AND WHAT STANDARD DOES IT IMPLY FOR COST OF EQUITY CAPITAL ANALYSIS?

A. IN ITS MOST GENERAL FORM, AN EFFICIENT MARKET IS ONE IN WHICH ALL INFORMATION THAT IS RELEVANT TO SECURITY PRICE (EXPECTED RETURN) FORMATION IS REFLECTED QUICKLY IN PRICES (RETURNS). MARKET EFFICIENCY IS NOT AN ALL OR NOTHING PROPOSITION, BUT RATHER IS A MATTER OF DEGREE. RESEARCH

FINDINGS SUPPORT A HIGH DEGREE OF EFFICIENCY IN CONTEMPORARY U.S. FINANCIAL MARKETS. THUS, SECURITY PRICES ARE ON AVERAGE UNBIASED, OBJECTIVE ESTIMATES OF WHAT THE INVESTMENT COMMUNITY EXPECTS TO HAPPEN TO A SECURITY. INDEED, PRICES REFLECT THE MARKET'S ASSESSMENT OF WHAT A SECURITY SHOULD YIELD GIVEN ITS RISKINESS RELATIVE TO COMPARABLE INVESTMENTS.

IF A SECURITY'S EXPECTED RETURN IS LESS THAN THE RETURN ASSOCIATED WITH THE RISK OF THAT SECURITY, INVESTORS WILL SELL IT. THIS ACT WILL PUSH THE PRICE OF THAT SECURITY DOWN UNTIL ITS EXPECTED RETURN IS EQUAL TO THE RETURN ASSOCIATED WITH THE RISK OF THAT SECURITY.

THE IMPLICATION OF A HIGH DEGREE OF MARKET EFFICIENCY FOR COST OF EQUITY CAPITAL ANALYSIS IS THAT EQUITY PRICES FOR FIRMS OF COMPARABLE RISK ARE RELIABLE SOURCES OF OBJECTIVE INFORMATION ABOUT CAPITAL COSTS.

IV. NATURE AND APPLICABILITY OF THE DCF MODEL

Q. WHAT IS THE DCF MODEL AND HOW IS IT APPLICABLE TO

THE CURRENT PROCEEDINGS?

A. THE DCF MODEL IS A FORMAL STATEMENT OF COMMON SENSE AND BASIC FINANCIAL THEORY. THE MODEL ASKS AN INVESTOR'S MOST BASIC QUESTION: HOW MUCH IS THIS STOCK WORTH? COMMON SENSE DICTATES THAT THE ANSWER DEPENDS ON WHAT INVESTORS EXPECT TO GET OUT OF THE STOCK AND WHEN THEY EXPECT TO GET IT. THE WHAT IS THE EXPECTED CASH FLOW STREAM GENERATED BY THE STOCK AND THE WHEN IS THE PROJECTED TIMING OF THOSE EXPECTED CASH FLOWS.

DETERMINING HOW MUCH A STOCK IS WORTH DEPENDS ON ONE MORE CRITICAL CONSIDERATION: THE RISKINESS OR PROBABILITY THAT INVESTORS ASSOCIATE WITH THEIR FORECAST OF WHAT THEY WILL RECEIVE FROM THE STOCK. IN THIS CONTEXT, RISK IS THE POSSIBILITY THAT INVESTORS' EXPECTATIONS WILL BE FRUSTRATED. RISK IS REFLECTED BY THE PROBABILITY THAT INVESTORS' ACTUAL RETURNS WILL DIFFER FROM THEIR EXPECTED RETURNS. THE DCF MODEL ASSUMES THAT THE AVERAGE INVESTOR DISLIKES RISK AND CONSEQUENTLY WILL ACCEPT HIGHER RISK ONLY IF THERE IS A HIGHER EXPECTED RETURN.

THE DCF MODEL RECOGNIZES TWO TYPES OF CASH FLOWS: THE PERIODIC PAYMENT OF CASH DIVIDENDS AND THE (POSSIBLE) FUTURE SALE OF THE STOCK. IF AN INVESTOR FACING AN OPPORTUNITY COST OF K PERCENT EXPECTS TO GET DIVIDENDS D_t ANNUALLY FOR THE NEXT N YEARS AND THEN SELLS THE STOCK AT THE END OF YEAR N FOR A PRICE OF P_N, THEN THE APPROPRIATE CURRENT PRICE P_0 IS:

$$P_0 = \frac{D_1}{(1+K)^1} + \frac{D_2}{(1+K)^2} + \ldots + \frac{D_N + P_N}{(1+K)^N}.$$

IN SUMMARY, THE APPROPRIATE PRICE OF A STOCK IS SIMPLY THE PRESENT VALUE OF ALL OF THE CASH BENEFITS THAT AN INVESTOR EXPECTS TO GET FROM OWNING IT.

Q. IS THIS THE FORM OF THE DCF MODEL THAT IS COMMONLY USED TO DETERMINE THE COST OF EQUITY CAPITAL FOR A FIRM LIKE SOUTHERN BELL?

A. NO, IT IS NOT. THE ABOVE FORM IS TYPICALLY MODIFIED IN AT LEAST TWO WAYS. FIRST, THIS COMMISSION IS PRESUMABLY NOT CONCERNED WITH DETERMINING HOW MUCH A STOCK SHOULD SELL FOR. ITS

GOAL IS TO DETERMINE WHAT RATE OF RETURN SOUTHERN BELL'S EQUITY INVESTORS SHOULD REASONABLY EXPECT TO BE COMPENSATED FOR THE FIRM'S RISK. THUS, THE COMMISSION IS CONCERNED WITH WHAT THE PRICE IS RATHER THAN WITH WHAT IT SHOULD BE. THE ACTUAL PRICE P_{mkt} SHOULD CONSEQUENTLY BE USED TO INFER INVESTORS' REQUIRED RATE OF RETURN.

SECOND, THE FORM OF THE DCF PRESENTED ABOVE MAKES NO EXPLICIT ASSUMPTION CONCERNING THE EXPECTED RATE OF GROWTH IN DIVIDENDS AND THE STOCK'S PRICE OVER TIME, NOR ANY ASSUMPTION CONCERNING THE LENGTH OF AN INVESTOR'S EXPECTED HOLDING PERIOD. THE SO-CALLED CONSTANT GROWTH FORM OF THE DCF ASSUMES THAT DIVIDENDS AND PRICE GROW AT A CONSTANT RATE G OVER TIME, THAT THE GROWTH RATE IS LESS THAN THE REQUIRED RATE OF RETURN, AND THAT INVESTORS HAVE AN INFINITE HOLDING PERIOD.

WHILE THE ASSUMPTION OF AN INFINITE HOLDING PERIOD SEEMS QUESTIONABLE INITIALLY, IT IS IMPORTANT TO REMEMBER THAT THE FUNDAMENTAL SOURCE OF A STOCK'S VALUE TO INVESTORS IS ITS EXPECTED DIVIDEND STREAM. WHY WOULD INVESTORS BE WILLING TO TRADE A STOCK AMONG THEMSELVES IF THE STOCK WAS NOTHING MORE THAN

A PIECE OF PAPER THAT WOULD NEVER PAY ANY MONEY? IF THE CURRENT PRICE OF A STOCK IS THE PRESENT VALUE OF ALL EXPECTED FUTURE CASH FLOWS, THEN WHY WOULDN'T THE PRICE AT ANY POINT IN TIME BE THE PRESENT VALUE OF THE EXPECTED CASH FLOWS BEYOND THAT POINT IN TIME? WHILE AN INFINITE HOLDING PERIOD MAY NOT SEEM TO APPLY TO ANY ONE INVESTOR, THIS ASSUMPTION IS AN ACCURATE WAY OF PORTRAYING THE BEHAVIOR OF INVESTORS SINCE THEY MUST DETERMINE ALL PRICES, PRESENT AND FUTURE, BY PROJECTING A SEEMINGLY ENDLESS SERIES OF FUTURE DIVIDENDS. THEY MUST MAKE SUCH DIVIDEND PROJECTIONS SINCE ANY EXPECTED FUTURE PRICE IS DEPENDENT ON THE DIVIDENDS THAT ARE EXPECTED TO BE PAID ON THAT STOCK AFTER IT IS PURCHASED.

THE CONSTANT GROWTH FORM OF THE DCF MODEL MAKES THE TWO ABOVE ADJUSTMENTS AND CAN BE EXPRESSED AS:

$$K = \frac{D_0(1 + G)}{P_{mkt}} + G = \frac{D_1}{P_{mkt}} + G,$$

WHERE D_0 IS THE MOST RECENT DIVIDEND PAID, G IS THE EXPECTED GROWTH RATE, D_1 IS THE NEXT ANTICIPATED DIVIDEND, AND THE REST OF THE VARIABLES ARE AS

DEFINED ABOVE.

Q. IS IT NECESSARY TO MAKE ANY OTHER MODIFICATIONS BEFORE THE DCF MODEL CAN BE ACCURATELY APPLIED TO DETERMINE SOUTHERN BELL'S COST OF EQUITY CAPITAL?

A. YES, TWO ADDITIONAL MODIFICATIONS ARE NECESSARY. FIRST, IT IS APPROPRIATE TO RECOGNIZE THAT DIVIDENDS ARE PAID BY MOST COMPANIES ON A QUARTERLY, NOT AN ANNUAL, BASIS. THE SECOND ADJUSTMENT TO THE GENERAL DCF MODEL PRESENTED ABOVE CONSIDERS THE FLOTATION COSTS BORNE BY THE FIRM IN RAISING EQUITY FUNDS.

