Exhibit No.:
Issue: Rate of Return
Witness: Bruce H. Fairchild
Sponsoring Party: Missouri Gas Energy
Case No.: GR-98-140

MISSOURI PUBLIC SERVICE COMMISSION

MISSOURI GAS ENERGY

CASE NO. GR-98-140

DIRECT TESTIMONY

OF

BRUCE H. FAIRCHILD

Jefferson City, Missouri

November 26, 1997

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I. INTRODUCTION

Q. Please state your name and business address.

A. Bruce H. Fairchild, 3907 Red River, Austin, Texas 78751.

Q. By whom are you employed and in what position?

A. I am a principal in Financial Concepts and Applications, Inc. (FINCAP), a firm engaged in financial, economic, and policy consulting to business and government.

A. Qualifications

Q. Describe your educational background, professional qualifications, and prior experience.

A. I hold a BBA degree from Southern Methodist University and MBA and PhD degrees from the University of Texas at Austin. I am also a Certified Public Accountant. My previous employment includes working in the Controller's Department at Sears, Roebuck and Company and serving as Assistant Director of Economic Research at the Public Utility Commission (PUC) of Texas. I have also been on the business school faculties at the University of Colorado at Boulder and the University of Texas at Austin where I taught undergraduate and graduate courses in finance and accounting.

Q. Briefly describe your experience in utility-related matters.

A. While at the Texas PUC, I assisted in managing a division comprised of approximately 25 professionals responsible for financial analysis, cost allocation and rate design, economic and financial research, and data processing systems. I testified on behalf of the PUC staff in numerous cases involving most major investor-owned and cooperative electric, telephone, and water/sewer utilities in the state regarding a variety of financial, accounting, and economic issues. Since forming FINCAP in 1979, I have participated in a wide range of analytical assignments involving utility-related matters on behalf of utilities, industrial consumers, municipalities, and regulatory commissions. I have also prepared and presented expert witness testimony before a number of regulatory authorities addressing revenue requirements, cost allocation, and rate design issues in the areas of gas, electric, telephone, and water/sewer. I am a frequent speaker at regulatory conferences and seminars, and have published research concerning various regulatory issues. A resume which contains the details of my experience and qualifications is attached as Appendix A.

B. Overview

Q. What is the purpose of your testimony?

A. My purpose here is to recommend to the Commission a fair rate of return to apply to Missouri Gas Energy's (MGE) original cost rate base used in providing jurisdictional gas distribution service. In addition, I am sponsoring Schedules F, F-1, and F-2 attached to the direct testimony of MGE witness Charles B. Hernandez.

Q. Please summarize the bases of your knowledge and conclusions concerning the issues to which you are testifying in this case.

A. In preparing my analyses and testimony in this case, I utilized a variety of sources of information that would normally be relied upon by a person in my capacity. I am generally knowledgeable about the natural gas industry from my prior work with many of the major intrastate gas distribution and transmission companies in the Southwest and elsewhere. I am familiar with the organization, finances, and operations of Southern Union Company (Southern Union), of which MGE is a division, having participated in MGE's last case before the Commission, Case No. GR-96-285, and previously worked with Southern Union Gas (SUG), another division of Southern Union, in rate cases before municipal regulators in Austin, El Paso, and Jefferson County, Texas, and the Railroad Commission of Texas and the Oklahoma Corporation Commission. In connection with the present filing, I examined various data relating to Southern Union, MGE, and SUG, as well as information regarding capital markets generally and investor perceptions, requirements, and expectations for gas utilities specifically. These sources, coupled with my experience in the fields of finance, accounting, economics, and utility regulation, enabled me to acquire a working knowledge of MGE and formed the bases for my conclusions.

Q. What is the role of the rate of return in setting a utility's rates?

A. The rate of return serves to compensate investors for the use of their capital to finance the plant and equipment necessary to provide utility service. Investors only commit money in anticipation of earning a return on their investment commensurate with that from other investment alternatives having comparable risks. Consistent with both sound regulatory economics and the standards specified in the <u>Bluefield</u> (1923) and <u>Hope</u> (1944) cases, the return on investment allowed a utility should be sufficient to: 1) fairly compensate past capital invested in the utility, 2) enable the utility to offer a return adequate to attract new capital on reasonable terms, and 3) maintain the utility's financial integrity.

Q. How did you go about developing an overall rate of return for MGE?

A. My evaluation began with a review of the operations and finances of MGE and Southern Union, and general conditions in the natural gas industry and capital markets. With this as a background, the next step was to identify the relative amounts of each source of investor-supplied capital -- long-term debt, preferred securities, and common equity -- used to finance MGE's assets. The average cost of long-term debt and preferred stock was calculated, and various analyses were conducted to determine a fair rate of return on MGE's common equity. Finally, the findings of these analyses were combined to calculate an overall rate of return to be applied to MGE's original cost rate base.

C. Summary of Recommendations

Q. Briefly summarize your rate of return recommendations.

A. I recommend that MGE be authorized an overall rate of return on its original cost rate base of 9.858 percent. This rate of return recommendation is based on a capital structure consisting of 50.95 percent long-term debt, 12.99 percent preferred securities, and 36.06 percent common equity; and an average cost of long-term debt of 8.134 percent, a cost of preferred stock of 9.982 percent, and a rate of return on common equity of 12.25 percent.

My recommended capital structure of approximately 51 percent long-term debt, 13 percent preferred securities, and 36 percent common equity reflects Southern Union's test year capital structure, and was selected because:

- These ratios reflect the mix of capital employed to finance MGE's investment in assets used to provide gas service in Missouri;
- Although this capital structure deviates somewhat from industry standards for local gas distribution companies (LDCs), it is consistent with Southern Union's entrepreneurial spirit and earnings retention practices; and
- While Southern Union's lower common equity ratio imparts additional financial risks, these are offset by the greater use of cheaper debt and preferred stock capital, and less use of significantly more expensive common equity capital.

My recommended 8.134 percent cost of debt and 9.982 percent cost of preferred stock reflect:

- The embedded interest rate on Southern Union's long-term debt outstanding, including amortization of capitalized debt issuance and refinancing costs; and

- The dividend yield on Southern Union's single issue of preferred stock, plus amortization of capitalized issuance costs.

My recommended rate of return on common equity of 12.25 percent was based on the results of two analyses. First, the constant growth discounted cash flow (DCF) model was applied to a group of 17 publicly traded LDCs, with the following results:

- An average dividend yield of 5.1 percent;
- Average historical and projected growth rates ranging from 1.3 to 6.7 percent, with plausible growth rates of between 5.3 and 6.7 percent;
- A DCF cost of equity range for the group of LDCs of 10.6 to 11.6 percent, calculated as the sum of a 5.1 percent dividend yield and a growth rate range of 5.5 to 6.5 percent; and
- A DCF cost of equity range for MGE of 11.2 to 12.2 percent, arrived at by adding 60 basis points to the LDCs' DCF cost of equity range to account for the greater investment risk reflected in Southern Union's triple-B bond rating versus the group's average single-A rating.

Second, risk premium methods based on leading studies for utilities in the academic and trade literature were also applied, with the following results:

- Cost of equity estimates ranging from 11.66 to 14.87 percent based on expectational equity risk premiums;
- Cost of equity estimates of 12.82 and 11.77 percent based on surveys of investors and rates of return on equity previously authorized gas utilities, respectively;
- Cost of equity estimates of 12.48 and 12.82 percent based on realized rates of return for the S&P 500 and Moody's gas distribution utility group, respectively; and

- A risk premium cost of equity range for MGE of 11.8 to 13.0 percent, arrived at by eliminating implausible cost of equity estimates and narrowing the range of remaining values.

Taken together, these analyses implied that the cost of equity for MGE is in the range of 11.5 to 12.5 percent. This range, however, gives approximately equal weight to my constant growth DCF analyses, which tend to be biased downward because they fail to reflect the higher growth prospects associated with a less regulated gas industry and continued acquisition and merger activity involving gas utilities, and my risk premium analyses. Moreover, this cost of equity range does not recognize flotation costs incurred in connection with sales of common stock. Therefore, to account for these two considerations, I selected a rate of return on common equity for MGE above the midpoint of my 11.5 to 12.5 percent cost of equity range, or 12.25 percent.

II. FUNDAMENTAL ANALYSES

Q. What is the purpose of this section?

A. As a predicate to subsequent quantitative analyses, this section briefly reviews the operations and finances of MGE and Southern Union. In addition, it examines the risks and prospects for the natural gas industry as a whole, along with the outlook for the economy and capital markets.

A. Missouri Gas Energy

Q. Briefly describe MGE.

A. Headquartered in Kansas City, MGE provides natural gas service to approximately 470,000 customers in central and western Missouri, including the cities of Kansas City, St. Joseph, Joplin, and Monett. The majority of MGE's throughput and revenues are attributable to residential and commercial gas sales customers, with smaller amounts being transported for commercial and industrial customers. Approximately two-thirds of MGE's 98 billion cubic feet throughput during the fiscal year ended June 30, 1997 was composed of gas sales, with the remaining one-third being attributable to transportation services. At May 31, 1997, MGE's net investment in utility plant totalled approximately $377 million, with fiscal year 1997 operating revenues being about $422 million.

Q. In what business activities is Southern Union engaged?

A. Southern Union is one of the top fifteen gas distribution company in the U.S., serving almost one million customers in Texas and

Missouri through its SUG and MGE divisions, respectively. In addition to its principal business of gas distribution, Southern Union also has subsidiaries engaged in marketing natural gas to end-users, operating inter- and intrastate pipelines, providing propane gas services, selling commercial air conditioning and other gas-fired applications, and providing interactive computer-based training for the gas utility industry. In addition, other Southern Union subsidiaries participate in international energy projects and hold real estate.

Q. Although Southern Union is engaged almost exclusively in natural gas distribution, does the investment community view it as a typical LDC?

A. No. In its February 29, 1996 review, the investment advisory firm of Smith Barney, Inc. characterized Southern Union as follows:

> SUG is a natural gas utility with a twist: an entrepreneurial spirit coupled with financial and operating strategies that, in our opinion, set the company apart from its peers. Southern Union is managed more like a nonregulated company that is dealing with challenges of the competitive marketplace; is aggressive in its approach to cost containment; is acquisition-oriented; is **not** dependent on obtaining rate relief; and reinvests all of its net income in the business to increase shareholder value. Acquisitions have been an important component of the company's growth. A 10-year "vision" is in place, with specific strategies to redouble the size of the company by the year 2000. As such, we view SUG as having the potential to record above-average total return compared with the typical utility. (p. 2, emphasis in original)

Q. Briefly summarize Southern Union's financial condition.

A. Schedule BHF-1 summarizes Southern Union's financial history for its last five fiscal years. Page 1 of 2 presents condensed income statements, with page 2 of 2 containing balance sheets. Looking first to Southern Union's income statement, revenues rose steadily over the last five years; the increases between 1993 and 1995 were principally the result of the acquisitions of the Rio Grande Valley system in late 1993 and the properties which became MGE in early 1994, and those in 1996 and 1997 were largely attributable to higher purchased gas costs. Although operating expenses also rose annually over this 5-year period, the increase was at a lesser rate, with the net result being a continually rising operating income. These gains, however, were partially offset by higher interest expense, such that Southern Union's net income available for common shareholders was relatively flat over the last three years.

Turning to the balance sheet, page 2 of Schedule BHF-1, whereas Southern Union's assets totalled approximately $416 million at December 31, 1993, they were almost $1 billion at fiscal year-end 1997, with most of the increase being attributable to the MGE acquisition. Likewise, on the righthand side of its balance sheet, long-term debt (including current maturities) increased from approximately $110 million at year-end 1993 to $387 million at June 30, 1997, with preferred and common equity also increasing over this same period, from approximately $202 million to $367 million. Of particular note is that Southern Union pays no cash dividends to common shareholders (although it has paid annual stock dividends since 1994), with all earnings being retained and reinvested in the business.

Q. Where does Southern Union obtain most of the external capital used to finance its investment in property, plant, and equipment?