Q. WHY IS IT IMPORTANT TO ADJUST THE DCF MODEL TO REFLECT THE QUARTERLY PAYMENT OF DIVIDENDS?

A. THE ANNUAL FORM OF THE DCF MODEL ASSUMES THAT INVESTORS RECEIVE DIVIDENDS ONLY ONCE A YEAR AND THAT THEY HAVE THE OPPORTUNITY TO REINVEST THOSE CASH FLOWS IN ALTERNATIVE INVESTMENTS OF THE SAME RISK. THE REQUIRED RATE OF RETURN IMPLIED BY THE ANNUAL FORM OF THE DCF MODEL WILL BE BIASED DOWNWARD IF INVESTORS ACTUALLY RECEIVE THEIR DIVIDEND PAYMENTS IN QUARTERLY RATHER THAN IN

ANNUAL INSTALLMENTS. THIS BIAS RESULTS BECAUSE EQUITY INVESTORS HAVE THE OPPORTUNITY TO START EARNING A RETURN ON THEIR REINVESTED DIVIDENDS SOONER WHEN THOSE DIVIDENDS ARE RECEIVED QUARTERLY THAN WHEN THE DIVIDENDS ARE RECEIVED ONLY ANNUALLY.

USING THE ANNUAL FORM OF THE DCF MODEL TO DETERMINE THE RETURN REQUIREMENTS OF EQUITY INVESTORS IN SOUTHERN BELL WOULD DEPRIVE THOSE INVESTORS OF THE RETURNS THAT THEY COULD REASONABLY EXPECT TO EARN. THIS IS BECAUSE THEY GET THEIR DIVIDENDS QUARTERLY RATHER THAN ANNUALLY. FAILURE TO MAKE THIS ADJUSTMENT CAN UNDERSTATE THE COST OF EQUITY CAPITAL. THUS, THIS ADJUSTMENT MUST BE MADE IF AN ECONOMICALLY CORRECT COST OF EQUITY IS TO BE DETERMINED FOR SOUTHERN BELL.

Q. WHAT SPECIFIC ADJUSTMENT FOR QUARTERLY DIVIDENDS DO YOU MAKE TO THE DCF MODEL?

A. THERE ARE TWO BASIC WAYS IN WHICH QUARTERLY DIVIDENDS CAN BE HANDLED. THE FIRST APPROACH MAKES THE SIMPLIFYING ASSUMPTION THAT DIVIDENDS ARE PAID QUARTERLY AND GROW QUARTERLY AS WELL. WHILE THIS APPROACH HAS THE VIRTUE OF SIMPLICITY, IT IS NOT

REALISTIC BECAUSE MOST FIRMS ADJUST THEIR DIVIDEND PAYMENTS ONCE A YEAR, NOT QUARTERLY. THE SECOND APPROACH ASSUMES THAT FIRMS PAY DIVIDENDS QUARTERLY BUT THAT THOSE DIVIDENDS ARE ONLY CHANGED BY A FIRM ANNUALLY. THUS, QUARTERLY REINVESTMENT OPPORTUNITIES ARE RECOGNIZED AND THE MORE REALISTIC PATTERN OF ANNUAL DIVIDEND GROWTH IS ACCOUNTED FOR AS WELL. THIS IS THE APPROACH THAT I USE IN MY ANALYSIS OF SOUTHERN BELL'S COST OF EQUITY. FURTHER, I ASSUME THAT FIRMS ON AVERAGE ADJUST THE LEVEL OF THEIR DIVIDENDS IN THE MIDDLE OF THE YEAR.

THE ADJUSTED DCF MODEL CALCULATES A REVISED DIVIDEND, D_1^q:

$$D_1^q = d_1(1 + K)^{-.75} + d_2 (1 + K)^{-.50} + d_3 (1 + K)^{-.25} + d_4,$$

WHERE d_1 AND d_2 ARE THE TWO QUARTERLY DIVIDENDS PAID PRIOR TO THE ASSUMED YEARLY CHANGE IN DIVIDENDS AND d_3 AND d_4 ARE THE TWO QUARTERLY DIVIDENDS PAID AFTER THE GIVEN CHANGE IN THE AMOUNT PAID BY A FIRM. THIS DIVIDEND, D_1^q, REVISED TO RECOGNIZE THE QUARTERLY PAYMENT OF DIVIDENDS THAT GROW AT RATE G ONCE A YEAR (ON AVERAGE FOR ALL

FIRMS IN THE MIDDLE OF THE NEXT 12 MONTHS), IS SUBSTITUTED IN THE PLACE OF D_1 IN THE BASIC FORM OF THE DCF:

$$K = \frac{\left(D_1^q \right)}{P_{mkt}} + G.$$

Q. WHY MUST FLOTATION COSTS BE ACCOUNTED FOR IN DETERMINING THE COST OF EQUITY CAPITAL?

A. THE COST OF EQUITY CAPITAL MUST REFLECT WHAT A FIRM NEEDS TO EARN ON ITS FUNDS IN ORDER TO MEET THE RETURN REQUIREMENTS OF ITS INVESTORS. FLOTATION COSTS REDUCE THE AMOUNT OF FUNDS THAT A FIRM HAS TO INVEST AND THEREBY INCREASE THE RETURN THAT A FIRM MUST EARN ON THOSE REMAINING FUNDS IF IT IS TO REMAIN ABLE TO ATTRACT INVESTORS. IF A UTILITY WAS ALLOWED TO RECOVER ALL OF ITS FLOTATION COSTS AT THE TIME OF ISSUANCE, THERE WOULD BE NO NEED FOR THIS ADJUSTMENT. OTHERWISE, IT IS IMPORTANT TO SUBTRACT THE FLOTATION COSTS FROM THE PRICE USED IN THE DCF MODEL IN ORDER TO CAPTURE THE FACT THAT A UTILITY WOULD NOT RECEIVE THE FULL PROCEEDS OF AN EQUITY ISSUE.

ACADEMIC STUDIES CONCLUDE THAT A FLOTATION COST OF FIVE PERCENT IS REASONABLE. THEREFORE, I INCLUDE A FIVE PERCENT FLOTATION COST ADJUSTMENT THAT IS IMPLEMENTED AS A FIVE PERCENT REDUCTION TO THE STOCK PRICES USED IN MY DCF ANALYSIS.

Q. HOW CAN FLOTATION COSTS BE RELEVANT IN DETERMINING SOUTHERN BELL'S COST OF EQUITY CAPITAL WHEN IT DOES NOT SELL SHARES OF STOCK IN THE OPEN MARKET?

THE FACT THAT SOUTHERN BELL DOES NOT ACTUALLY SELL EQUITY BY VIRTUE OF ITS AFFILIATION WITH BELLSOUTH DOES NOT INVALIDATE THE NEED TO ADJUST FOR FLOTATION COSTS. TAKEN TO ITS LOGICAL EXTREME, IT COULD BE ARGUED THAT SOUTHERN BELL HAS NO COST OF EQUITY CAPITAL AT ALL SINCE IT DOES NOT SELL SHARES OF STOCK ON THE OPEN MARKET. YET SOUTHERN BELL BEARS SUCH COSTS AND SHOULD BE COMPENSATED ACCORDINGLY.

CONSIDER AN EXAMPLE. WHEN A FAMILY SHOPS FOR A MORTGAGE, IT WILL FIND THAT, IN ADDITION TO THE STATED INTEREST RATE, IT IS COMMON TO PAY "POINTS" AT THE TIME THE MORTGAGE IS TAKEN OUT. EACH POINT IS EQUAL TO ONE PERCENT OF THE FACE VALUE OF THE

MORTGAGE. THUS, A MORTGAGE WITH A QUOTED INTEREST RATE OF TEN PERCENT WILL EFFECTIVELY COST THE FAMILY MORE THAN TEN PERCENT IF POINTS ARE REQUIRED TO BE PAID. THIS IS BECAUSE THE FAMILY MUST BORROW MORE THAN IS ACTUALLY NEEDED TO FINANCE THEIR HOUSE SINCE THEY MUST ESSENTIALLY ALSO BORROW TO COVER THE POINTS.

ASSUME THAT THE FAMILY TAKES OUT A THIRTY-YEAR MORTGAGE REQUIRING POINTS AND THAT THEY ARE ASKED WHAT THEIR RATE IS TWO YEARS LATER. WOULD IT BE APPROPRIATE TO RESPOND THAT THE COST IS ONLY TEN PERCENT SINCE THE FAMILY HAS NOT TAKEN OUT A NEW MORTGAGE OVER THE TWO-YEAR PERIOD? NO, THE COST OF THE MORTGAGE WAS AND REMAINS IN EXCESS OF THE QUOTED RATE DUE TO THE FLOTATION COSTS PAID PREVIOUSLY. INDEED, THE RELEVANT COST OF A MORTGAGE IS ALWAYS THE POINT-ADJUSTED RATE, REGARDLESS OF WHETHER ONE CHOOSES TO TAKE THE MORTGAGE OR NOT.

THE OMISSION OF A FLOTATION COST ADJUSTMENT IS INCORRECT AND IS EQUIVALENT TO COMPARING MORTGAGE RATES WITHOUT ADJUSTING FOR POINTS. SOUTHERN BELL WILL NOT GET FAIR TREATMENT IF IT IS ONLY PERMITTED

TO EARN A RETURN THAT DOES NOT COVER ALL OF ITS REASONABLE COSTS, INCLUDING FLOTATION COSTS.

Q. HOW IS THE GROWTH RATE ESTIMATED FOR USE IN THE DCF MODEL?

A. INVESTORS ARE FORWARD-LOOKING. INVESTMENT DECISIONS ARE MADE ON THE BASIS OF HOW INVESTORS EXPECT A STOCK TO PERFORM IN THE FUTURE. WHILE HOW A STOCK HAS PERFORMED IN THE PAST MAY WELL INFLUENCE AN INVESTOR'S EXPECTATIONS CONCERNING FUTURE PERFORMANCE, THERE IS NO GUARANTEE THAT THE FUTURE WILL BE A SIMPLE EXTENSION OF THE PAST. THUS, IT IS IMPORTANT THAT THE ESTIMATED GROWTH RATE USED IN THE DCF MODEL BE A PROSPECTIVE OR EXPECTED, NOT A HISTORICAL, RATE.

RESEARCH INDICATES THAT THE CONSENSUS GROWTH RATE FORECASTS OF FINANCIAL ANALYSTS ARE THE MOST UNBIASED, OBJECTIVE, AND ACCURATE MEASURE OF INVESTORS' GROWTH EXPECTATIONS FOR A STOCK. CONSISTENT WITH THIS OBSERVATION, I USE THE GROWTH RATE ESTIMATES PUBLISHED BY THE INSTITUTIONAL BROKERS ESTIMATE SYSTEM (IBES) AND ZACKS INVESTMENT RESEARCH.