A. Southern Union's common stock is publicly traded on the New York Stock Exchange. Its $100 million of preferred stock outstanding was issued through a public offering, as was virtually all of its long-term debt, which is publicly traded in the over-the-counter (OTC) market. Southern Union also has a $100 million revolving credit facility available, although there was only $1.6 million outstanding at fiscal year-end 1997.

Q. What bond ratings have been assigned to Southern Union's long-term debt?

A. Southern Union's senior debt is rated triple-B by the two major bond rating agencies -- BBB by Standard & Poor's Corporation (S&P) and Baa3 by Moody's Investor Services (Moody's). While these triple-B ratings make Southern Union's long-term debt "investment grade", a Baa3 ranking is the very lowest rung of Moody's ladder of investment grade ratings.

B. Natural Gas Utility Industry

Q. Please describe general conditions in the natural gas industry over the last 15 years.

A. Since the early 1980s, the natural gas industry has been buffeted by decreasing demand and prices, a continuing gas glut, an ever-changing federal regulatory environment, and increased competition among participants and with other fuels. These developments spawned striking structural changes, not only within the pipeline segment of the industry but for LDCs as well. Federal Energy Regulatory Commission (FERC) Order Nos. 436, 500, and 636, while aspiring to make the natural gas industry more competitive and broaden the market for gas supplies, introduced considerable uncertainties and dislocations heavily felt by conventional utility systems. Deregulation and ensuing competition on both the demand and supply sides have eroded gas utilities' traditional monopoly status. In addition, gas utilities have faced a plethora of changes in financial accounting standards, such as FAS No. 106 relating to accounting for post-retirement benefits, that have regulatory as well as financial reporting implications.

Both pipelines and LDCs face the risk of "bypass" as large commercial, industrial, and wholesale customers seek to acquire gas supplies at the lowest possible cost and, in the process, abandon traditional "full-service" utility suppliers. The dramatic structural changes within the natural gas industry have forced LDCs to confront new complexities and risks entailed in actively contracting for an economical, secure gas supply. Further, changes in transportation rate design mandated by Order No. 636 shifted greater cost responsibility for pipeline demand costs to low load factor customers and, particularly, LDCs who purchase transportation services from interstate pipelines. As summarized in an August 1993 Special Comment by Moody's entitled "FERC Order 636 Will Pressure Ratings of Gas Distribution Companies":

> Unless the increased business risk and operating leverage resulting from Order 636 is offset by stronger debt-protection ratios (e.g. through higher permitted return on equity, a larger equity component, or faster depreciation rates) there will be a decline in creditworthiness

for all LDCs. (p. 10)

Moreover, S&P stated in its Utilities Rating Service, "Industry Commentary" (May 20, 1996):

> The long-term staying power of market demand for natural gas cannot be taken for granted. In fact, as the electric utility industry restructures and reduces costs, electric power will become more cost competitive and threaten certain gas markets. In addition, independent gas marketers have made greater inroads behind the city gate and are competiting for large gas users. Moreover, the recent trend by state regulators to unbundle utility services is creating opportunities for outsiders to market niche products. (p. 2)

Indeed, these problems and risks facing natural gas utilities persist, as evidenced by the following statement in S&P's Global Sector Review: Utilities (November 1996):

> The local gas distribution utilities should continue to face many of the same challenges they have in the past, including maintaining customers growth, controlling costs and rates, avoiding bypass, buying gas prudently, and keeping good relations with regulators. (p. 171)

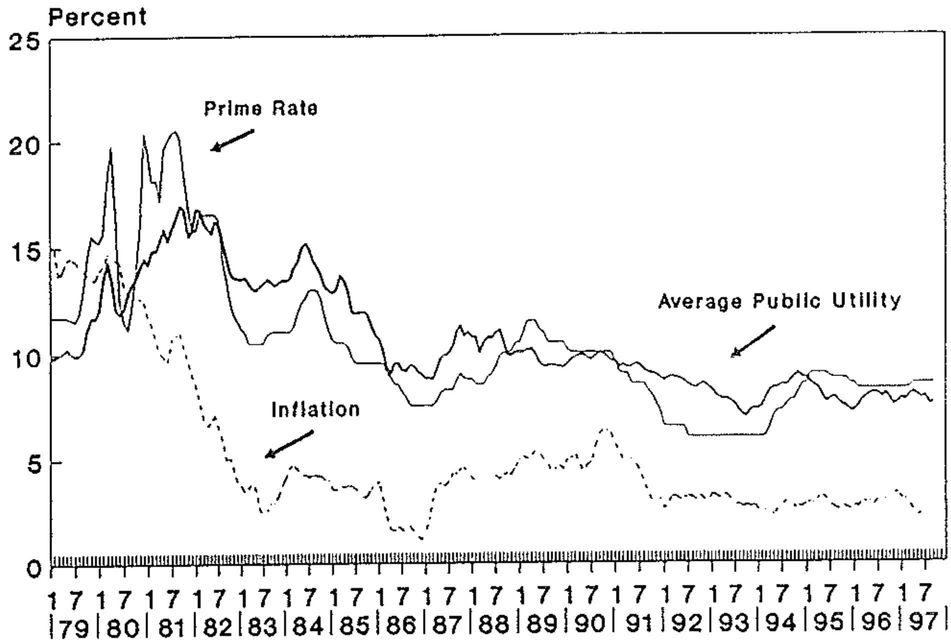
Q. Is MGE exposed to problems and risks similar to those faced by other utilities in the natural gas industry?

A. Yes, to varying degrees. Although MGE is not currently in significant direct competition with other LDCs for residential and small commercial customers within its service areas, certain large volume customers have access to alternative gas supplies and, in some instances, delivery service from other pipeline systems. Besides having to compete with other gas suppliers for large customers, MGE must also compete with other fuels for all customer groups. For example, electric utilities are successfully attracting residential and commercial appliance and heating load. While natural gas is presently more economical than alternate fuels for most larger customers who have dual fuel capability, there is no assurance that this price advantage will continue. In addition, MGE faces all the normal risks associated with operating a natural gas distribution system, including the adverse effects of weather variability, inflation, interest rate changes, growth, and regulatory uncertainty and lag, as well as extraordinary risks such as legal liabilities and natural disasters.

C. Capital Markets

Q. What has been the pattern of interest rates over the last 15 years?

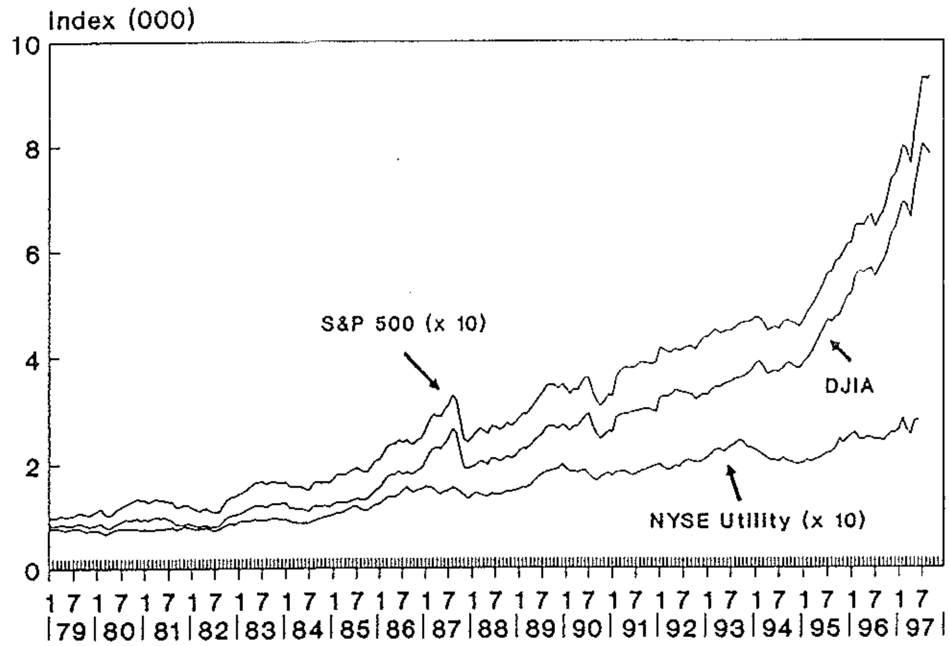
A. After peaking at 16.89 percent in September 1981, the average yield on long-term public utility bonds generally fell through 1986, reaching 8.77 percent in January 1987. After climbing during 1988, yields gradually declined to 7 percent in October 1993, and then subsequently rose to 9 percent in November 1994. While interest rates fell through January 1996, investors subsequently pushed yields higher, and presently require approximately 7.4 percent from bonds issued by public utilities. Average long-term public utility bond rates, the average monthly prime rate, and inflation as measured by the Consumer Price Index (CPI) since 1979 are plotted in the following graph:



Q. How has the market for common equity capital performed over this same period?

A. The last 15 years witnessed the longest bull market in U.S. history, which was generally attributed to low inflation and interest rates, sustained economic growth, a favorable business climate, and widespread merger and acquisition activity. Since 1979, common stocks have, on average, increased over nine times in value, even after accounting for the October 1987 and 1989 stock market crashes and the October 1997 "correction". Although the stock market's climb was interrupted by Iraq's 1990 invasion of Kuwait and the anticipated recession, it has since rebounded, with share prices reaching all-time highs. Nevertheless, the market remains volatile, with share prices repeatedly changing in full percentage points during a single day's trading. The following graph plots the performances of the Dow-Jones Industrial Average, S&P's 500

Composite Index, and the New York Stock Exchange Utility Index since 1979 (the latter two indices were scaled for comparability):



Q. What is the outlook for the U.S. economy and capital markets?

A. There are increasing concerns over how long the current economic expansion, which began in the latter half of 1991, can be sustained, and that a downturn in the U.S. economy is inevitable. While numerous economic indicators suggest that the U.S. economy is gaining momentum, there are other signs that the pace of expansion may moderate going forward. These factors cause the economic outlook to remain tenuous, with persistent stock and bond price volatility providing tangible evidence of the uncertainties faced by the U.S. economy.

Q. How do these uncertainties affect the natural gas industry?

A. For gas utilities, higher inflation and interest rate levels would place additional pressure on the adequacy of existing service rates, while stalled economic growth would undoubtedly mean flat gas sales. Although the current economic expansion appears to be continuing, conflicting economic indicators cause considerable uncertainties to persist and increase the risks faced by the natural gas industry.

III. CAPITAL STRUCTURE

Q. What is the purpose of this section?

A. This section identifies the various sources of investor-supplied capital used to finance MGE's investment in utility assets and compares them with those used by other LDCs. Based on these analyses, the mix of capital for use in weighting the respective costs of each source of capital to arrive at an overall rate of return for MGE are developed.

Q. What are the sources of capital used to finance MGE's investment in utility plant?

A. As indicated earlier, MGE is an operating division of Southern Union and, as such, has no independent financing. MGE relies entirely on capital supplied from the general funds of Southern Union to finance its investment in assets used to provide utility service.

Q. What is Southern Union's capitalization?

A. As shown in the following table, Southern Union's test year capital structure consists of approximately 51 percent long-term debt, 13 percent preferred securities, and 36 percent common equity:

Capital Component	Amount	% of Total
Long-term Debt	$ 377,751,010	50.95%
Preferred Stock	96,295,457	12.99
Common Equity	267,361,667	36.06
Total	**$ 741,408,134**	**100.00%**

Q. What capitalization ratios are maintained by other major gas distribution utilities in the U.S.?

A. Schedule BHF-2 displays capital structure data for the 17 LDCs included in The Value Line Investment Survey's (Value Line) Natural Gas (Distribution) industry that have utility revenues equal to at least 90 percent of total revenues, and have consistently paid dividends during the last five years. The average capital structure ratios for the 5-year period 1992-1996 for this group of LDCs are shown below:

Capital Component	% of Total
Long-term Debt	47.4%
Preferred Stock	2.0
Common Equity	50.6
Total	**100.0%**

Additionally, in its 1996 Gas Facts, the American Gas Association (AGA) presents the following composite capital structure ratios for gas distribution companies for the five years 1991-1995:

Capital Component	1995	1994	1993	1992	1991
Long-term Debt	45.4%	46.9%	44.7%	49.6%	45.1%
Preferred Stock	3.0	2.6	2.5	2.9	3.3
Common Equity	51.2	50.5	52.8	52.8	51.6
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Over this 5-year period, these industry capital structures reflect modestly more common equity and preferred securities, and less long-term debt, than the average for the 17 LDCs developed in Schedule BHF-2.

Q. How does Southern Union's test year capital structure compare with these industry standards?

A. Southern Union's 51 percent debt ratio is slightly higher than the approximately 45-50 percent average maintained by the gas distribution industry. Meanwhile, its 13 percent preferred stock ratio is considerably greater than the approximately 2-3 percent industry average. Finally, Southern Union's 36 percent common equity ratio is correspondingly less than the industry average of approximately 50 percent.

Q. What are the implications of using Southern Union's test year capital structure, versus that maintained by the LDC industry, to calculate MGE's overall rate of return?

A. Southern Union's higher debt and preferred stock ratios, and its lower common equity ratio, imply greater financial risk because a greater proportion of available cash flow is subject to senior claims. Indeed, this greater financial risk largely helps to explain Southern Union's triple-B bond ratings versus an average bond rating for the natural gas distribution industry of single-A (Schedule BHF-4). However, because there is greater lower cost debt and preferred stock, and less more expensive common stock, in Southern Union's capital structure, its overall cost of capital is lower than if it were financed according to industry norms.

Q. Please elaborate on why Southern Union's overall cost of capital is lower than if its capital structure were more in line with LDC industry standards.

A. Debt is the least expensive source of capital, with preferred stock and common equity being increasingly more costly. Additionally, whereas interest on debt is tax deductible (and in Southern Union's instance so too are its dividends on preferred stock), the return to common shareholders must be further "grossed-up" to account for corporate income taxes levied on a utility's earnings. Thus, Southern Union's more highly leveraged capital structure results in a lower overall rate of return because there is greater lower cost debt and preferred stock, and less more expensive common stock, in its mix of capital. This heavier weighting of lower cost debt and preferred stock in the capital structure more than compensates for the higher component capital costs resulting from the greater financial risk associated with a higher debt, or lower common equity, ratio. In other words, while Southern Union's relatively heavily leveraged capital structure imparts additional risk and, in turn, results in higher component capital costs, this is offset by the greater use of cheaper debt and preferred stock capital, and less use of more expensive common equity capital.

Q. What capital structure do you recommend be used to calculate MGE's overall rate of return in this case?

A. I recommend that Southern Union's test year capital structure serve as the basis for calculating MGE's overall rate of return. First, because MGE relies entirely on the general funds of Southern Union for financing, this capital structure reflects the mix of capital currently used to finance MGE's investment in utility property. Second, although Southern Union's capitalization ratios deviate somewhat from gas distribution industry standards, they are consistent with Southern Union's entrepreneurial spirit and earnings retention practices. Third, while Southern Union's capital structure imparts additional financial risks, these are offset by the greater use of cheaper debt and preferred stock capital, and less use of more expensive common equity capital.

IV. COST OF DEBT AND PREFERRED STOCK

Q. What is the purpose of this section?

A. In this section, the cost of the long-term debt, and the cost of the preferred stock, included in the capital structure used to arrive at MGE's overall rate of return are calculated.

A. Cost of Debt

Q. What long-term debt does Southern Union have outstanding?

A. At May 31, 1997, Southern Union had $385 million in long-term debt outstanding, with approximately $12 million being owed under capital leases:

Description	Amount
7.6% Senior Notes -- 2024	$ 384,515,000
Capital Leases -- AMR	11,264,700
Capital Leases -- IBM	674,486
Total Long-term Debt	**$ 396,454,186**

Q. What interest rate is associated with each of these sources of long-term debt?

A. As indicated above, the $385 million in senior notes carry an annual interest rate of 7.6 percent. Meanwhile, the average interest rate on the capital leases incurred in connection with its Automated Meter Reading program is 6.25 percent, while the average interest rate on the capital leases associated with computer equipment is 6.29 percent.

Q. Besides interest expense, are there any other costs properly included in calculating the cost of debt?

A. Yes. First, in connection with securing debt capital, Southern Union necessarily incurs various issuance-related costs. Although these issuance costs are capitalized and amortized over the life of the corresponding debt issue, none is included in MGE's rate base or operating expenses. A second consideration is that, in the course of replacing expensive debt with new debt bearing a lower interest rate, Southern Union incurred various costs (e.g., call premiums) to retire the old debt. These refinancing costs were also capitalized and are being amortized on Southern Union's books, but none is included in MGE's rate base or operating expenses. Accordingly, to calculate the total cost of Southern Union's debt capital, it is necessary to reduce the debt principal for the unamortized balance of capitalized debt issuance and refinancing costs, and to include in interest expense the annual amortization expense associated with these capitalized debt costs.

Q. What then is the cost of long-term debt for MGE?

A. At test year-end, Southern Union had $3,876,107 in unamortized debt issuance costs, on which there is annual amortization expense of $145,354. There are also $115,000 in similar costs associated with the capital lease for its Automated Meter Reading program, on which annual amortization expense is $23,000. In addition, there is $14,712,069 in unamortized debt refinancing costs, on which there is $588,992 in annual amortization expense. As detailed in Schedule F-1 attached to Mr. Hernandez's direct testimony and summarized below, combining the annual interest cost for each series of debt outstanding with the amortization of debt issuance and refinancing costs, and dividing by the total amount of debt outstanding less unamortized capitalized debt issuance and refinancing costs, produced an average cost of long-term debt for MGE of 8.134 percent.

Description	Amount	Rate	Annual Cost
Notes	$ 384,515,000	7.60%	$ 29,223,140
Leases -- AMR	11,264,700	6.25%	704,044
Leases -- IBM	674,486	6.29%	42,425
Sub-total	$ 396,454,186		$ 29,969,609
Issuance Costs	$ (3,991,107)		$ 168,354
Refinancing Costs	(14,712,069)		588,992
Total	**$ 377,751,010**		**$ 30,726,955**
Cost of Debt			**8.134%**

C. Cost of Preferred Stock

Q. What preferred securities did Southern Union have outstanding at test year-end?

A. At the end of the test year, Southern Union had a single, $100 million issue of preferred stock outstanding bearing a 9.48 percent dividend rate.

Q. What is the effective cost of this preferred stock?

A. As with its debt issues, Southern Union incurred issuance costs in connection with the sale of its preferred stock. At May 31, 1997, the unamortized balance of these issuance costs totalled $3,704,543, with the annual amortization expense being $132,305. As shown in Schedule F-2 attached to Mr. Hernandez's direct testimony and summarized below, including the amortization expense in the annual dividend cost, and dividing by the preferred stock balance reduced by the unamortized issuance costs, resulted in a cost of preferred stock of 9.982 percent:

Description	Amount	Rate	Annual Cost
Preferred	$ 100,000,000	9.48%	$ 9,480,000
Issuance Costs	(3,704,543)		132,305
Total	**$ 96,295,457**		**$ 9,612,305**
Cost of Preferred Stock			**9.982%**

V. RATE OF RETURN ON COMMON EQUITY

Q. What is the purpose of this section?

A. In this section, my recommended rate of return for the common equity portion of MGE's capital structure is developed. Initially, the concept of the cost of equity is examined as the basis for this determination. Next, discounted cash flow (DCF) and risk premium analyses are conducted to estimate the cost of equity, with the results of these analyses and other considerations being combined to arrive at my recommended rate of return on common equity for MGE.

A. Cost of Equity Concept

Q. How is a fair rate of return on common equity customarily determined?

A. Unlike debt capital, there is no contractually guaranteed return on common equity capital since shareholders are the residual owners of the utility. Nonetheless, common equity investors still require a return on their investment, with the "cost of equity" being the minimum rent that must be paid for the use of their money. This cost of equity typically serves as the starting point for determining a fair rate of return on common equity.

Q. What fundamental economic principle underlies this cost of equity concept?

A. The cost of equity concept is predicated on the notion that investors are risk averse, and will willingly bear additional risk only if they expect to be compensated for their risk bearing. In capital markets where relatively risk-free assets are available, such as U.S. Treasury securities, investors can be induced to hold more risky assets only if they are offered a premium, or additional return, above the rate of return on a risk-free asset. Since all assets compete with each other for investors' funds, more risky assets must yield a higher expected rate of return than less risky assets in order for investors to be willing to hold them.

Given this risk-return tradeoff, the required rate of return (k) from an asset (i) can be generally expressed as:

$$k_i = R_f + RP_i$$

where: R_f = Risk-free rate of return; and
RP_i = Risk premium required to hold more risky asset i.

Thus, the required rate of return for a particular asset at any point in time is a function of: 1) the yield on risk-free assets, and 2) its relative risk, with investors demanding correspondingly larger risk premiums for assets bearing greater risk.

Q. Can you illustrate how the risk-return tradeoff principle operates?

A. Yes. Consider that investors may purchase U.S. Treasury bonds with an expected yield of, say, 7 percent. Given the U.S. government's ability to levy taxes and print money, investors can be completely confident that interest and principal payments will be made on time and in full.

Alternatively, investors may purchase a corporate bond. But unlike a bond issued by the U.S. Treasury, there is some possibility that the corporation will not be able to make all contractual payments in a timely manner, and it may even default. Investors will only bear this greater risk if they expect to earn a return higher than what they could earn by holding risk-free U.S. Treasury bonds. For example, if investors require a 1 percent premium to compensate them for leaving the safety of U.S. Treasury bonds, then corporate bonds would have to yield 8 percent to attract investors.

Turning next to common stocks, unlike bonds having contractual payment schedules, dividends may be paid to shareholders if cash is available. Moreover, in the event of bankruptcy, bondholders receive full payment before any amounts are distributed to common shareholders. As the most junior of all security holders, common shareholders are exposed to the most risk. Again, investors will bear the greater risk of a corporation's common stock only if they expect to earn a return higher than that offered by its less risky bonds. Therefore, if 8 percent is expected from an investment in the corporation's bonds, investors might require an additional return of perhaps 4 percent to move from the relative safety of the bonds to the greater risks associated with common stock. Thus, the cost of equity for the corporation is 12 percent, and the equity risk premium is 4 percent over the corporation's own bonds and 5 percent over U.S. Treasury bonds.

Q. Is there evidence that the risk-return tradeoff principle actually operates in the capital markets?

A. Yes. The risk-return tradeoff can be readily documented in certain segments of the the capital markets where required rates of return can be directly inferred from market data and generally accepted measures of risk exist. For example, bond yields are reflective of investors' expected rates of return, and bond ratings are indicative of the risk of fixed income securities. The observed yields on government securities and bonds of various rating categories demonstrate that the risk-return tradeoff does, in fact, exist in the capital markets.

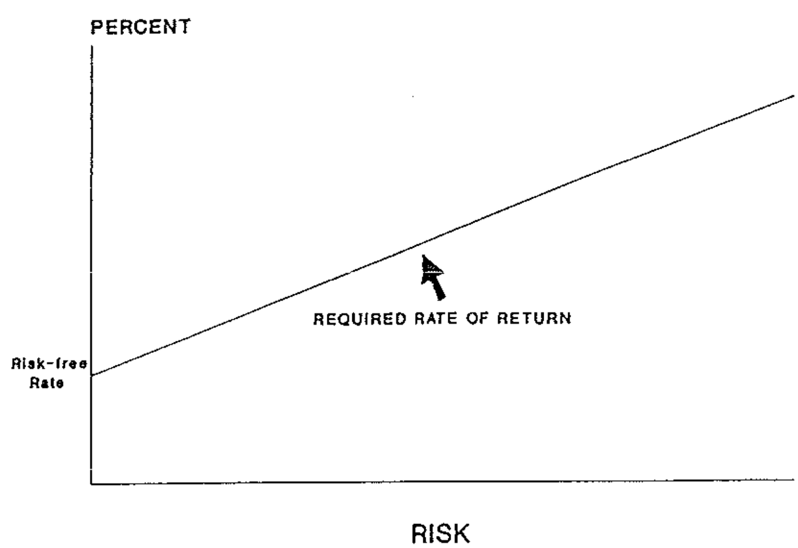
To illustrate, average yields during October 1997 on selected U.S. government securities and on public utility bonds of different ratings reported by Moody's are shown in the following table. As evidenced there, as risk increases (measured by progressively lower bond ratings), the required rate of return (measured by yields) rises accordingly. Also shown are the indicated risk premiums over long-term government securities for the additional risk associated with each bond rating category:

Bond and Rating	October 1997 Yield	Risk Premium Over Long-term Treasury
U.S. Treasury		
5-Year	5.91%	--
Long-term	6.35%	--
Public Utility		
Aaa	7.18%	0.83%
Aa	7.28%	0.93%
A	7.35%	1.00%
Baa	7.67%	1.32%

Q. Does the risk-return tradeoff observed with fixed income securities extend to common stocks and other assets?

A. Documenting the risk-return tradeoff for assets other than fixed income securities is complicated by two factors. First, there is no standard measure of risk applicable to all assets. Second, for most assets (e.g., common stock), required rates of return cannot be directly observed. Yet there is every reason to believe that investors exhibit risk aversion in deciding whether or not to hold common stocks and other assets, just as when choosing among fixed income securities. Accordingly, it is generally accepted that the risk-return tradeoff evidenced with debt extends to all assets.