IN TESTIMONY FILED IN THIS PROCEEDING LAST YEAR, ONE OF THE WITNESSES WHO TOOK ISSUE WITH MY ANALYSIS USED ZACKS INSTEAD OF IBES. IN MY OPINION, IT IS APPROPRIATE TO USE EITHER SOURCE. THUS, I USE ZACKS AS WELL AS IBES GROWTH RATE ESTIMATES IN MY DCF ANALYSIS. BOTH IBES AND ZACKS ARE USED WIDELY WITHIN THE INVESTMENT PROFESSION AND ARE REVISED FREQUENTLY ENOUGH TO REMAIN RELEVANT TO INVESTORS EVALUATING THE GROWTH PROSPECTS OF STOCKS. FURTHER, THE USE OF BOTH SOURCES PROVIDES BROAD-BASED MEASURES OF LONG-TERM GROWTH RATE EXPECTATIONS.

Q. HOW CAN THE DCF MODEL BE APPLIED TO SOUTHERN BELL IN THE ABSENCE OF AN OBSERVABLE MARKET PRICE FOR ITS EQUITY?

A. CONSISTENT WITH THE REGULATORY AND ECONOMIC STANDARDS DISCUSSED EARLIER, IT IS IMPERATIVE THAT SOUTHERN BELL BE ALLOWED THE OPPORTUNITY TO EARN A RETURN COMMENSURATE WITH COMPETING ALTERNATIVE INVESTMENTS OF COMPARABLE RISK. SINCE SOUTHERN BELL'S EQUITY DOES NOT HAVE AN OBSERVABLE MARKET PRICE, IT IS NECESSARY TO IDENTIFY A GROUP OF FIRMS

OF COMPARABLE RISK THAT DO HAVE MARKET-TRADED EQUITY. THE APPLICATION OF THE DCF MODEL TO SUCH A GROUP OF FIRMS OF COMPARABLE RISK WITH OBSERVABLE EQUITY PRICES ALLOWS THE INFERENCE OF AN OBJECTIVE, MARKET-DETERMINED COST OF EQUITY CAPITAL FOR SOUTHERN BELL. THE AVERAGE COST OF EQUITY FOR THIS GROUP OF FIRMS IS USED AS A RELIABLE MEASURE OF THE COST OF EQUITY CAPITAL FOR SOUTHERN BELL.

Q. WHAT METHOD IS USED TO IDENTIFY FIRMS OF COMPARABLE RISK TO SOUTHERN BELL?

A. I USE A CLUSTER ANALYSIS MODEL TO IDENTIFY FIRMS THAT ARE OF COMPARABLE RISK TO SOUTHERN BELL. THREE OVERALL DIMENSIONS OF RISK ARE USED TO COMPARE FIRMS. FIRST, AN OVERALL MEASURE OF THE VARIABILITY OF A FIRM'S RETURN ON EQUITY IS USED TO GROUP FIRMS. SECOND, THE FINANCIAL RISK OF FIRMS IS MEASURED AND USED AS A BASIS OF COMPARISON. THIRD, THE BUSINESS OR OPERATING RISK OF FIRMS IS EVALUATED FROM SEVERAL PERSPECTIVES AND COMPARED AMONG FIRMS. THESE DIMENSIONS ARE, IN EFFECT, AVERAGED IN A MANNER THAT GENERATES A COMPREHENSIVE RISK PROFILE. THUS, FIRMS ARE NOT JUST COMPARED ON A CHARACTERISTIC-BY-CHARACTERISTIC BASIS, THEY ARE

COMPARED IN LIGHT OF THOSE CHOSEN CHARACTERISTICS AND THE RELATIONSHIP AMONG THOSE CHARACTERISTICS.

A SUMMARY MEASURE EXPRESSES THE DISTANCE BETWEEN EACH FIRM AND SOUTHERN BELL. A GROUP OF THE 20 FIRMS THAT ARE CLOSEST TO SOUTHERN BELL IN TERMS OF THIS SUMMARY DISTANCE MEASURE IS CHOSEN FOR ANALYSIS. THE DCF MODEL IS APPLIED TO THIS GROUP OF COMPARABLE FIRMS IN ORDER TO INFER SOUTHERN BELL'S COST OF EQUITY CAPITAL. THIS ANALYSIS RESULTS IN A COST OF EQUITY ESTIMATE OF 13.93% TO 13.99%, USING IBES AND ZACKS GROWN RATE ESTIMATES, RESPECTIVELY.

BILLINGSLEY EXHIBIT RSB-1 (SCHEDULE 1) LISTS THE GROUP OF COMPARABLE FIRMS AND PRESENTS THE DCF RESULTS. THE DETAILS CONCERNING THE COMPARABLE FIRM IDENTIFICATION CRITERIA AND METHODOLOGY ARE PROVIDED IN BILLINGSLEY EXHIBIT RSB-4 (APPENDIX B).

WHILE MY CLUSTER ANALYSIS IS EXPLAINED IN DETAIL IN BILLINGSLEY EXHIBIT RSB-4 (APPENDIX B), THERE IS ONE POINT I WISH TO EMPHASIZE CONCERNING THIS GROUP OF FIRMS BECAUSE IT IS COMMONLY MISUNDERSTOOD BY PEOPLE WHO ARE UNFAMILIAR WITH THE CLUSTER ANALYSIS

TECHNIQUE. SUCH PEOPLE MAY SINGLE OUT ONE COMPANY IN MY CLUSTER OF COMPARABLE FIRMS AND INCORRECTLY ATTEMPT TO COMPARE ITS VARIOUS RISK MEASURES INDIVIDUALLY TO THOSE OF SOUTHERN BELL. HOWEVER, NONE OF THE INDIVIDUAL COMPANIES THAT ARE IDENTIFIED IN THE CLUSTER ARE PRECISELY LIKE SOUTHERN BELL IN EVERY RESPECT. THE FIRMS ARE ALTERNATIVE INVESTMENT OPPORTUNITIES THAT, IN THE AGGREGATE, HAVE OVERALL RISK CHARACTERISTICS SIMILAR TO SOUTHERN BELL.

Q. WHY DOES YOUR ANALYSIS OF FIRMS COMPARABLE IN RISK TO SOUTHERN BELL NOT INCLUDE ANY OF THE REGIONAL BELL HOLDING COMPANIES (RBHCS)?

A. IN ORDER TO DETERMINE THE COST OF EQUITY FOR SOUTHERN BELL, FIRMS MUST BE IDENTIFIED THAT ARE COMPARABLE IN RISK TO SOUTHERN BELL. THE RBHCS ARE NOT, AS A GROUP OR INDIVIDUALLY, COMPARABLE IN RISK TO SOUTHERN BELL. ADDITIONALLY, THE RBHCS DO NOT HAVE SUFFICIENT DATA TO BE INCLUDED IN THE CLUSTER ANALYSIS BECAUSE THEY LACK BOND RATINGS. FURTHER, THE RBHCS POSSESS CHARACTERISTICS THAT ARE INCONSISTENT WITH THE ASSUMPTIONS UNDERLYING THE VERSION OF THE DCF MODEL USED IN MY ANALYSIS. THE

SHARE PRICES OF THE RBHCS REFLECT THE EXPECTED FAVORABLE CURRENT AND FUTURE VALUES OF INVESTMENTS IN UNREGULATED OPERATIONS. THEREFORE, THE RBHCS ARE NOT GOOD PROXIES OF RISK FOR SOUTHERN BELL.

IF ONE WERE TO APPLY THE CONSTANT GROWTH DCF MODEL TO THE RBHCS IN THE SAME WAY THAT I HAVE APPLIED IT TO MY GROUP OF COMPARABLE FIRMS, THERE WOULD BE SEVERAL PROBLEMS WITH THE RESULTING DCF ESTIMATES. THE GROWTH RATE DOES NOT FULLY EXPRESS THE EXPECTED VALUE OF INVESTMENTS IN UNREGULATED LINES OF BUSINESS LIKE CELLULAR SERVICES. SINCE ANALYSTS' ESTIMATES OF FUTURE GROWTH ONLY ARE FIVE YEARS IN LENGTH, THESE UNREGULATED LINES OF BUSINESS DO NOT CURRENTLY CONFORM TO THE ASSUMPTION OF CONSTANT GROWTH IN THE DCF APPROACH. SINCE THE OVERALL GROWTH RATE OF A RBHC IS DEPENDENT ON THE EXPECTED GROWTH OF ITS SEGMENTS AND ITS UNREGULATED SUBSIDIARIES' GROWTH RATE IS NOT EXPECTED TO BE CONSTANT, THE RBHCS' EXPECTED GROWTH RATES ARE NECESSARILY INCONSISTENT WITH THE CONSTANT GROWTH RATE ASSUMPTION OF THE DCF MODEL. THUS, THE APPLICATION OF THE CONSTANT GROWTH VERSION OF THE DCF MODEL TO A RBHC PRODUCES A COST OF EQUITY ESTIMATE FOR THE RBHCS THAT IS BIASED DOWNWARDS.

IN MY DETERMINATION OF SOUTHERN BELL'S COST OF EQUITY, I DO NOT USE THE RBHCS AS RISK PROXIES FOR SOUTHERN BELL BECAUSE THEY DO NOT CONSTITUTE A COMPARABLE RISK BENCHMARK. THE USE OF THE RBHCS AS SUCH A BENCHMARK WOULD HOLD SOUTHERN BELL TO A STANDARD THAT UNDERESTIMATES THE COST OF EQUITY CAPITAL.

V. MARKET RISK PREMIUM COST OF CAPITAL ESTIMATES

Q. HAVE YOU CONDUCTED ANY ADDITIONAL ANALYSIS THAT SUPPORTS THE REASONABLENESS OF THE RESULTS OF APPLYING THE DCF MODEL TO A GROUP OF FIRMS COMPARABLE IN RISK TO SOUTHERN BELL?