The extension of the risk-return tradeoff from assets with observable required rates of return (e.g., bonds) to other assets is represented by the concept of a "capital market line". In particular, competition between securities and among investors in the capital markets drives the prices of assets to equilibrium such that the expected rate of return from each is commensurate with its risk. Thus, the expected rate of return from any asset is a risk-free rate of return plus a corresponding risk premium. This concept of a capital market line is illustrated below. The vertical axis represents required rates of return and the horizontal axis indicates relative riskiness, with the intercept of the capital market line being the risk-free rate of return.



Q. Is this risk-return tradeoff limited to differences between firms?

A. No. The risk-return tradeoff principle applies not only to investments in different firms, but also to different securities issued by the same firm. The securities issued by a utility vary considerably in risk because they have different characteristics and priorities. Long-term debt secured by a mortgage on property is senior among all capital in its claim on a utility's net revenues and is, therefore, the least risky. Following first mortgage bonds are other debt instruments also holding contractual claims on the utility's net revenues, such as debentures. The last investors in line are common shareholders. They only receive the net revenues, if any, that remain after all other claimants have been paid. As a result, the rate of return that investors require from a utility's common stock, the most junior and riskiest of its securities, must be considerably higher than the yield offered by the utility's senior, long-term debt.

Q. What does the above discussion imply with respect to estimating the cost of equity for a utility such as MGE?

A. Although the cost of equity cannot be observed directly, it is a function of the returns available from other investment alternatives and the risks to which the equity capital is exposed. Because it is unobservable, the cost of equity for a particular utility must be estimated by analyzing information about capital market conditions generally, assessing the relative risks of the utility specifically, and employing various quantitative methods that focus on investors' required rates of return. These various quantitative methods typically attempt to infer investors' required rates of return from stock prices, by extrapolating interest rates, or through an analysis of other financial data.

Q. Did you rely on a single method to estimate the cost of equity for MGE?

A. No. Despite the theoretical appeal of or precedent for using a particular method to estimate the cost of equity, no single approach can be regarded as wholly reliable. Therefore, I used both DCF and risk premium methods to estimate the cost of equity for MGE. Indeed, it is essential that estimates of investors' required rate of return produced by one method be compared with those produced by other methods, and that all cost of equity estimates be required to pass fundamental tests of reasonableness and economic logic.

B. Discounted Cash Flow Analyses

Q. How are DCF models used to estimate the cost of equity?

A. The use of DCF models to estimate the cost of equity is essentially an attempt to replicate the market valuation process which led to the price investors are willing to pay for a share of a company's stock. It is predicated on the assumption that investors evaluate the risks and expected rates of return from all securities in the capital markets. Given these expected rates of return, the price of each share of stock is adjusted by the market so that investors are adequately compensated for the risks to which they are exposed. Therefore, we can look to the market to determine what investors feel a share of common stock is worth, and by estimating the cash flows they expect to receive from the stock in the way of future dividends and stock price, their required rate of return can be mathematically imputed. In other words, the cash flows that investors expect from a stock are estimated, and given its current market price, we can "back-into" the discount rate, or cost of equity, investors presumably used in arriving at that price.

Q. What market valuation process underlies DCF models?

A. DCF models are derived from a theory of valuation which posits that the price of a share of common stock is equal to the present value of the expected cash flows (i.e., future dividends and stock price) that will be received while holding the stock, discounted at investors' required rate of return, or the cost of equity. Notationally, the general form of the DCF model is as follows:

$$P_0 = \frac{D_1}{(1+K_e)} + \frac{D_2}{(1+K_e)^2} + \ldots + \frac{D_t}{(1+K_e)^t} + \frac{P_t}{(1+K_e)^t}$$

where: P_0 = Current price per share;
P_t = Future price per share in period t;
D_t = Expected dividend per share in period t; and
K_e = Cost of equity.

Q. Has this general form of the DCF model customarily been used to estimate the cost of equity in rate cases?

A. No. In an effort to reduce the number of required estimates and computational difficulties, the general form of the DCF model has been simplified to a "constant growth" form. But converting the general form of the DCF model to the constant growth DCF model requires that a number of strict assumptions be made. These include:

- A constant growth rate for both dividends and earnings;
- A stable dividend payout ratio;
- The discount rate exceeds the growth rate;
- A constant growth for book value and price;
- A constant earned rate of return on book value;
- No sales of stock at a price above or below book value;
- A constant price-earnings ratio;
- A constant discount rate (i.e., no changes in risk or interest rate levels and a flat yield curve); and
- All of the above extend to infinity.

Given these assumptions, the general form of the DCF model can be reduced to the more manageable formula of:

$$P_0 = \frac{D_1}{k_e - g}$$

where: g = Investors' long-term constant growth expectations.

The cost of equity (k_e) can be isolated by rearranging terms:

$$K_e = \frac{D_1}{P_0} + g$$

The constant growth form of the DCF model recognizes that the rate of return to stockholders consists of two parts: 1) dividend yield (D_1/P_0), and 2) growth (g). In other words, investors expect to receive a portion of their total return in the form of current dividends and the remainder through price appreciation.

Q. Are the assumptions underlying the constant growth form of the DCF model met in the real world?

A. No, none of the assumptions required to convert the general form of the DCF model to the constant growth form is ever strictly met in practice. In some instances, where earnings are derived solely from stable activities, and earnings, dividends, and book value track fairly closely, the constant growth form of the DCF model may be a reasonable working approximation of stock valuation. However, in other cases, where the circumstances surrounding the firm cause the required assumptions to be severely violated, the constant growth DCF model may produce widely divergent and meaningless results. This is especially the case if the firm's earnings or dividends are unstable, or if investors are expecting the stock price to be affected by factors other than earnings and dividends.

Q. How did you estimate the cost of equity for MGE using the DCF model?

A. Implementation of the DCF model requires an observable share price and, as a division of Southern Union, MGE does not have its own shares traded in the stock market. And although Southern Union's shares are publicly traded, because it does not presently pay cash dividends, the DCF model, and the constant growth form in particular, is not well suited to estimating its cost of equity. Therefore, the DCF model was applied to the 17 publicly traded natural gas distribution companies identified earlier; namely, those LDCs included in Value Line's gas distribution industry group having utility revenues greater than 90 percent of total and consistently paying dividends over the last five years. The DCF cost of equity estimates for these other gas distribution utilities were then adjusted to account for the difference in their investment risk versus that of MGE.

Q. How is the constant growth form of the DCF model typically used to estimate the cost of equity?

A. The first step in implementing the constant growth DCF model is to determine the expected dividend yield (D_1/P_0) for the firm in question. This is usually calculated based on an estimate of dividends to be paid in the coming year divided by the current price of the stock. The second, and more controversial, step is to estimate investors' long-term growth expectations (g) for the firm. Since book value, dividends, earnings, and price are all assumed to move in lockstep in the constant growth DCF model, estimates of expected growth are often derived from historical rates of growth in these variables under the presumption that investors expect these rates of growth to continue into the future. Alternatively, a firm's internal growth can be estimated based on the product of its earnings retention ratio and earned rate of return on equity. This growth estimate may rely on either historical or projected data, or both. A third approach is to rely on security analysts' projections of growth in a firm's book value, dividends, earnings, and stock price as proxies for investors' expectations. The final step is to sum the firm's dividend yield and estimated growth rate to arrive at an estimate of its cost of equity.

Q. How did you calculate the dividend yield component of the constant growth DCF model for this group of LDCs?

A. Value Line's estimate of dividends to be paid by each gas utility over the next twelve months, obtained from the index to its September 29, 1997 edition, served as D_1. This dividend was then divided by the "Recent Price" reported in the same edition of Value Line.

The expected dividends, recent price, and resulting dividend yields for each of the other 17 LDCs are displayed on page 2 of Schedule BHF-3. As also shown there, the average dividend yield for the group was 5.1 percent.

Q. Please elaborate on how estimates of investors' long-term growth expectations are customarily developed for use in the constant growth DCF model.

A. In constant growth DCF theory, earnings, dividends, book value, and market price are all assumed to grow in lockstep, and the growth horizon of the DCF model is infinite. While some investors may intend to hold a particular stock for only a short period of time, they generally consider long-term growth prospects since these impact the resale price of the shares paid by subsequent investors. As investors typically examine historical experience along with current developments and projections, both the historical record and future prospects for the 17 other gas distribution utilities were reviewed to assess what investors might be expecting in the way of long-term growth.

Q. What is the record of historical growth for this LDC industry group?

A. Schedule BHF-3, page 2, displays the growth rates in book value per share (NBV), dividends per share (DPS), earnings per share (EPS), and stock price for each of the 17 utilities over the last five and ten years based on Value Line data. The average rates of historical growth in these variables for the comparable group are shown in the following table:

Variable	Historical 10-Year Growth	Historical 5-Year Growth
Net Book Value	3.6%	3.4%
Dividends per Share	3.1%	1.3%
Earnings per Share	1.6%	4.5%
Market Price	5.7%	4.4%

Q. How else are investor expectations of future long-term growth prospects for a firm often estimated for use in the constant growth DCF model?

A. In constant growth DCF theory, growth in book equity will be equal to the product of the earnings retention ratio (one minus the dividend payout ratio) and the earned rate of return on book equity. Furthermore, if the earned rate of return and payout ratio are constant over time, growth in earnings and dividends will be equal to growth in book value. Although these conditions are seldom, if ever, met in practice, this approach nonetheless may provide investors with a rough guide for evaluating a firm's growth prospects. Accordingly, conventional applications of the constant growth DCF model often examine the relationships between retained earnings and earned rates of return as an indication of the growth investors might expect from the reinvestment of earnings within a firm.

Q. What growth rates does this earnings retention method suggest for the group of LDCs?

A. As shown in the last three columns of page 2 of Schedule BHF-3, based on actual experience as reported in Value Line over the last ten and five years, the implied growth rate using the earnings retention method averaged 2 percent for both time periods. Based on the projected retention ratios and earned rates of return for the LDC industry group implicit in Value Line's current forecasts of 2000-2002 EPS, DPS, and NBV, the average implied growth rate was approximately 4.6 percent.

Q. How else are estimates of investor growth expectations customarily developed?

A. Analyses of historical and implied growth rates are indirect approaches to estimate investor growth expectations, and they may or may not replicate how investors' expectations are actually formed. A more direct approach to estimate what investors may expect in the way of growth is to survey investment advisory services and other sources which report growth projections made by professional security analysts. Although not without limitation (e.g., analysts' projections are generally relatively near-term and forecasts may reflect the opinions of a few individuals rather than the market as a whole), the advantage of this approach is that it does not require speculation as to what information investors might rely on or how they incorporate this information when formulating their growth expectations.

Q. What are security analysts currently projecting in the way of growth for LDC industry group?

A. The near-term growth projections for each of the 17 gas utilities reported in the September 27, 1997 edition of Value Line, the September 18, 1997 edition of Institutional Brokers Estimate System (I/B/E/S), and the October 1997 edition of S&P's <u>Earnings Guide</u> are also shown on page 2 of Schedule BHF-3, with the averages for the group being summarized in the following table:

Value Line (2000-2002)	
Book Value	4.4%
Dividends	2.9%
Earnings	6.7%
Price	4.6%
I/B/E/S (5-Year)	
Earnings	5.3%
S&P (5-Year)	
Earnings	5.7%

As shown above, security analysts project growth for this group of gas distribution utilities to range from between approximately 2.9 and 6.7 percent annually over the next 4-5 years.