A. YES, I HAVE USED THE MARKET RISK PREMIUM APPROACH TO CORROBORATE THE REASONABLENESS OF THE COST OF EQUITY CAPITAL DETERMINED FOR SOUTHERN BELL UNDER THE DCF COMPARABLE SAMPLE APPROACH.

Q. WHAT IS THE MARKET RISK PREMIUM APPROACH AND WHAT IS ITS ECONOMIC JUSTIFICATION?

A. THE MARKET RISK PREMIUM APPROACH IS A SYSTEMATIC

WAY OF QUANTIFYING THE RISK/RETURN TRADE-OFF THAT WAS DISCUSSED EARLIER IN THE SECTION CONCERNING THE ECONOMIC STANDARDS USED IN COST OF EQUITY ANALYSIS. THE MARKET RISK PREMIUM IS DEFINED AS THE DIFFERENCE BETWEEN THE RETURN ON A BROAD BASKET OF EQUITY SECURITIES (THE "MARKET") AND THE RETURN ON A FAR LESS RISKY BENCHMARK SECURITY. THE RETURN ON LONG-TERM U.S. TREASURY BONDS AND THE RETURN ON UTILITY BONDS ARE COMMON BENCHMARKS.

THE ECONOMIC JUSTIFICATION FOR EXAMINING THE DIFFERENCE BETWEEN THE RETURN ON THE MARKET AND A BENCHMARK SECURITY'S RETURN IS TO MEASURE THE PREMIUM THAT IS NECESSARY TO COAX INVESTORS TO MOVE FROM INVESTING IN A "RISK-FREE" OR LOWER RISK SECURITY INTO A HIGHER RISK EQUITY INVESTMENT. THIS PREMIUM IS OFTEN REFERRED TO AS THE EQUITY RISK PREMIUM.

THE RETURN ON THE UTILITY BONDS IS USED FREQUENTLY AS THE BENCHMARK SECURITY BECAUSE IT IS A RELEVANT REFERENCE POINT IN EVALUATING A UTILITY'S COST OF EQUITY. THE GOAL OF MY ANALYSIS IS TO IDENTIFY A MARKET RISK PREMIUM ON PUBLIC UTILITY BONDS AND THEN TO ADD THAT PREMIUM TO THE CURRENT RETURN ON

SUCH BONDS IN ORDER TO DETERMINE A REASONABLE AVERAGE COST OF EQUITY CAPITAL FOR PUBLIC UTILITIES OF COMPARABLE BOND RATINGS.

Q. HOW IS THE EQUITY RISK PREMIUM ESTIMATED?

A. THERE ARE TWO FUNDAMENTAL APPROACHES TO ESTIMATING THE EQUITY RISK PREMIUM. THE FIRST APPROACH IS PROSPECTIVE AND THE SECOND APPROACH IS HISTORICAL. THE EQUITY RISK PREMIUM CAN BE ESTIMATED BY SURVEYING INVESTORS' EXPECTATIONS CONCERNING THE PREMIUM'S MAGNITUDE. SIMILARLY, A PROSPECTIVE APPROACH LIKE THE DCF MODEL CAN BE USED TO ESTIMATE THE EQUITY RISK PREMIUM THAT IS IMPLIED BY THE RELATIONSHIP AMONG ANALYSTS' CONSENSUS GROWTH FORECASTS FOR THE MARKET, THE GENERAL LEVEL OF THE MARKET, AND THE EXPECTED RETURN ON A BENCHMARK SECURITY. ALTERNATIVELY, THE HISTORICAL RELATIONSHIP BETWEEN EARNED RETURNS ON THE EQUITY MARKET AND EARNED RETURNS ON A BENCHMARK SECURITY CAN BE MEASURED, THEREBY REVEALING AN AVERAGE HISTORICAL (EARNED) EQUITY RISK PREMIUM.

WHILE IT IS CLEAR THAT INVESTORS TRADE ON THE BASIS OF EXPECTATIONS (I.E., PROSPECTIVE FACTORS), THESE

EXPECTATIONS ARE NOT DIRECTLY OBSERVABLE. CONVERSELY, WHILE IT IS CLEAR THAT THERE CANNOT BE COMPLETE CONFIDENCE THAT HISTORICAL RETURN PATTERNS WILL BE REPEATED IN THE FUTURE, AN AVERAGE HISTORICAL OR EARNED EQUITY RISK PREMIUM HAS THE VIRTUE OF BEING OBSERVABLE AND OBJECTIVELY VERIFIABLE.

Q. WHICH APPROACH TO ESTIMATING THE EQUITY RISK PREMIUM DO YOU USE IN YOUR ANALYSIS?

A. MY CHOICE IS DICTATED BY THE DESIRE TO CORROBORATE THE RESULTS OF MY APPLICATION OF THE DCF MODEL TO A GROUP OF FIRMS OF COMPARABLE RISK TO SOUTHERN BELL. SINCE THE DCF MODEL IS PROSPECTIVE IN NATURE, I HAVE ALSO USED A PROSPECTIVE APPROACH TO ESTIMATING THE EQUITY RISK PREMIUM. I EXAMINE THE RELATIONSHIP BETWEEN EXPECTED RETURNS ON THE STANDARD & POOR'S 500 INDEX (S&P 500), AS ESTIMATED BY THE DCF MODEL, AND EXPECTED RETURNS ON AN INDEX OF Aaa-RATED PUBLIC UTILITY BONDS OVER A RECENT PERIOD. THE RESULTING AVERAGE EXPECTED EQUITY RISK PREMIUM OF 6.37% [AS SHOWN ON BILLINGSLEY EXHIBIT RSB-2 (SCHEDULE 2)] IS ADDED TO THE AVERAGE YIELD OF 7.53% THAT HAS PREVAILED ON Aaa-RATED PUBLIC

UTILITY BONDS OVER THE MOST RECENT THREE MONTHS (MARCH-MAY, 1993) FOR WHICH DATA IS AVAILABLE. THIS PRODUCES A COST OF EQUITY ESTIMATE OF 13.90%. A MORE DETAILED DISCUSSION OF THIS METHODOLOGY IS PRESENTED IN BILLINGSLEY EXHIBIT RSB-5 (APPENDIX C).

Q. CAN ANY INSTABILITY IN THE RISK PREMIUM BE ADJUSTED FOR SO AS TO INCREASE OUR CONFIDENCE IN ITS REPRESENTATIVENESS?

A. YES. IT IS TRUE THAT STUDIES OF THE HISTORICAL BEHAVIOR OF THE EQUITY RISK PREMIUM FIND THAT IT VARIES CONSIDERABLY OVER TIME. OF PARTICULAR INTEREST IS THE FINDING THAT THE EQUITY RISK PREMIUM IS RELATED INVERSELY TO RETURNS ON THE TRADITIONALLY USED BENCHMARK SECURITIES, NAMELY, U.S. GOVERNMENT OR CORPORATE DEBT SECURITIES. THUS, WHEN INTEREST RATES DECLINE, THE EQUITY RISK PREMIUM WIDENS AND WHEN INTEREST RATES RISE, THE EQUITY RISK PREMIUM NARROWS.

THE MOST PLAUSIBLE EXPLANATION FOR THIS INVERSE RELATIONSHIP IS THAT INVESTORS' ATTITUDES TOWARDS RISK CHANGE OVER TIME. AS HYPOTHESIZED BY THE

NOBEL PRIZE-WINNING FINANCIAL ECONOMIST, WILLIAM F. SHARPE, WHEN INVESTORS ARE DOING WELL FINANCIALLY, THEY ARE OPTIMISTIC AND REQUIRE RELATIVELY LOW RISK PREMIUMS AND WHEN INVESTORS ARE DOING POORLY, THEY ARE PESSIMISTIC AND REQUIRE RELATIVELY HIGH RISK PREMIUMS. SINCE THE GENERAL LEVEL OF INTEREST RATES IS AN INDICATOR OF WHERE THE ECONOMY IS IN A CYCLE, IT IS REASONABLE TO EXPECT AN INVERSE RELATIONSHIP BETWEEN INTEREST RATES AND EQUITY RISK PREMIUMS.

THE ABOVE OBSERVATION SUGGESTS ANOTHER WAY OF USING THE RISK PREMIUM APPROACH TO TEST THE REASONABLENESS OF THE DCF MODEL'S COST OF EQUITY CAPITAL FOR SOUTHERN BELL. RESEARCH BY DR. R.S. HARRIS, PUBLISHED IN FINANCIAL MANAGEMENT IN 1986, FINDS EVIDENCE THAT THE EQUITY RISK PREMIUM TENDS TO MOVE AN AVERAGE OF -.51 OF CONTEMPORANEOUS CHANGES IN THE RETURN ON THE BENCHMARK SECURITY (INDEX). THAT IS, IF INTEREST RATES DECLINE BY 100 BASIS POINTS, THE EQUITY RISK PREMIUM REQUIRED INCREASES BY APPROXIMATELY 51 BASIS POINTS.

IN HIS WORK THE BENCHMARK SECURITY IS 20-YEAR TREASURY BONDS AND THE UTILITY PROXY IS THE

STANDARD & POOR'S UTILITY INDEX OF 40 STOCKS. HIS DATA FOUND AN AVERAGE EXPECTED EQUITY RISK PREMIUM OF 4.81 PERCENT. THEREFORE, ADJUSTING FOR THE DIFFERENCE BETWEEN THE LEVEL OF THE RATES ON THE BENCHMARK SECURITY DURING HIS SAMPLED TIME PERIOD AND THE CURRENT LEVEL OF SUCH RATES GENERATES AN EQUITY RISK PREMIUM ESTIMATE THAT IS MODIFIED EXPLICITLY FOR A PROMINENT SOURCE OF ITS INSTABILITY OVER TIME. THIS ESTIMATED RISK PREMIUM IS ADDED TO THE CURRENT LEVEL OF THE BENCHMARK SECURITY'S RATE IN ORDER TO PROVIDE ANOTHER TEST OF THE REASONABLENESS OF THE COST OF CAPITAL FOR SOUTHERN BELL UNDER THE DCF MODEL.