Q. Briefly summarize the growth rates indicated for this group of gas distribution utilities based on customary applications of the constant growth DCF model.

A. As a review of the detail on page 2 of Schedule BHF-3 reveals, there was considerable variability in the alternative growth rates for the individual firms in the group, ranging from negative values to 13 percent. Even on average, the historical trends in the group's earnings, dividends, book value, and market price suggested expected growth rates that ranged from approximately 1.3 percent (5-year DPS growth) to 5.7 percent (10-year price growth). Meanwhile, the implied growth rate based on earnings retention ratios and earned rates of return averaged between approximately 2 and 4.6 percent, and near-term security analysts' projections suggested average growth expectations ranging from 2.9 to 6.7 percent.

Q. What is normally the next step in conventional applications of the constant growth DCF model?

A. Having developed various estimates of investor growth expectations, the next step is to narrow the range of indicated growth rates. Initially, those growth rates which produce implausible cost of equity estimates are properly discarded. The remaining growth rates are then evaluated to determine those that investors would most likely incorporate into their decision-making.

Q. What growth might investors be expecting from the group of LDCs?

A. Of the 17 average growth rates developed on page 2 of Schedule BHF-3, 13 are 4.6 percent or below. Combining these growth rates with the LDCs' 5.1 percent average dividend yield produced cost of equity estimates of 9.7 percent or less. Such single-digit cost of equity estimates are less than 230 basis points above the October 1997 yield of approximately 7.4 percent on single-A public utility bonds. In light of the risk-return tradeoff principle discussed earlier, it is inconceivable that investors are not requiring a substantially higher rate of return for holding residual common stock, the most junior of securities, than for senior, long-term debt. Thus, once growth rates that produced illogical cost of equity estimates were eliminated, the remaining historical and near-term projected growth rates implied that investors expect growth from this group of LDCs in the 5.3 to 6.7 percent range.

Q. Do you have any observations about the use of the constant growth form of the DCF model to estimate cost of equity?

A. Yes. The DCF model has always been based on a number of strict assumptions which are never met in practice. While this has not presented insurmountable problems for most utilities in the past, these assumptions seem to be hampering the ability of the constant growth DCF model to replicate the market pricing mechanism embodied in current stock prices. As evidenced earlier, many of the cost of equity estimates being produced by traditional applications of the constant growth DCF model are simply illogical. Recall that 13 of the 17 average cost of equity estimates shown on page 1 of Schedule BHF-3 for the group of LDCs are in single digits, and therefore not sufficiently greater than the yields available from senior, long-term debt to compensate for the additional risks of holding common stock. Thus, three-fourths of the average cost of equity estimates produced by mechanical applications of the DCF model for the group of LDCs failed fundamental tests of economic logic.

Q. Is there an explanation as to why the majority of the cost of equity estimates produced by mechanical applications of the constant growth DCF model make no economic sense?

A. Yes. The constant growth DCF model is predicated on stable economic and industry conditions, while the U.S. economy and the natural gas industry have been anything but stable over the last few years. Gas utility stock prices have been buffeted by the Federal Reserve Board's attempt to control growth and inflation by repeatedly increasing and decreasing interest rates. Meanwhile, historical growth rates have been influenced by the impact of the 1990-91 recession on gas utility earnings, and projected growth rates are clouded by the uncertainties associated with the ongoing structural changes in the natural gas industry discussed earlier.

Therefore, it is unrealistic to assume, as the constant growth DCF model does, that investors presently expect gas distribution utilities to grow prospectively at a constant rate of growth, and that the future for gas utilities will be little more than an extension of the past.

Moreover, the prospects for continued merger and acquisition activity in the gas industry, including the "convergence" of electric and gas utilities, may also distort the pricing mechanism presumed by the constant growth DCF model. Expectations of price appreciation that might be realized in the event of a merger or acquisition are not incorporated in the historical and projected growth estimates typically used in the constant growth DCF model, but such growth is reflected in the share prices of gas utilities. Therefore, estimates of investors' actual growth expectations (g) are understated, and this leads to a corresponding understatement of the cost of equity.

Q. What evidence exists that investors' growth expectation for gas distribution utilities are significantly affected by the fundamental structural changes the industry is undergoing?

A. The investment literature is replete with discussions of how the structural changes largely spawned by FERC have affected, and will continue to impact, gas utilities. For example, the March 31, 1995 edition of Value Line noted:

> **Natural gas distributors are still an industry in transition, challenged by more permissive regulation to stand up to a threat of growing competition. Still, the added business risk isn't factored into the utilities' allowed returns. So the industry is apt to maintain a cautious**

dividend policy. (p. 473, emphasis in original)

Indeed, these basic structural changes so significantly affected investors' view of the natural gas utility industry that S&P completely overhauled its bond rating process for gas distribution and transmission utilities in December 1993 to accommodate the transition to a more competitive market.

Q. Are growth rates based on past experience or near-term projections necessarily indicative of what investors expect from gas utilities over the longer-term?

A. No. Growth expectations for gas utilities are clouded by the impact of increasing competition in the industry. For example, in a <u>Special Comment</u> entitled "Natural Gas Unbundling and Electric Deregulation May Increase Credit Risks for U.S. Gas Distribution Companies" (September 1997), Moody's noted:

> ... (O)ver the next five to 10 years, these companies will likely face increased business risk both from the unbundling process and from the ultimate objective of unbundling and electric deregulation -- a more competitive environment. Consequently, the stability and predictability of their earnings and cash flows may in some cases decline. The extent of an LDC's business risk and consequent cash flow erosion, and the impact on credit quality, will depend on the pace of regulatory change in its state; management's strategy for meeting increased competition; and the LDC's size, customer mix, cost position, and financial strength. (p. 1)

While it is widely believed that near-term growth may tend to be relatively modest as gas utilities prepare for a more competitive market, once the constraints of regulation are relaxed and/or removed, investors may expect gas utilities to enjoy growth rates more closely paralleling those of competitive firms. Thus, the steady-state assumptions which underlie the constant growth DCF model do not readily comport with what is actually occurring in the gas distribution industry.

Q. How do differing near- and longer-term expectations distort the cost of equity estimates produced by conventional applications of the constant growth DCF model?

A. Recall that the constant growth DCF model assumes investors expect the same rate of growth to prevail from now until infinity. Moreover, customary applications of the constant growth DCF model simply assume that historical experience or the near-term growth projected by security analysts will continue into perpetuity. However, if investors expect a utility's growth in the longer-term to be higher than its growth in the near-term, then using just the near-term growth rate will under-state the actual cost of equity.

Q. What do the above analyses and discussions imply with respect to cost of equity estimates determined using DCF methods?

A. DCF models, and the constant growth form in particular, have been one of the mainstays of regulation for the last two decades. But because the cost of equity is inherently unobservable, no single method should be accepted as gospel or considered a wholly reliable guide to investors' required rate of return. This is especially the case given the material changes that the equity markets and natural gas industry have experienced lately due to the combined effects of economic and industry-specific events. The fact that conventional applications of the constant growth DCF model are presently producing many cost of equity estimates that fail fundamental tests of economic logic underscores why the DCF method cannot be naively accepted and always relied on to measure accurately investors' required rate of return.

For these reasons, regardless of how carefully performed or theoretically consistent a particular application may be, current DCF cost of equity estimates must be viewed with a certain amount of caution. Accordingly, ample consideration should be given to other methods of estimating the cost of equity which are producing more meaningful measures of investors' required rates of return. These results should be used to validate or temper DCF findings, with increased, if not primary, weight being given to them.

Q. With these qualifications, what cost of equity for the group of gas distribution utilities does your DCF analyses imply?

A. Mechanical applications of the constant growth DCF model to the group of 17 LDCs produced average cost of equity estimates ranging from approximately 6.4 to 11.9 percent, depending on the measure of growth. Eliminating implausible historical and projected growth rates left a growth rate range of between 5.3 and 6.7 percent. This range was then narrowed to 5.5 to 6.5, which when combined with the group's average dividend yield of 5.1 percent, produced a DCF cost of equity range of between 10.6 and 11.6 percent. As discussed earlier, however, because these cost of equity estimates are based on historical and near-term projected growth rates, which do not reflect the higher longer-term growth investors expect as the gas industry becomes increasingly competitive, nor do they incorporate investors' expectations of the price appreciation that might be realized in the event of an acquisition or merger, this DCF cost of equity range tends to be biased downward.

Q. What do these DCF analyses indicate as to the cost of equity for MGE?

A. As shown on Schedule BHF-4, whereas the average bond ratings for the group of 17 LDCs are single-A, Southern Union is rated Baa3 by Moody's and BBB by S&P. Similarly, various other indicators of investment risk displayed on Schedule BHF-4 (i.e., Value Line's beta, Safety Ranking, Financial Strength Ranking, and Stability Index) also demonstrate that Southern Union is more risky than the other gas distribution companies. To compensate for bearing this greater investment risk, investors require a higher rate of return from Southern Union than from the group of LDCs.

As indicated earlier, investors currently require an additional 32 basis points to hold average triple-B public utility bonds versus those rated single-A. Investors undoubtedly require an even greater premium for bearing the higher risks associated with the common stock of a mid- to low-triple-B rated utility versus one rated single-A. Therefore, 60 basis points was used for present purposes as a reasonable estimate of the additional return investors require for holding Southern Union's common stock over that of a typical single-A rated gas distribution utility. In turn, adding this 60 basis point risk premium to the 10.6 to 11.6 percent DCF cost of equity range developed above for the group of LDCs implied a DCF cost of equity estimate for MGE of between 11.2 and 12.2 percent.

C. Risk Premium Analyses

Q. How else did you estimate the cost of equity for MGE?

A. The cost of equity for MGE was also estimated using various risk premium methods. The findings of leading studies of equity risk premiums for utilities reported in the academic and trade literature were used as the basis for estimating the cost of equity for MGE. These studies employed a variety of approaches to estimate equity risk premiums, and encompassed a variety of time periods and sample groups of utilities. Because of this diversity, certain adjustments were required to adapt the findings of the studies to present capital market conditions and reflect the risks of MGE.

Q. Briefly describe the risk premium method.

A. The risk premium method to estimate investors' required rate of return extends the risk-return tradeoff observed with bonds to common stocks. The cost of equity is estimated by determining the additional return investors require to forego the relative safety of bonds and to bear the greater risks associated with common stock, and then adding this equity risk premium to the current yield on bonds. Like the DCF model, risk premium analyses are capital market oriented, but unlike DCF methods where the cost of equity is indirectly imputed, risk premium methods estimate investors' required rate of return directly by adding an equity risk premium to observable bond yields.

Q. How is the risk premium method implemented to estimate the cost of equity?

A. The actual measurement of equity risk premiums is complicated by the inherently unobservable nature of the cost of equity. In other words, like the cost of equity itself and the growth component of the DCF model, equity risk premiums cannot be calculated precisely. Therefore, equity risk premiums must be estimated, with studies in the academic and trade literature typically relying on three general approaches to obtain observable proxies for equity risk premiums: 1) expectational estimates of the cost of equity, 2) surveys, and 3) realized rates of return.

Q. Please describe the expectational cost of equity estimate approach for measuring equity risk premiums.

A. This approach typically uses forward-looking methods to estimate the cost of equity, from which observable bond yields are subtracted to measure equity risk premiums. An equity valuation model (e.g., DCF) is first specified, and inputs (e.g., P_0, D_1, and g) are mechanistically inserted to obtain cost of equity estimates. In this way, the cost of equity estimates are not the result of a combination of methods nor do they incorporate judgement; rather, a cost of equity estimation method is systematically applied to obtain cost of equity values and, in turn, equity risk premiums.