DURING THE PERIOD OF DR. HARRIS' STUDY, THE AVERAGE RISK PREMIUM WAS 4.81% AND THE AVERAGE YIELD OF 20-YEAR TREASURY BONDS WAS 12.25%. AS NOTED ABOVE, DR. HARRIS FOUND THAT EXPECTED EQUITY RISK PREMIUMS ON THE STANDARD & POOR'S UTILITY INDEX CHANGE BY AN AVERAGE OF -.51 OF CHANGES IN THE LEVEL OF LONG-TERM TREASURY BOND YIELDS. GIVEN THAT THE CURRENT AVERAGE LEVEL ON 20-YEAR TREASURY BONDS IS 6.38% (MAY 1993), THE APPROPRIATE CURRENT RISK PREMIUM IS 7.80%. THIS IS DETERMINED BY MULTIPLYING THE 5.87% DECLINE IN RATES SINCE THE

TIME PERIOD OF HIS STUDY BY -.51 AND THEN ADDING BACK THE AVERAGE RISK PREMIUM OF 4.81% TO THE INDICATED CHANGE OF 2.99%. THIS ALTERNATIVE APPROACH CONSEQUENTLY PROVIDES A COST OF EQUITY FOR SOUTHERN BELL OF 14.18%, WHICH IS THE CURRENT AVERAGE LEVEL OF 20-YEAR TREASURY YIELDS OF 6.38% ADDED TO THE ADJUSTED RISK PREMIUM OF 7.80%.

Q. WHAT IS YOUR ESTIMATE OF THE COST OF EQUITY FOR SOUTHERN BELL USING THE RISK PREMIUM APPROACH?

A. BASED ON MY ANALYSES, THE RISK PREMIUM COST OF EQUITY FOR SOUTHERN BELL IS IN THE RANGE OF 13.90% TO 14.18%.

VII. RECOMMENDATIONS

Q. WHAT COST OF EQUITY CAPITAL DO YOU RECOMMEND THAT THIS COMMISSION USE FOR SOUTHERN BELL?

MY ANALYSIS DETERMINES THE COST OF EQUITY CAPITAL FROM TWO DISTINCT PERSPECTIVES: 1) THE DCF MODEL, AS APPLIED TO A GROUP OF FIRMS OF RISK COMPARABLE TO SOUTHERN BELL, AND 2) THE RISK PREMIUM APPROACH. I BELIEVE THAT THE COST OF EQUITY CAPITAL FOR

SOUTHERN BELL IS IN THE RANGE OF 13.90% TO 14.18% WITH A MIDPOINT OF 14.04%. I UNDERSTAND THAT THIS RANGE IS ABOVE THE RATE ESTABLISHED BY THIS COMMISSION IN 1988 AND 1990 AND IS WITHIN THE RANGE SET BY THE COMMISSION FOR THE COMPANY'S COST OF EQUITY. IT IS MY EXPERT OPINION THAT THIS RATE IS AN OBJECTIVE, MARKET-DETERMINED COST OF EQUITY CAPITAL THAT IS FAIR TO BOTH SOUTHERN BELL AND TO ITS RATEPAYERS IN THE STATE OF FLORIDA.

Q. DO YOU BELIEVE THAT YOUR RECOMMENDED COST OF EQUITY CAPITAL IS ACCURATE EVEN IN LIGHT OF THE RECENT DECLINES IN INTEREST RATES?

A. YES, MY RECOMMENDED RATE IS ACCURATE. IT WAS DETERMINED BY USING METHODOLOGICAL APPROACHES THAT TAKE INTO ACCOUNT THE RECENT DECLINE IN INTEREST RATES. THE DCF MODEL USES MARKET-DETERMINED STOCK PRICES THAT ARE DETERMINED BY INVESTORS IN LIGHT OF, AMONG OTHER THINGS, CURRENT AND EXPECTED INTEREST RATES. THE IBES AND ZACKS CONSENSUS GROWTH RATE FORECASTS USED IN THE DCF MODEL REFLECT FINANCIAL ANALYSTS' INTEREST RATE EXPECTATIONS. THE MARKET RISK PREMIUM APPROACH ADJUSTS EXPLICITLY FOR THE CURRENT LEVEL OF INTEREST RATES BY ADDING

THE RECENT AVERAGE LEVEL OF SUCH RATES TO THE EQUITY RISK PREMIUM. MY OPINION IS THAT THE REASONABLENESS OF MY RECOMMENDED RANGE OF 13.90% TO 14.18% IS SUPPORTED BY MORE THAN ONE METHODOLOGICAL APPROACH, BY THE CLOSENESS OF THE ESTIMATES PROVIDED BY THESE DISTINCT APPROACHES, AND BY THE OBJECTIVITY OF THE MARKET-BASED DATA USED IN MY ANALYSIS.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY IN THIS PROCEEDING?

A. YES, IT DOES.

FPSC Exhibit Number _____
FPSC Docket 920260-TL
Billingsley Exhibit RSB-1
Billingsley Schedule 1
Discounted Cash Flow Analysis
for Comparable Firm Group

DISCOUNTED CASH FLOW ANALYSIS FOR COMPARABLE FIRM GROUP

	IBES	ZACKS
Mobile Corp.	15.60%	14.29%
Exxon Corp.	13.73%	13.34%
Southern New England Tel.	11.87%	11.85%
McDonalds Corp.	14.91%	13.75%
Kimberly-Clark Corp.	15.31%	15.35%
Amoco Corp.	14.58%	15.33%
Sara Lee Corp.	16.26%	16.09%
Du Pont (e.i.) de nemours	14.56%	14.78%
Lincoln Telecommunications	9.63%	10.80%
Anheuser-Busch Cos., Inc.	14.54%	14.84%
Hershey Foods Corp.	13.74%	13.38%
Chevron Corp.	13.92%	13.92%
Pitney Bowes, Inc.	14.01%	14.08%
Emerson Electric Corp.	13.14%	13.76%
Air Products Chemicals, Inc.	14.00%	14.47%
Dover Corp.	11.44%	13.40%
Becton Dickinson	13.78%	13.65%
Proctor & Gamble	14.99%	15.11%
Norfolk Southern	12.61%	12.65%
Texaco	15.90%	15.03%
AVERAGE	13.93%	13.99%

FPSC Exhibit Number _____
FPSC Docket 920260-TL
Billingsley Exhibit RSB-2
Billingsley Schedule 2
Expected Market Risk Premium

EXPECTED MARKET RISK PREMIUM

Time Period	Standard & Poor's 500 DCF Cost of Equity*	Moody's Aaa Public Utility Bonds	Market Risk Premium
10/87	14.82%	10.92%	3.90%
11/87	15.06	10.43	4.63
12/87	15.46	10.64	4.82
1/88	15.65	10.39	5.26
2/88	15.52	9.77	5.75
3/88	15.42	9.72	5.70
4/88	15.45	10.07	5.38
5/88	15.42	10.29	5.13
6/88	15.65	10.27	5.38
7/88	15.63	10.50	5.13
8/88	15.72	10.66	5.06
9/88	15.66	10.15	5.51
10/88	15.63	9.62	6.01
11/88	15.64	9.52	6.12
12/88	15.58	9.67	5.91
1/89	15.54	9.72	5.82
2/89	15.39	9.71	5.68
3/89	15.34	9.87	5.47
4/89	15.35	9.88	5.47
5/89	15.40	9.60	5.80

FPSC Exhibit Number _____
FPSC Docket No. 920260-TL
Billingsley Exhibit RSB-2
Billingsley Schedule 2
Expected Market Risk Premium
Page 2 of 4

EXPECTED MARKET RISK PREMIUM

Time Period	Standard & Poor's 500 DCF Cost of Equity	Moody's Aaa Public Utility Bonds	Market Risk Premium
6/89	15.22	9.13	6.09
7/89	15.36	8.98	6.38
8/89	15.14	9.02	6.12
9/89	14.94	9.10	5.84
10/89	15.02	9.01	6.01
11/89	15.17	8.92	6.25
12/89	15.12	8.92	6.20
1/90	15.18	9.08	6.10
2/90	15.29	9.35	5.94
3/90	15.47	9.48	5.99
4/90	15.62	9.60	6.02
5/90	15.70	9.58	6.12
6/90	15.71	9.38	6.33
7/90	15.81	9.36	6.45
8/90	15.69	9.54	6.15
9/90	15.91	9.73	6.18
10/90	16.04	9.66	6.38
11/90	16.23	9.43	6.80
12/90	16.16	9.18	6.98

FPSC Exhibit Number _____
FPSC Docket No. 920260-TL
Billingsley Exhibit RSB-2
Billingsley Schedule 2
Expected Market Risk Premium
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EXPECTED MARKET RISK PREMIUM

Time Period	Standard & Poor's 500 DCF Cost of Equity	Moody's Aaa Public Utility Bonds	Market Risk Premium
1/91	16.17	9.17	7.00
2/91	16.01	8.92	7.09
3/91	15.85	9.04	6.81
4/91	15.61	8.95	6.66
5/91	15.55	8.93	6.62
6/91	15.59	9.10	6.49
7/91	15.59	9.10	6.49
8/91	15.62	8.81	6.81
9/91	15.59	8.65	6.94
10/91	15.52	8.57	6.95
11/91	15.58	8.52	7.06
12/91	15.65	8.38	7.27
1/92	15.60	8.22	7.38
2/92	15.71	8.30	7.41
3/92	15.57	8.39	7.18
4/92	15.53	8.36	7.17
5/92	15.54	8.32	7.22
6/92	15.45	8.26	7.19
7/92	15.44	8.12	7.32
8/92	15.46	8.04	7.42

FPSC Exhibit Number _____
FPSC Docket No. 920260-TL
Billingsley Exhibit RSB-2
Billingsley Schedule 2
Expected Market Risk Premium
Page 4 of 4

EXPECTED MARKET RISK PREMIUM

Time Period	Standard & Poor's 500 DCF Cost of Equity	Moody's Aaa Public Utility Bonds	Market Risk Premium
9/92	15.57	8.04	7.53
10/92	15.53	8.06	7.47
11/92	15.56	8.11	7.45
12/92	15.57	8.01	7.56
1/93	15.29	7.94	7.35
2/93	15.07	7.75	7.32
3/93	15.00	7.64	7.36
4/93	14.71	7.50	7.21
5/93	14.81	7.44	7.37
AVERAGE	15.50%	9.12%	6.37%

Notes: *Standard and Poor's 500 DCF Cost of Equity, calculated as described in Appendix C.