Q. Please describe the survey approach.

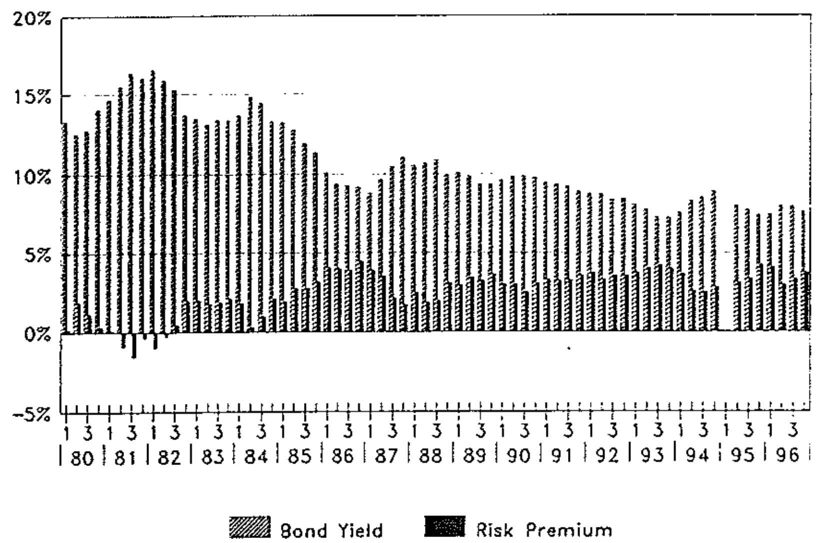
A. The survey approach involves questioning presumably knowledgeable sources as to the additional return above interest rates investors require to compensate them for the additional risks of common equity. The purest form of this survey approach is to query investors directly, although a survey of previously authorized rates of return on common equity is increasingly being used as the basis for estimating equity risk premiums. The latter presumably reflect regulatory commissions' best estimate of the cost of equity, however determined, at the time they issued their final order.

Q. Would you please briefly describe the realized rate of return approach?

A. Yes. Under the realized rate of return approach, equity risk premiums are calculated by measuring the rate of return (including dividends and interest, and capital gains and losses) actually realized on an investment in common stocks and bonds over historical time periods. The realized rate of return on bonds is then subtracted from that earned on common stocks to measure equity risk premiums. Widely used in academia, the realized rate of return approach is based on the assumption that, given a sufficiently large number of observations over long historical periods, average realized market rates of return will converge to investors' required rates of return. From a more practical perspective, investors may base their expectations for the future on, or may have come to expect that they will earn, rates of return corresponding to those realized in the past.

Q. Is there any risk premium behavior which needs to be considered when implementing the risk premium method?

A. Yes. There is considerable evidence that the magnitude of equity risk premiums is not constant, and that equity risk premiums tend to move inversely with interest rates. In other words, when interest rate levels are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums are greater. Indeed, this inverse relationship is evident in most of the studies to be discussed subsequently. For example, using the data from Schedule BHF-5, the following graph plots the yield on public utility bonds (shaded bars) and equity risk premiums implied by the rates of return on common equity (solid bars) authorized gas distribution utilities between 1980 and 1995:



This graph clearly demonstrates that the higher the level of interest rates, the lower the equity risk premium, and vice versa.

The implication of this inverse relationship is that the cost of equity does not move as much as, or in lockstep with, interest rates. Accordingly, for a one percent increase or decrease in interest rates, the cost of equity may only rise or fall, say, 50 basis points, respectively. Therefore, when implementing the risk premium method, adjustments may be required to incorporate this inverse relationship if present interest rate levels have changed since the time the equity risk premiums were estimated. As illustrated earlier, interest rates are presently near their lowest level in 20 years, which implies that current equity risk premiums are relatively high. Consequently, ignoring the well-established inverse relationship between equity risk premiums and interest rates would understate current equity risk premiums and, in turn, the cost of equity for MGE.

Q. What leading studies have been performed using the expectational cost of equity approach to estimate equity risk premiums for utilities?

A. A study by Willard T. Carleton, Donald R. Chambers, and Josef Lakonishok (CC&L) reported in "Inflation Risk and Regulatory Lag", (Journal of Finance, May 1983) relied on two different mechanistic techniques to estimate equity risk premiums for electric utilities. First, estimating the cost of equity from a projection of dividends based on the extrapolation of growth during the previous 10 years, equity risk premiums over government bond yields between 1971 and 1980 were estimated to average 6.15 percent for electric utilities with high bond ratings, and 7.08 percent for those with low bond ratings (graded A or lower by either Moody's or S&P). In their second analysis, by reference to rates of return allowed on equity by regulatory commissions and prevailing market-to-book ratios, CC&L estimated that the average equity risk premium over government bond yields for electric utilities from 1972 to 1980 was between 6.19 and 6.71 percent.

Q. What do the results of CC&L's first study suggest with respect to the cost of equity for MGE?

A. Bond ratings were used to adapt CC&L's findings for electric utilities to MGE. Because Southern Union is rated triple-B by both Moody's and S&P, the pertinent comparison is with CC&L's findings for low-rated electric utilities. Although CC&L hypothesized that, during a period of rising inflation, equity risk premiums for electric utilities should increase with interest rates because of regulatory lag, their empirical results did not support that hypothesis. And while they concluded that "no significant" relationship existed between these variables, CC&L nonetheless reported that the average equity risk premium for the low-rated electric utilities increased by 0.17 percent for each percentage decrease in interest rates. Because CC&L's average yield on 5-year government bonds was 8.08 percent versus the October 1997 yield on similar bonds of 5.91 percent, an adjustment was made to the 7.08 average risk premium for low-rated utilities to reflect their reported inverse relationship between equity risk premiums and interest rate levels. Adjusting for the 217 basis point decrease in interest rates since the study period implied a current equity risk premium of 7.45 percent for low-rated utilities. Adding this 7.45 percent equity risk premium to the October 1997 5-year government bond yield of 5.91 percent produced an indicated cost of equity for MGE of 13.36 percent. These calculations are illustrated below:

CC&L Average Equity Risk Premium		7.08%
1971-80 Avg. 5-yr. Gvmt. Interest Rate	8.08%	
October 1997 5-yr. Gvmt. Interest Rate	5.91	
Change in Interest Rate Levels	-2.17%	
Interest Rate/Risk Premium Relationship	X-0.17%	
Change in Equity Risk Premium		0.37
Current Equity Risk Premium		7.45%
October 1997 5-yr. Gvmt. Interest Rate		5.91
Current Cost of Equity Estimate		**13.36%**

Q. What do the results of CC&L's second study imply with respect to the cost of equity for MGE?

A. Unlike their first study, CC&L's second study did not differentiate between low- and high-risk utilities. Further, because CC&L found no relationship between equity risk premiums and interest rate levels, the average equity risk premium of 6.45 percent in their second study was not adjusted for changes in bond yields since the study period. However, as shown on Schedule BHF-4, the average Moody's and S&P bond rating for the 93 electric utilities followed by Value Line is single-A, above the triple-B bond rating of Southern Union.

Again assuming that a triple-B bond rating equates to a 60-basis-point increase in the equity risk premium over a single-A utility, the average 6.45 percent equity risk premium found by CC&L in their second study was increased to 7.05 percent to account for Southern Union's greater risk. This equity risk premium was then added to the October 1997 5-year government bond yield of 5.91 percent to produce a current indicated cost of equity for MGE of 12.96 percent.

Q. What other studies have measured equity risk premiums using expectational cost of equity estimates for utilities?

A. Two articles appearing in Financial Management relied on alternative forms of the DCF model to generate mechanistic estimates of equity risk premiums for utilities. Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson (BS&V) reported the findings of extensive research on equity risk premiums for electric utilities in "The Risk Premium Approach to Measuring a Utility's Cost of Equity" (Spring 1985). Subsequently, Robert S. Harris, in "Using Analysts' Growth Forecasts to Estimate Shareholder Required Rates of Return" (Spring 1986) estimated equity risk premiums for a group of electric, gas, and telephone utilities.

BS&V calculated equity risk premiums using security analysts' growth forecasts for the electric utilities included in the Dow Jones Utility Average (DJUA). Based solely on Value Line growth forecasts for the years 1966 through 1984, BS&V found equity risk premiums ranging between 3.46 and 8.72 percent, with the average during the 19-year study period being 5.13 percent. BS&V also calculated monthly risk premiums for the DJUA electric utilities between January 1980 and June 1984 using forecasts from Value Line, Merrill Lynch, and Salomon Brothers. The average equity risk premium over government bonds during this 54-month period was 4.75 percent.

The Harris study used growth projections from I/B/E/S to estimate equity risk premiums for the firms in the S&P Utility Index for the period 1982 through 1984. Harris found the average equity risk premium over long-term government bond yields for the

S&P electric, gas, and telephone utilities to be 4.81 percent.

Q. What does the BS&V 1966-1984 study suggest as to the cost of equity for MGE?

A. During the 1966 to 1984 period, the yield on long-term government bonds averaged 8.01 percent. The BS&V study also determined that, on average, equity risk premiums for the electric utilities in the DJUA declined 0.11 percent for each percentage point increase in government bond yields. Using this relationship to adjust the average equity risk premium of 5.13 percent to reflect that the October 1997 yield on long-term government bonds of 6.357 percent is now approximately 166 basis points lower than during the study period resulted in a current equity risk premium of 5.31 percent for the DJUA electric utilities. As with CC&L, bond ratings were used to generalize BS&V's findings for the DJUA electrics to MGE. As shown in Schedule BHF-4, the average bond ratings of the utilities included in the DJUA are triple-B, the same as Southern Union's. Accordingly, the current 5.31 percent industry equity risk premium was added to the October 1997 long-term government bond yield of 6.35 percent, producing an implied cost of equity for MGE of 11.66 percent.

Q. What cost of equity for MGE is indicated by BS&V's 1980-1984 study?

A. For the 4 1/2 years between January 1980 and June 1984, the yield on long-term government bonds averaged 12.34 percent. BS&V estimated that during this period equity risk premiums for the electric utilities in the DJUA increased 0.63 percent for each one percentage drop in interest rates. Employing this relationship to reflect that current interest rates are approximately 5.99 percent lower than during the study period resulted in a current equity risk premium for the DJUA electric utilities of 8.52 percent. This current equity risk premium was again combined with the October 1997 long-term government bond yield of 6.35 percent to produce an indicated cost of equity for MGE of 14.87 percent.

Q. What does the Harris study imply with respect to the cost of equity for MGE?

A. As indicated earlier, Harris found that between 1982 and 1984 equity risk premiums for the firms in the S&P Utility Index averaged 4.81 percent. During this same period, the long-term government interest rate averaged 12.25 percent, and Harris reported that the coefficient of a regression equation relating interest rates to equity risk premiums was -0.51. Adjusting the average equity risk premium found by Harris for the decline in interest rates of 5.90 percent since the study period resulted in a current equity risk premium of 7.82 percent for the S&P utilities.

As was the case with the electric utilities followed by Value Line, the average bond ratings of the utilities in the S&P Utility Index are single-A. Once more using 60 basis points to account for Southern Union's greater risk, the Harris study implied a current equity risk premium of 8.42 percent. Combining this equity risk premium with the October 1997 long-term government bond yield of 6.35 percent indicated a cost of equity for MGE of 14.77 percent.

Q. How did you apply the survey approach to the risk premium method?

A. Perhaps the most widely recognized and often cited survey concerning equity risk premiums for utilities is that conducted by Charles Benore of the investment advisory firm of Paine Webber, Mitchell Hutchins, Inc. Mr. Benore regularly surveyed a broad sample of institutional investors between 1975 and 1985 inquiring directly as to the equity risk premiums they required for holding electric utility common stocks versus "double-A" utility bonds. The equity risk premiums for electric utilities determined from these investor surveys ranged from 2.65 to 5.10 percent over double-A utility debt costs, with the average risk premium over the 11-year period being 4.06 percent. Also evident from the investor survey was an inverse relationship between equity risk premiums and interest rates, indicating that for each percentage point decline in the reference interest rate, the equity risk premium increased approximately 28 basis points.

Q. What cost of equity does this investor survey approach suggest for MGE?

A. Unlike the equity risk premiums in the CC&L, BS&V, and Harris studies which were calculated against government bond yields, the equity risk premiums in the investor surveys relate to the premium over double-A utility bonds. Because the average reference interest rate between 1975 and 1985 was 11.17 percent and the October 1997 double-A utility bond yield was 7.28 percent, the average equity risk premium was increased 1.09 percent for the inverse relationship between equity risk premiums and interest rates, resulting in a current risk premium of 5.15 percent. Given Southern

Union's triple-B rating, this current equity risk premium was added to the October 1997 yield on triple-B public utility bonds of 7.67 percent to produce an indicated cost of equity for MGE of 12.82 percent.

Q. What other survey did you use to estimate the cost of equity for MGE?

A. The rates of return on common equity authorized electric, gas, and telephone utilities by regulatory commissions across the U.S. are followed by Regulatory Research Associates, Inc. (RRA) and published in its Regulatory Focus report. In Schedule BHF-5, the average yield on public utility bonds is subtracted from the average rate of return on common equity authorized natural gas utilities in each quarter between 1980 and 1996 to develop equity risk premiums. Over this 17-year period, these equity risk premiums for gas utilities averaged 2.43 percent, with the yield on public utility bonds averaging 10.85 percent during the same time period.

As illustrated earlier, the inverse relationship between equity risk premiums and interest rates is evident. Based on the regression equation between the interest rates and equity risk premiums displayed at the bottom of Schedule BHF-5, the equity risk premium for gas utilities increased approximately 48 basis points for each percentage point drop in the yield on average public utility bonds. With the yield on average public utility bonds in October 1997 being 7.37 percent, this implied a current equity risk premium for gas utilities of 4.10 percent. Adding this equity risk premium to the October 1997 average yield on triple-B public utility bonds of 7.67 percent produced an indicated cost of equity for MGE of 11.77 percent.

Q. How did you initially apply the realized rate of return approach?

A. Perhaps the most exhaustive study of realized rates of return, and the one most frequently cited in regulatory proceedings, is that contained in Ibbotson Associates *Stocks, Bonds, Bills and Inflation*. Unlike those discussed earlier, this study does not include a specific focus on utilities, with its findings being for the S&P 500 and selected "small company" stocks. In their *1997 Yearbook*, Ibbotson Associates reported that realized rates of return for the S&P 500 have exceeded those on government bonds over the period 1926 through 1995 by 5.6 percent and 7.3 percent, respectively, depending on whether the average equity risk premium is calculated using a geometric or arithmetic mean.

Q. What cost of equity is implied for MGE using the realized rates of return reported by Ibbotson Associates?

A. The realized rate of return method ignores the inverse relationship between equity risk premiums and interest rates, and assumes that equity risk premiums are stationary over time; therefore, no adjustment for differences between historical and current interest rate levels was made. Because Ibbotson Associates' realized rates of return relate to the S&P 500, which is dominated by industrial firms, risk differences between the S&P 500 and MGE were accommodated by viewing the realized rate of return approach in the context of the capital asset pricing model (CAPM).

The CAPM is a theory of market equilibrium, and measures risk using a "beta" coefficient. Under the CAPM, investors are assumed fully diversified, so the relevant risk of an individual asset (e.g., common stock) is its volatility relative to the market as a whole. Beta reflects the tendency of a stock's price to follow changes in the market, with stocks having a beta less than 1.00 being considered less risky and stocks with a beta greater than 1.00 being regarded as more risky. The CAPM was included in my risk premium analyses because this theory is routinely referenced in the financial literature. However, even before the widely cited study by Eugene F. Fama and Kenneth R. French -- "The Cross-Section of Expected Stock Returns", The Journal of Finance (June 1992) -- found little evidence that beta was a meaningful measure of risk, controversy surrounded the validity of beta as a relevant measure of a utility's investment risk.

Although Ibbotson Associates argue that the proper risk premium is based on arithmetic returns, a current equity risk premium for MGE was calculated by multiplying the 6.45 percent midpoint of the 5.6 to 7.3 percent risk premium range noted earlier by Southern Union's Value Line beta of 0.95 (Schedule BHF-4). This produced an equity risk premium of 6.13 percent which, when added to the October 1997 long-term government bond yield of 6.35 percent, suggested a cost of equity for MGE of 12.48 percent.

Q. Do realized rate of return data similar to that developed by Ibbotson Associates exist for gas distribution utilities?

A. Yes. Stock price and dividend data since 1952 for a group of natural gas distribution utilities is published in the Moody's Public Utility Manual. Schedule BHF-6 presents realized rates of return comparable to those reported by Ibbotson Associates for these LDCs in each year between 1952 and 1996. Over this 45-year period, the realized rates of return from an investment in the common stocks of this group of LDCs have exceeded those on single-A public utility bonds (the average bond rating of Moody's gas distribution utilities (Schedule BHF-4)) by an average of 4.74 percent and 5.56 percent, respectively, depending on whether a geometric or arithmetic mean is used. In light of Southern Union's triple-B bond ratings, the midpoint of these equity risk premiums, or 5.15 percent, was added to the October 1997 yield on triple-B public utility bonds of 7.67 percent to produce a current cost of equity for MGE using LDC-specific realized rates of return of 12.82 percent.

Q. What cost of equity for MGE do the various risk premium analyses imply?

A. As displayed in the following table, the cost of equity estimates for MGE produced by the various risk premium methods fell in a range extending from a low of 11.66 percent to a high of 14.87 percent:

Risk Premium Analysis	Indicated Cost of Equity
Mechanistic Cost of Equity Estimates:	
Carleton, Chambers & Lakonishok	
Risk Differentiated	13.36%
Industry	12.96%
Brigham, Shome & Vinson	
1966-1984	11.66%
1980-1984	14.87%
Harris	14.77%
Surveys:	
Benore Investor	12.82%
RRA Authorized ROE	11.77%
Historical Realized Rates of Return:	
Capital Asset Pricing Model	12.48%
Moody's LDCs	12.82%

This range was initially narrowed by again eliminating implausible cost of equity estimates. In particular, given current capital market conditions, it is doubtful that investors require a rate of return from MGE of over 14 percent. Thus, after discarding cost of equity estimates equal to and greater than 14 percent (i.e., 14.77 and 14.87 percent), and narrowing the resulting range to include all but the highest and lowest values, my risk premium analyses indicated a cost of equity range for MGE of between approximately 11.8 and 13.0 percent.

D. Summary and Conclusion

Q. Please summarize the findings of the various quantitative analyses you performed to estimate the cost of equity for MGE.

A. Cost of equity estimates for MGE were developed using both the constant growth DCF model and risk premium methods. Depending on the measure of growth, mechanical applications of the DCF model to a group of 17 gas distribution utilities using both historical and projected growth rates produced average cost of equity estimates ranging from approximately 6.4 to 11.9 percent. Eliminating implausible growth rates left a growth rate range of between 5.3 and 6.7 percent. Narrowing this range to 5.5 to 6.5 percent, and combining it with the group's average dividend yield of 5.1 percent, produced a DCF cost of equity range for the group of LDCs of between 10.6 and 11.6 percent. To account for the greater investment risk of MGE (reflected in Southern Union's triple-B bond rating versus the LDC group's average single-A rating, and the other risk indicators displayed on Schedule BHF-4), 60 basis points was added to DCF cost of equity range for the other gas distribution utilities to arrive at a DCF cost of equity for MGE of between 11.2 and 12.2 percent.

The risk premium analyses relied on mechanistic estimates of the cost of equity, surveys, and historical realized rates of return to determine equity risk premiums. After making adjustments to reflect present capital market conditions and risk differences, the various risk premium methods produced cost of equity estimates for MGE ranging from 11.66 to 14.87 percent. Again eliminating implausible values, and narrowing the resulting range to include all but the highest and lowest values, resulted in a risk premium cost of equity range for MGE of between approximately 11.8 and 13.0 percent.

Q. What do these analyses imply as to the cost of equity for MGE?

A. The analyses described above implied that the cost of equity for MGE is in the range of approximately 11.5 to 12.5 percent. This range overlaps the upper portion of the 11.2 to 12.2 percent cost of equity range indicated by my DCF analyses, and the lower portion of the 11.8 to 13.0 percent cost of equity range indicated by my risk premium analyses.

Q. Are there any other costs properly considered in setting a utility's allowed rate of return on common equity?

A. Yes. The common equity used to finance utility assets is provided from either the sale of stock in the capital markets or from retained earnings not paid out as dividends. When equity is raised through the sale of common stock, there are costs associated with "floating" the new equity securities. These flotation costs include services such as legal, accounting, and printing, as well as the fees and discounts paid to compensate brokers for selling the stock to the public. Also, some argue that the "market pressure" from the additional supply of common stock and other market factors may further reduce the amount of funds a utility nets when it issues common equity.

Q. Is there an established mechanism for a utility to recognize common equity flotation costs?

A. No. While debt flotation costs are recorded on the books of the utility and amortized over the life of the issue, serving to increase the effective cost of debt capital, there is no similar accounting treatment to ensure that common equity flotation costs are recorded and ultimately recognized. Alternatively, no rate of return is authorized on flotation costs necessarily incurred to obtain a portion of the common equity capital used to finance plant. In other words, equity flotation costs are not included in a utility's rate base since neither that portion of the gross proceeds from the sale of common stock used to pay flotation costs is available to invest in plant and equipment, nor are flotation costs capitalized as an intangible asset. Even though there is no accounting convention to accumulate and amortize the flotation costs associated with past common equity issues, flotation costs are a necessary expense of obtaining equity capital. And unless some provision is made to recognize these past issuance costs, a utility's revenue requirements will not fully reflect all of the costs incurred for the use of investors' funds.

Q. How can common equity flotation costs be recognized in revenue requirements?

A. As indicated above, there is no direct mechanism to recognize flotation costs necessarily incurred in connection with the issuance of common stock as there is with debt. Therefore, flotation costs must be accounted-for indirectly, with an upward adjustment to the "bare-bones" cost of equity identified above being the most logical and prevalent mechanism to reflect these costs.

Q. What adjustment to MGE's cost of equity do you propose to account for flotation costs?

A. There are any number of ways in which a flotation cost adjustment can be calculated, with the adjustment ranging from just a few basis points to more than a full percent. For example, relating past flotation costs to total book common equity normally results in a nominal flotation cost adjustment of a few basis points, while adjusting the cost of equity to encourage a target market-to-book ratio of, say, 110 percent, often produces a flotation cost adjustment of in excess of one percent. More modest approaches to calculating flotation cost adjustments, such as applying an average flotation cost expense percentage (i.e., 3 to 5 percent) to a utility's dividend yield, or its cost of equity, usually result in flotation cost adjustments between 15 and 50 basis points. Because the precise calculation of a flotation cost adjustment is problematic, rather than make a specific adjustment to the cost of equity, I propose that unrecovered flotation costs be recognized in the rate of return on common equity ultimately selected from within the cost of equity range for MGE.

Q. What then is your recommended rate of return on common equity for MGE?

A. I recommend that MGE be authorized a rate of return on common equity of 12.25 percent. As indicated earlier, the various quantitative analyses described in my testimony implied a cost of equity for MGE in the range of 11.5 to 12.5 percent. This range, however, gives approximately equal weight to my constant growth DCF analyses, which tend to be biased downward because they fail to reflect the higher growth prospects associated with a less regulated gas industry and continued acquisition and merger activity involving gas utilities, and my risk premium analyses. Moreover, this "bare-bones" cost of equity range does not recognize flotation costs incurred in connection with sales of common stock. Therefore, to account for these two considerations, I selected a rate of return on common equity for MGE above the midpoint of my 11.5 to 12.5 percent cost of equity range, or 12.25 percent.