**Average risk premium is the average of risk premiums for each month.

RESUME

RANDALL S. BILLINGSLEY

May 1993

BUSINESS ADDRESS

Association for Investment Management and Research
5 Boar's Head Lane
P.O. Box 3668
Charlottesville, VA 22903
Phone: (804) 980-9768
Fax: (804) 980-3634

APPOINTMENTS

1993: **VICE PRESIDENT**
Association for Investment Management and Research (AIMR)
Education and Programs Department

Duties: Project director, responsible for the development and design of education technology products. Current projects include videos on options and futures analysis, ethical issues in the investment profession, and financial statement analysis for investment valuation and management.

Responsible for the design and offering of continuing education programs to meet the needs of AIMR members in particular and the investment industry in general. Current seminars under development include "Industry Analysis: The Telecommunication Industries" and "Ethical Issues in Investment Analysis."

ASSOCIATE PROFESSOR OF FINANCE
On Leave of Absence
Virginia Polytechnic Institute and State University

1987-1992: **ASSOCIATE PROFESSOR OF FINANCE**
Virginia Polytechnic Institute and State University

1981-1987: **ASSISTANT PROFESSOR OF FINANCE**
Virginia Polytechnic Institute and State University

1978-1981: **LECTURER OF FINANCE**
Texas A&M University

1977-1978: **LECTURER OF ECONOMICS**
Research Assistant in Economics
Texas A&M University

Summers 1978, 1980: **RESEARCH ASSOCIATE**
Texas Transportation Institute,
Texas A&M University

Duties: (1978) Principal researcher and author of a study concerning design of optimal subsidy techniques for public transit projects. (1980) Co-author of research proposal for study of the projected economic impact of user charges on the Texas Gulf Intra-Coastal Waterway (proposal accepted and fully funded). Performed research concerning various policy issues in transportation economics.

PROFESSIONAL DESIGNATIONS

1986: Chartered Financial Analyst (CFA)
The Institute of Chartered Financial Analysts
(Association for Investment Management and Research)

1992: Certified Rate of Return Analyst (CRRA)
National Society of Rate of Return Analysts

EDUCATION

1982: Doctor of Philosophy in Finance, supporting field in Economics
Dissertation Title: "A Multivariate Analysis of Bank Holding Company Capital Note and Debenture Ratings"
Chairman: Dr. Donald R. Fraser
Texas A&M University

1978: Master of Science in Economics, supporting field in Statistics
Texas A&M University

1976: Bachelor of Arts in Economics
Texas Tech University

PRIMARY TEACHING AND RESEARCH INTERESTS

Teaching: Investments, Corporate Finance, Financial Institution Management.

Research: Investments, valuation methods, cost of capital analysis, primary market pricing of debt instruments, and banking and public utility regulatory issues.

COURSES TAUGHT

Graduate: Financial Institutions and Markets (Ph.D.)
Investment Problems (MBA)
Financial Cases (MBA)
Fundamentals of Finance (MBA)
Financial Institution Management (MBA)

Management of Financial Resources (MBA)
Taught as a Visiting Professor at Northeastern University, Boston, MA Summer 1984

Undergraduate:	Investments I (survey course)
	Investments II (options and financial futures)
	Advanced Financial Management:Cases
	Corporate Finance
	Bank Management
	Financial Markets and Institutions
	Real Estate Finance and Investment
Executive:	Equity Valuation and Analysis
	Interest Rate Risk Management
	Economic Analysis for Investment Decision-Making
	Quantitative Analysis for Investment Decision-Making

TEACHING HONORS

Teaching Excellence Award, The R. B. Pamplin College of Business, Virginia Polytechnic Institute and State University, 1986-1987.

Excellence In Teaching Award, MBA Association, Virginia Polytechnic Institute and State University, 1985-1986.

PUBLICATIONS

Journal Articles - Refereed

"Regional Reciprocal Interstate Banking: The Supreme Court and the Resolution of Uncertainty," *Journal of Banking and Finance*, Vol. 16, No. 1, 1992, pp. 665-686, (Author listing: R. S. Billingsley and R. E. Lamy).

"Integration of the Mortgage Market," *Journal of Financial Services Research*, Vol. 6, 1992, 137-155, (Author listing: R. S.Billingsley, V. A. Bonomo, and S. P. Ferris).

"Units of Debt with Warrants: Evidence of the 'Penalty-Free' Issuance of an Equity-Like Security," *The Journal of Financial Research*, Vol. 13, No. 3, Fall 1990, pp. 187-199, (Author listing: R. S. Billingsley, R. E. Lamy, and D. M. Smith).

"Shareholder Wealth and Stock Repurchases By Bank Holding Companies," *Quarterly Journal of Business and Economics*, Vol. 28, No. 1, Winter 1989, pp. 3-25, (Author listing: R. S. Billingsley, D. R. Fraser and G. R. Thompson).

Abstract: *Journal of Economic Literature*, Vol. 27, No. 3, September 1989, p. 1503.

"The Regulation of International Lending: IMF Support, the Debt Crisis, and Bank Shareholders," *Journal of Banking and Finance*, Vol. 12, No. 2, 1988, pp. 255-274, (Author listing: R. S. Billingsley and R. E. Lamy).

"Put-Call Ratios and Market Timing Effectiveness," *Journal of Portfolio Management*, Vol. 15, No. 1, Fall 1988, pp. 25-28, (Author listing: R. S. Billingsley and D. M. Chance).

Citation: "Using 'Dumb' Money as a Market Guide," Earl C. Gottschalk, Jr., the *Wall Street Journal*, January 17, 1989, p. C1.

"Bankruptcy Avoidance As A Merger Incentive," *Managerial Finance*, Vol. 14, No. 1, November 1988, pp. 25-33, (Author listing: R. S. Billingsley, D. J. Johnson, and R. P. Marquette).

"The Pricing and Performance of Stock Index Futures Spreads," *Journal of Futures Markets*, Vol. 8, No. 3, June 1988, pp. 303-318, (Author listing: R. S. Billingsley and D. M. Chance).

"The Choice Among Debt, Equity, and Convertible Bonds," The *Journal of Financial Research*, Vol. 11, No. 1, Spring 1988, pp. 43-55, (Author listing: R. S. Billingsley, R. E. Lamy, and G. R. Thompson).

"Valuation of Primary Issue Convertible Bonds," *The Journal of Financial Research*, Vol. 9, No. 3, Fall 1986, pp. 251-259, (Author listing: R. S. Billingsley, R. E. Lamy, and G. R. Thompson).

Abridged Reprint: *The CFA Digest*, Vol. 17, No. 2, Spring 1987, pp. 18-19.

"The Reaction of Defense Industry Stocks to World Events," *Akron Business and Economic Review*, Vol. 18, No. 2, Summer 1987, pp. 40-47, (Author listing: R. S. Billingsley, R. E. Lamy, and G. R. Thompson).

"Listed Stock Options and Managerial Strategy," *Strategy and Executive Action,* No. 4, Fall 1986, pp. 17-20, 28, (Author listing: R. S. Billingsley and D. M. Chance).
"Reevaluating Mortgage Refinancing "Rules of Thumb," *Journal of the Institute of Certified Financial Planners*, Vol. 7, No. 1, Spring 1986, pp. 37-45, (Author listing: R. S. Billingsley and D. M. Chance).

"Explaining Yield Savings on New Convertible Bond Issues," *Quarterly Journal of Business and Economics*, Vol. 24, No. 3, Summer 1985, pp. 92-104, (Author listing: R. S. Billingsley, R. E. Lamy, M. W. Marr, and G. R. Thompson).

Abstract: *Journal of Economic Literature*, Vol. 24, No. 2, June 1986, p. 1083.

"Options Market Efficiency and the Box Spread Strategy," *The Financial Review,* Vol. 20, No. 4, November 1985, pp. 287-301, (Author listing: R. S. Billingsley and D. M. Chance).

Reprint: *CFA Readings in Derivative Securities*, pp. 217-231, Charlottesville, VA:The Institute of Chartered Financial Analysts, 1988.

"Determinants of Stock Repurchases by Bank Holding Companies," *Journal of Bank Research*, Vol. 16, No. 3, Autumn 1985, pp. 128-35, (Author listing: R. S. Billingsley and G. R. Thompson).

"The Informational Content of Unrated Industrial Bonds," *Akron Business and Economic Review*, Vol. 16, No. 2, Summer 1985, pp. 53-58, (Author listing: R. S. Billingsley and R. E. Lamy).

"Split Ratings and Bond Reoffering Yields," *Financial Management*, Vol. 14, No. 2, Summer 1985, pp. 59-65, (Author listing: R. S. Billingsley, R. E. Lamy, M. W. Marr, and G. R. Thompson).

"Determinants of Bank Holding Company Bond Ratings," *The Financial Review*, Vol. 19, No. 1, March 1984, pp. 55-66, (Author listing: R. S. Billingsley and D. R. Fraser).

Abstract: *Journal of Economic Literature*, Vol. 22, No. 4, December 1984, p. 2010.

"Market Reaction to the Formation of One-Bank Holding Companies and the 1970 Bank Holding Company Act Amendment," *Journal of Banking and Finance*, Vol. 8, No. 2, 1984, pp. 21-33, (Author listing: R. S. Billingsley and R. E. Lamy).

Journal Articles - Other

"Managing Portfolios Using Index Options," *Futures*, Vol. 14, No. 9, September 1985, pp. 70-74, (Author listing: D. M. Chance and R. S. Billingsley).

Monographs & Sponsored Research

"The Evolution of Depository Institution Regulation In The United States," in *Banking and Monetary Reform: A Conservative Agenda*, Catherine England, pp. 47-56, Washington, D. C.: The Heritage Foundation, 1985, (Author listing: R. S. Billingsley).

Fare Box and Public Revenue: How to Finance Public Transportation. State Department of Highways and Public Transportation, Texas Transportation Institute, February 1980, (Author listing: R. S. Billingsley, P. K. Guseman and W. F. McFarland).

Proceedings

"Bankruptcy Avoidance as a Merger Incentive:An Empirical Study of Failing Firms," *The Financial Review*, Vol. 18, No. 3, 1983, p. 94, (Author listing: R. S. Billingsley, D. J. Johnson, and R. P. Marquette).

"A Multivariate Analysis of the Ratings of Bank Holding Company Debt Issues," *The Financial Review*, Vol. 17, No. 2, July 1982, p. 57, (Author listing: R. S. Billingsley and D. R. Fraser).

PAPERS PRESENTED AT PROFESSIONAL MEETINGS

"Estimation Bias in the Application of the Quarterly Discounted Cash Flow Model to Public Utility Cost of Capital Analysis," (Author listing: R. S. Billingsley and V. A. Bonomo). To be presented at the Financial Management Association Meetings, San Francisco, California, October 1992.

"Firm Value and Convertible Debt Issues: Signalling vs. Agency Effects," (Author listing: R. S. Billingsley, R. E. Lamy, and D. M. Smith). Presented at the Eastern Finance Association Meetings, Hot Springs, Virginia, April 1991.

"The Valuation of Simultaneous Debt and Equity Offerings," (Author listing: R. S. Billingsley, R. E. Lamy, and D. M. Smith). Presented at the Financial Management Association Meetings, Orlando, Florida, October 1990.

"The Choice Between Issuing Convertible Bonds and Units of Debt with Warrants," (Author listing: R. S. Billingsley, R. E. Lamy and D. M. Smith). Presented at the Financial Management Association Meetings, New Orleans, Louisiana, October 1988. (Subsequently published in *The Journal of Financial Research*, see article citation.)

"The Choice Among Debt, Equity, and Convertible Bonds," (Author listing: R. S. Billingsley, R. E. Lamy, and G. R. Thompson). Presented at the Financial Management Association Meetings, Las Vegas, Nevada, October 1987. (Subsequently published in *The Journal of Financial Research*, see article citation.)

"The Regulation of International Lending:IMF Support, the Debt Crisis, and Bank Shareholders," (Author listing: R. S. Billingsley and R. E. Lamy). Presented at the Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, Chicago, Illinois, May 1986. (Subsequently published in the *Journal of Banking and Finance*, see article citation.)

"Valuation of Primary Issue Convertible Bonds," (Author listing: R. S. Billingsley, R. E. Lamy and G. R. Thompson). Presented at the Financial Management Association Meetings, Denver, Colorado, October 1985. (Subsequently published in *The Journal of Financial Research*, see article citation.)

"The Economic Impact of Split Ratings on Bond Reoffering Yields," (Author listing: R. S. Billingsley, R. E. Lamy, M. W. Marr, and G. R. Thompson). Presented at the Financial Management Association Meetings, Toronto, Canada, October 1984. (Subsequently published in *Financial Management*, see article citation.)

"The Informational Content of Unrated Industrial Bonds," (Author listing: R. S. Billingsley and R. E. Lamy). Presented at the Financial Management Association Meetings, Atlanta, Georgia, October 1983. (Subsequently published in *Akron Business and Economic Review*, see article citation.)

"Bankruptcy Avoidance As A Merger Incentive:An Empirical Study of Failing Firms," (Author listing: R. S. Billingsley, R. P. Marquette, and D. J. Johnson). Presented at the Eastern Finance Association Meetings, New York, New York, April 1983. (Subsequently published in *Managerial Finance*, see article citation.)

"A Multivariate Analysis of the Ratings of Bank Holding Company Debt Issues," (Author listing: R. S. Billingsley and D. R. Fraser). Presented at the Eastern Finance Association Meetings, Jacksonville, Florida, April 1982. (Subsequently published in *The Financial Review*, see article citation.)

SESSIONS CHAIRED AT PROFESSIONAL MEETINGS

"The Effects of New Debt Decisions," Financial Management Association Meeting, New York, New York, October 1986.

PAPERS DISCUSSED AT PROFESSIONAL MEETINGS

"Behavioral Aspects of the Intra-Industry Capital Structure Decision," M. G. Filbeck, R. F. Gorman, and D. Preece. To be presented at the Financial Management Association Meetings, San Francisco, California, October 1992.

"The Relationship Between the Argentinean Debt Rescheduling Announcement and Bank Equity Returns," Igbal Mansur, Steven J. Cochran, and David K. Seagers. Presented at the Financial Management Association Meetings, Boston, Massachusetts, October 1989.

"Model Specification In the Statistical Analysis of Bond Ratings," John J. Jackson and James W. Boyd. Presented at the Southern Finance Association Meeting, Washington, D. C., November 1983.

"The Effects of Inflation on Leverage, Risk, and Return," I. Keong Chew. Presented at the Financial Management Association Meeting, San Francisco, California, October 1982.

PROFESSIONAL SERVICE

Association for Investment Management and Research Activities
(Formally the Institute for Chartered Financial Analysts).

Grading Staff, Institute of Chartered Financial Analysts, June 1987.

Candidate Curriculum Committee, Institute of Chartered Financial Analysts, Quantitative Analysis Sub-Committee, 1987-1989.

CFA Examination Analysis Team, Levels I-III, March 1988.

CFA Examination Grading Review Team, July 1988.

Instructor, CFA Refresher Course, Valuation: Equity, Charlottesville, VA, June 1992.

Consulting Clients

Association for Investment Management and Research

Bell Atlantic

BellSouth Telecommunications

The Financial Analysts' Review of the United States

Institut Penembangan Analisis Finansial, Jakarta, Indonesia

Securities Analysts' Association, Bangkok, Thailand

Union Bank of Switzerland, Zürich

Manuscript Referee

Journal of Banking and Finance

Journal of Financial Research

Journal of Futures Markets

Financial Review

Quarterly Journal of Business and Economics

Quarterly Review of Business and Economics

International Review of Economics and Finance

Japan and the World Economy

Journal of Business Research

Journal of Economics and Business

Engineering Economist

Program Committee, 1992 Financial Management Association Meeting.

Program Committee, 1991 Financial Management Association Meeting.

Reviewer for 1992 Eastern Finance Association meeting papers.

Reviewer for 1985 Eastern Finance Association paper competition.

INVITED SPEECHES

Securities Analysts' Association, "Common Problems in Valuing Equity Securities," Bangkok, Thailand, April 1992.

Virginia Bankers Association, Group Five (Credit Policy Committee), "Want to Sell Your Bank?" Interstate Banking in 1987 and Beyond," Credit Policy Conference, Radford, VA, April 1987.

EXECUTIVE DEVELOPMENT ACTIVITIES

Developed continuing education program with Don M. Chance entitled, "Managing Interest Rate Risk with Financial Futures." Presented in Roanoke, VA (May 1984) and Williamsburg, VA (June 1984).

UNIVERSITY SERVICE

Department Personnel Committee (1987-1992)

Department Head Search Committee (1991-1992)

Department Head Evaluation Committee, Chairman (1988)

University Scheduling and Registration Committee (1986-1989)

College of Business Graduate Curriculum Committee, Chairman (1986-1987)

College of Business Undergraduate Curriculum Committee (1984-1986, 1990-1992)

College of Business Advisory Committee (1992-current)

Department Undergraduate Curriculum Committee, Chairman (1990-1992)

Honors Program in Finance Advisor (1983-1992)

State Commission on Higher Education in Virginia Visitation Team Interview (1985)

Member of Departmental Executive Committee (1983-1985, 1986)

Department Head Search Committee (1982-83)

Undergraduate Finance Major Advisor (1981-1983, 1985-1992)

Member of Ph.D. Student Committees (numerous, 1982-current)

Ph.D. Student Committee Chairman, 1988/89:David M. Smith

SERVICE TO STUDENT ORGANIZATIONS

Financial Advisor to Student Media Board (1983-84)

Founding Faculty Sponsor: Finance Club, Student Chapter of Financial Management Association (1982-84)

Faculty Brother of Alpha Kappa Psi, national business fraternity (1982-current)

MEMBERSHIP IN HONORARY AND PROFESSIONAL ORGANIZATIONS

American Finance Association - national professional society.

Association for Investment Management and Research - international professional society, merger of the Institute of Chartered Financial Analysts and the Financial Analysts Federation.

Financial Management Association - national professional society.

National Society of Rate of Return Analysts - national professional society.

Southern Finance Association - regional professional society.

Omicron Delta Epsilon - international economics honorary society.

Alpha Kappa Psi - national business fraternity.

PROFESSIONAL SEMINARS ATTENDED

"Industry Analysis: The Health Care Industries," The Association for Investment Management and Research, Washington, DC, February 1993.

"The CAPM Controversy: Policy and Strategy," The Association for Investment Management and Research, New York, NY, March 1993.

"Options and Futures: New Routes to Risk/Return Management," The Institute of Chartered Financial Analysts, Dallas, TX, February 1984.

Financial Futures Seminar. Sponsored by the Chicago Board of Trade, March 1982.

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COMPARABLE FIRM IDENTIFICATION CRITERIA AND METHODOLOGY

I. INTRODUCTION

Since Southern Bell (SBT) does not have equity trading in the market, no direct market price of equity can be used to infer SBT's cost of equity. Thus, it is necessary to identify a portfolio of firms that are comparable in equity investment risk to SBT. The DCF model will be applied to each of the portfolio's members and an average cost of equity capital will be determined. Given that the portfolio of firms are of comparable risk to SBT, this average cost of equity is an objective, reasonable estimate of SBT's cost of equity. The next section identifies the sources of investment risk and the specific proxies used to identify comparable firms.

II. RISK CRITERIA

The following sources of investment risk are measured and used to identify firms into a group of risk comparable to SBT:

A. Variability of Total Return

The variability of returns reflects the total risk perceived by the investor. This is measured by the standard deviation of the return on common equity (ROE) over the most recent five years (1988-1992). Higher variability implies higher risk to the equity investor.

B. Financial Risk

1. Relative Amount of Debt

Financial risk is dependent, in part, on the amount of total debt employed by a firm relative to its equity base. Other things being equal, higher debt per dollar of equity implies higher risk. This source of risk is measured by a firm's total assets-to-equity ratio, the so-called "equity multiplier" in fundamental equity analysis. The most recent annual value (1992) is used in the analysis.

2. Ability to Service Debt

Apart from the above descriptive measure of a firm's relative indebtedness, it is important to evaluate the ability of a firm to service its total debt. This is assessed by examining the amount of interest (I) that a firm owes relative to the resources (operating earnings, or earnings before interest and taxes (EBIT)) it has available to meet that commitment. This is measured by the interest coverage ratio, EBIT/I. Other things being equal, an increase in this ratio reflects greater ability to service debt and consequently implies lower riskiness. The most recent annual value (1992) of this variable is employed.

3. Bond Rating

Bond ratings reflect a rating agency's evaluation of the relative probability of default on a firm's given debt security. Ratings are readily accessible to investors and are used commonly to appraise the risk of a firm. Bond ratings are assigned numerical (i.e., dummy variable) values for the purposes of the present analysis. The most recent Standard & Poor's bond rating is used in the identification process.

4. Liquidity Risk

An important aspect of a firm's riskiness is its comprehensive ability to service all of its debt, both long- and short-term. The ability of a firm to meet its total debt commitments is captured by the various financial risk variables discussed above. A firm's capacity to cover its short-term indebtedness is measured by the well-known quick or "acid test" ratio: (Current Assets − Inventories) / Current Liabilities. This variable measures the extent of a firm's short-term, presumably readily convertible into cash, assets available to meet its short-term liabilities. Other things being equal, the higher is the quick ratio, the lower is the perceived risk of investing in a company. The most recent annual value (1992) of this variable is used in the identification process.

C. Business Risk

1. Variability of Cash Flows

The variability of a firm's cash flows characterize the riskiness of a firm's chosen line of business. Cash flows represent a firm's command over goods and services. The risk implications of a given level of cash flows are easiest to interpret when related to an economically meaningful base such as total assets. This source of risk is measured by the standard deviation of the ratio of a firm's cash flows-to-total assets. Higher values of the measure are associated with greater risk. The variable is calculated using the most recent five years of annual data (1988-1992).

2. Growth Opportunities

Other things being equal, companies experiencing higher growth are associated with early stages in the life cycle of a firm. The early stages are characterized by rapidly increasing revenues, profit margins, and earnings. Yet such rapid growth is not sustainable over the long-run and movement into a more mature stage of the life cycle usually brings the erosion of a firm's competitive position. Thus, high sales growth is usually an indication that a firm is in a start-up business or moving toward a potential shake-out, either of which proxy for higher operating or business risk. The growth in sales variable is measured using the most recent five years of annual data (1988-1992).

III. METHODOLOGY USED IN THE COMPARABLE FIRMS IDENTIFICATION PROCESS

Comparable firms are identified using a modified cluster analysis model. Classical cluster analysis techniques develop natural groupings of objects based on the relationships among a given set of descriptive variables. The goal is to determine how the object should be assigned to groups so that there will be as much similarity within groups and as much difference among groups as possible. No predetermined reference object is offered to organize the grouping effort. The modified cluster analysis used in this analysis differs from the classical techniques by identifying a target object (firm) characterized by several descriptive (financial) measures. The goal of this application is to find a group of firms that are as similar as possible to the target firm in terms of the identified measures of investment risk. Unlike classical cluster analysis, the goal of maximizing the differences among groups is irrelevant since all dissimilar groups are discarded. Specifically, in this context, only those firms that are identified as comparable to SBT are retained for use in inferring the cost of equity capital for the firm.

As in classical cluster models, similarity is determined by measuring the Euclidian distance between the descriptive variables in a manner that considers the multivariate nature of the problem. The distance D_i of each firm i in the sample from the target firm T, assuming the seven descriptive variables V_{ij} discussed above, is calculated as:

$$D_i = \sqrt{\sum_{j=1}^{7} (V_j - V_{Tj})^2} .$$

The distance measure uses the squared differences of a given firm's descriptive variable from that of the target firm T in order to measure distance irrespective of whether it is above (positive) or below (negative) the respective value of the target firm. The group of firms considered to be similar to the target firm, SBT (BellSouth Telecommunications is the actual target since it has published financial data), is identified by balancing the goals of minimizing the distance D_i of a firm from the target with the desire to have a sample of sufficient size to assure confidence in its representativeness.

IV. ISSUES IN APPLYING CLUSTER ANALYSIS

Only firms available on the COMPUSTAT data source also having an IBES consensus growth rate forecast based on at least two analysts' estimates are retained for analysis. Outliers are identified on a variable-by-variable basis. Those firms with variable values greater than or less than two standard deviations from the mean value of the population for each variable are deleted. All outliers must be eliminated before standardizing the variables or the means and standard deviations will be biased. The final population consists of 222 firms.

Since the proxies of investment risk discussed above are denominated in different units of

measurement, they consequently need to be standardized. A Z-statistic is calculated using the mean $\overline{V}_j$ and the standard deviation σ_j of each variable across all of the firms as:

$$Z_{ij} = \frac{V_{ij} - \overline{V}_j}{\sigma_j}$$

The squared difference between the Z-value for each firm's given variable and the value of the Z-statistic for the target firm for the same given variable across all descriptive variables is then calculated. After generating Z-values for every variable for each firm, squared differences for each firm are summed. The distance measure D_i is determined by taking the square root of the sum of the squared differences.

The final step in the analysis is the identification of the group of the 20 firms that are the least distant from SBT. Schedule 1 lists the final group of comparable firms. A correlation coefficient matrix for the variables used to identify firms is provided on the following page. It shows that the degree of correlation among the variables is acceptably low and thus that there is no reason to be concerned that any of the variables capture essentially the same source(s) of investment risk and thus double-count effects.

CLUSTER ANALYSIS CORRELATION MATRIX

	Bond Rating	ROE Variability	Assets To Equity	Interest Coverage	Quick Ratio	Cash Flow to Assets Variability
ROE Variability	.251					
Assets to Equity	.217	.530				
Interest Coverage	-.515	-.257	-.315			
Quick Ratio	-.041	-.035	-.187	.168		
Cash Flow to Assets Variability	.170	.674	.096	-.211	.072	
Sales Growth	-.066	-.318	-.058	.192	-.034	-.280

ESTIMATION OF THE COST OF EQUITY CAPITAL USING THE EXPECTED MARKET RISK PREMIUM APPROACH

I. INTRODUCTION

This schedule elaborates on the steps taken in estimating Southern Bell's (SBT's) cost of equity capital using the expected market risk premium approach. The following specific issues and steps are discussed: 1) the rationale for the conceptual approach; 2) the appropriate method for estimating the expected market return; 3) the source of the expected growth rate; 4) the appropriate interest rate reference point; 5) the specific computational procedure used to estimate the cost of equity capital, and 6) the time period covered by the statistical analysis.

II. RATIONALE FOR THE CONCEPTUAL APPROACH

The expected market risk premium approach estimates prospective equity capital costs. This is appropriate since investors' allocate funds among competing investments based on their expectations, not based solely on historical or earned returns. The expected risk premium approach estimates and evaluates the returns that were expected over a given period of time on a broad equity market index relative to a chosen benchmark security return that is relevant to SBT. The average expected risk premium of expected market returns over this interest rate benchmark is used in conjunction with current interest rates to estimate SBT's cost of equity capital.

III. ESTIMATION OF THE EXPECTED MARKET RETURN

In recognition of the fact that most firms pay dividends on a quarterly basis, the quarterly form of the DCF model is used to estimate the expected market return. As in the discussion of the DCF analysis in the above testimony, it is assumed that dividends grow at a given rate over a year with the yearly change in the amount paid by a firm occurring after the second quarter each year.

IV. SOURCE OF THE EXPECTED GROWTH RATE

The expected growth rate used in the quarterly version of DCF model is the consensus mean market value-weighted five-year earnings per share estimate published by the Institutional Brokers Estimate Service (IBES) for the Standard & Poor's 500 index (S&P 500). Dividend yield data is obtained from Standard & Poor's Outlook, restated on a quarterly basis.

V. INTEREST RATE REFERENCE POINT

An index of Aaa public utility bonds is used as the relevant security return benchmark in the analysis. A three month average (March - May, 1993) of the interest rate benchmark is used in the calculation of the expected market risk premium.

VI. COMPUTATIONAL PROCEDURE

Expected risk premiums $E(RP_t)$ as of point t in time are calculated as the simple arithmetic difference between the expected return on the S&P 500 at time t [$E(S\&P500_t)$], produced by applying the DCF model to the S&P 500, and the average monthly Aaa public utility bond yield at time t [$R(UBOND_t)$]. Thus, risk premiums are calculated as:

$$E(RP_t) = E(S\&P500_t) - R(UBOND_t)$$

The same procedure is repeated using the New York Stock Exchange Composite Index (NYSE) as the proxy for the overall market.

The average expected risk premium $\overline{E(RP)}$ for the time period spanning N months is calculated as:

$$\overline{E(RP)} = \sum_{t=1}^{N} \frac{E(RP_t)}{N}$$

The cost of equity capital for SBT is estimated by adding the average expected risk premium $\overline{E(RP)}$, to the average yield prevailing on Aaa public utility bonds over the period March 1993 to May 1993.

It is important to note that the resulting cost of equity estimates for SBT are not adjusted for flotation costs. Therefore, they are consequently a conservative estimate of SBT's cost of equity.

VII. TIME PERIOD OF THE ANALYSIS

The statistical analysis uses data on the expected market risk premium and Aaa public utility bond yields over the period from October of 1987 through May of 1993. This time period is dictated by the availability of consistent IBES expected growth rate estimate data. The data is current up to May of 1993.