VI. OVERALL RATE OF RETURN

Q. What overall rate of return do you recommend be applied to the rate base for MGE?

A. I recommend that MGE be authorized an overall rate of return on rate base of 9.858 percent. As developed below and in Schedule F attached to Mr. Hernadez's direct testimony, this overall rate of return is the result of combining a capital structure consisting of approximately 51 percent long-term debt, 13 percent preferred securities, and 36 percent common equity with an average cost of debt of 8.134, a cost of preferred stock of 9.982 percent, and a 12.25 percent rate of return on common equity:

Capital Component	Percent of Total	Component Cost	Weighted Cost
Long-term Debt	50.95%	8.134%	4.144%
Preferred Stock	12.99	9.982%	1.296
Common Equity	36.06	12.250%	4.418
Total	**100.00%**		**9.858%**

Q. Does this conclude your direct testimony in this case?

A. Yes, it does.

MISSOURI GAS ENERGY

INCOME STATEMENTS (Thousands)
SOUTHERN UNION COMPANY

	Year Ending June 30				
	1997	1996	1995	1994	1993
Operating Revenues	$717,031	$620,391	$479,983	$374,516	$209,005
Gas Purchase Costs	449,188	361,539	241,839	211,127	110,384
Operating Margin	267,843	258,852	238,144	163,389	98,621
Operating Expenses					
Operating, Maint., & General	109,888	107,521	102,371	79,667	50,076
Other Taxes	51,656	48,545	39,281	29,770	14,365
Depreciation & Amortization	34,829	32,982	32,083	21,919	14,416
	196,373	189,048	173,735	131,356	78,857
Operating Income	$71,470	$69,804	$64,409	$32,033	$19,764
Other Income and (Deductions)					
Interest Charges	(33,465)	(35,832)	(39,884)	(25,464)	(13,747)
Other (net)	2,880	11,326	3,677	6,994	5,571
	(30,585)	(24,506)	(36,207)	(18,470)	(8,176)
Income Taxes	12,373	14,979	10,974	5,185	3,855
Preferred Dividends	9,480	9,480	1,159	--	843
NET INCOME	$19,032	$20,839	$16,069	$8,378	$6,890

BALANCE SHEETS (Thousands)
SOUTHERN UNION COMPANY

	Year Ending June 30				
	1997	1996	1995	1994	1993
Current Assets					
Cash & Equivalents	--	$2,887	$39,015	$5,881	$2,918
Short-term Investments	6,432	--	19,582	--	
Accounts Receivable	58,659	47,846	35,465	48,273	46,292
Inventories	21,523	27,023	23,561	30,374	2,950
Deferred Gas Purchase Costs	--	2,650	7,641	--	--
Prepayments & Other	9,609	1,947	1,349	1,621	2,077
	96,223	82,353	126,613	86,149	54,237
Utility Plant	971,239	920,963	897,439	835,046	377,043
Net Additional Purchase Cost	131,539	133,780	154,534	167,374	92,991
Accumulated Depreciation	(329,182)	(310,289)	(303,327)	(279,120)	(144,491)
Net Plant	773,596	744,454	748,646	723,300	325,543
Real Estate	9,046	9,513	10,742	11,983	11,718
Deferred Debits & Other	111,538	128,140	116,501	76,280	24,709
TOTAL ASSETS	$990,403	$964,460	$1,002,502	$897,712	$416,207
Current Liabilities					
Accounts Payable	$33,827	$39,238	$28,784	$39,039	$27,149
Current Maturities Lg-tm Debt	687	615	770	889	20,555
Short-term Debt	1,600	--	--	--	20,100
Interest Accrued	12,840	12,773	15,194	15,579	3,028
Taxes Accrued	13,699	16,741	6,310	8,706	10,982
Customer Deposits	17,214	15,656	14,166	13,029	3,988
Other	25,856	18,307	13,621	33,298	8,957
	105,723	103,330	78,845	110,540	94,759
Long-Term Debt	386,157	385,394	462,503	479,048	89,019
Other Long-Term Liabilities					
Deferred Credits & Other	77,083	86,287	99,434	69,437	10,882
Deferred Income Taxes	53,978	43,534	36,056	29,712	19,609
	131,061	129,821	135,490	99,149	30,491
Preferred Stock	100,000	100,000	100,000	--	--
Common Equity	267,462	245,915	225,664	208,975	201,938
TOTAL LIABILITIES & EQUITY	$990,403	$964,460	$1,002,502	$897,712	$416,207

CAPITAL STRUCTURE ANALYSIS
NATURAL GAS (DISTRIBUTION) INDUSTRY

At Fiscal Year-end

	Five-Year Average			1996			1995			1994			1993			1992		
Company	L.T. Debt	Pref. Stock	Comm. Equity	L.T. Debt	Pref. Stock	Comm. Equity	L.T. Debt	Pref. Stock	Comm. Equity	L.T. Debt	Pref. Stock	Comm. Equity	L.T. Debt	Pref. Stock	Comm. Equity	L.T. Debt	Pref. Stock	Comm. Equity
AGL Resources, Inc.	48.1%	4.4%	47.5%	46.2%	4.9%	49.0%	47.4%	5.0%	47.6%	49.7%	5.1%	45.2%	47.6%	5.6%	46.8%	49.5%	1.5%	49.0%
Atmos Energy Corp.	43.6%	0.0%	56.4%	43.2%	0.0%	56.8%	45.3%	0.0%	54.7%	48.8%	0.0%	51.2%	31.0%	0.0%	69.0%	49.9%	0.0%	50.1%
Bay State Gas	45.4%	2.2%	52.3%	47.9%	1.1%	50.9%	46.9%	1.2%	51.9%	46.4%	1.3%	52.3%	46.7%	1.4%	51.9%	39.3%	6.0%	54.7%
Brooklyn Union Gas	47.5%	0.5%	52.0%	43.8%	0.4%	55.8%	46.4%	0.5%	53.2%	47.3%	0.5%	52.2%	48.6%	0.5%	50.9%	51.6%	0.6%	47.8%
Cascade Natural Gas	49.6%	3.9%	46.4%	46.8%	3.1%	50.1%	51.4%	3.5%	45.1%	52.5%	3.6%	43.9%	48.3%	4.2%	47.6%	49.2%	5.2%	45.6%
Connecticut Energy	50.4%	0.1%	49.5%	50.2%	0.0%	49.8%	47.7%	0.0%	52.3%	48.9%	0.0%	51.1%	54.7%	0.3%	45.1%	50.4%	0.4%	49.3%
Connecticut Natural	50.7%	0.3%	49.0%	47.0%	0.3%	52.7%	50.5%	0.3%	49.2%	52.9%	0.3%	46.7%	51.0%	0.3%	48.7%	51.9%	0.4%	47.7%
Indiana Energy, Inc.	38.8%	1.0%	60.1%	37.6%	0.0%	62.4%	38.6%	0.0%	61.4%	37.0%	0.0%	63.0%	41.7%	0.0%	58.3%	39.3%	5.2%	55.4%
Laclede Gas	43.6%	0.5%	55.8%	42.5%	0.5%	57.1%	40.2%	0.5%	59.3%	43.9%	0.6%	55.5%	46.4%	0.5%	53.1%	45.2%	0.6%	54.2%
NUI Corp.	55.7%	0.0%	44.3%	56.3%	0.0%	43.7%	61.2%	0.0%	38.8%	53.2%	0.0%	46.8%	54.1%	0.0%	45.9%	53.9%	0.0%	46.1%
New Jersey Resources	52.9%	4.1%	43.0%	50.8%	3.5%	45.7%	55.9%	3.3%	40.8%	54.6%	3.7%	41.7%	53.9%	3.8%	42.3%	49.4%	6.3%	44.3%
Northwest Natural Gas	46.1%	7.2%	46.6%	43.6%	5.7%	50.7%	45.3%	6.0%	48.7%	48.0%	6.9%	45.1%	47.5%	7.6%	45.0%	46.3%	10.0%	43.7%
Peoples Energy Corp.	46.4%	0.3%	53.3%	43.6%	0.0%	56.4%	49.4%	0.0%	50.6%	49.6%	0.0%	50.4%	45.7%	0.3%	54.0%	43.8%	1.3%	54.9%
Piedmont Natural Gas	50.1%	0.0%	49.9%	50.9%	0.0%	49.1%	50.9%	0.0%	49.1%	51.3%	0.0%	48.7%	49.8%	0.0%	50.2%	47.7%	0.0%	52.3%
Providence Energy	45.6%	5.4%	49.0%	45.1%	4.8%	50.0%	46.9%	4.9%	48.2%	42.2%	5.4%	52.4%	43.5%	5.6%	51.0%	50.2%	6.4%	43.5%
South Jersey Ind.	50.3%	0.8%	48.9%	47.2%	0.7%	52.1%	53.4%	0.7%	45.9%	50.8%	0.8%	48.4%	51.6%	0.9%	47.5%	48.5%	1.0%	50.5%
Washington Gas	40.7%	3.3%	56.0%	38.1%	3.0%	58.9%	41.3%	3.1%	55.6%	40.6%	3.3%	56.1%	42.9%	3.3%	53.7%	40.5%	3.7%	55.8%
LOW	38.8%	0.0%	43.0%	37.6%	0.0%	43.7%	38.6%	0.0%	38.8%	37.0%	0.0%	41.7%	31.0%	0.0%	42.3%	39.3%	0.0%	43.5%
AVERAGE	47.4%	2.0%	50.6%	45.9%	1.6%	52.4%	48.2%	1.7%	50.1%	48.1%	1.9%	50.1%	47.3%	2.0%	50.6%	47.5%	2.9%	49.7%
HIGH	55.7%	7.2%	60.1%	56.3%	5.7%	62.4%	61.2%	6.0%	61.4%	54.6%	6.9%	63.0%	54.7%	7.6%	69.0%	53.9%	10.0%	55.8%

Source: Company Annual Reports and Form 10-Ks.

COST OF EQUITY ESTIMATES (%)

	Book Value Growth			Dividend Growth			Earnings Growth					Price Growth			"BxR" Growth		
	Past	Past	V Line	Past	Past	V Line	Past	Past	——— Projected ———			Past	Past	V Line	Past	Past	V Line
Company	10 Yrs	5 Yrs	Proj	10 Yrs	5 Yrs	Proj	10 Yrs	5 Yrs	V Line	I/B/E/S	S&P	10 Yrs	5 Yrs	Proj	10 Yrs	5 Yrs	Proj
AGL Resources, Inc.	9.50	8.50	9.50	11.50	7.50	9.50	9.00	11.50	12.50	11.10	11.00	12.11	6.00	16.36	7.51	7.72	10.76
Atmos Energy Corp.	8.14	7.14	8.64	8.14	7.14	6.14	6.64	10.64	9.64	12.34	10.64	15.36	17.45	3.16	6.90	6.49	10.26
Bay State Gas	10.77	9.77	10.27	10.77	8.77	8.77	8.77	7.77	13.77	9.77	10.27	12.21	8.98	15.00	8.36	7.17	10.91
Brooklyn Union Gas	9.34	9.34	8.84	7.84	7.34	7.84	6.84	8.34	9.34	11.54	9.84	11.68	10.69	6.11	7.71	7.32	9.02
CTG Resources, Inc.	11.11	10.11	7.61	8.11	8.11	9.11	8.11	9.61	10.61	10.61	11.61	9.09	6.61	13.95	8.24	8.50	9.64
Cascade Natural Gas	8.26	9.26	10.26	6.76	NMF	7.26	4.26	-2.74	16.26	11.56	13.76	11.21	7.85	10.88	6.04	4.24	8.95
Connecticut Energy	9.00	9.50	9.00	7.50	7.00	9.00	8.50	10.50	10.50	11.20	11.50	10.43	7.26	11.63	7.07	7.44	8.20
Indiana Energy, Inc.	10.52	10.52	10.02	10.02	9.02	8.52	8.02	10.52	11.02	10.32	10.52	16.13	10.70	5.01	8.35	8.14	10.04
Laclede Gas	8.42	7.42	9.42	9.42	6.42	7.92	3.92	8.92	10.42	7.72	8.42	9.23	10.20	9.11	7.37	7.30	8.76
NUI Corp.	3.17	6.17	10.17	1.17	-1.83	5.67	-1.33	7.67	14.67	14.97	14.17	5.04	5.02	10.30	4.43	5.19	9.35
New Jersey Resources	10.19	7.19	11.19	9.19	6.69	8.69	10.19	17.69	14.19	10.69	10.19	9.12	12.97	11.32	5.84	7.40	12.06
Northwest Natural Gas	8.27	8.27	9.77	6.77	6.27	7.27	7.77	10.77	10.27	9.77	9.77	11.68	8.17	8.66	6.94	7.33	9.87
Peoples Energy Corp.	8.42	7.42	9.42	9.42	6.92	7.42	5.42	5.92	11.42	8.02	8.92	12.38	9.62	5.60	7.75	7.17	9.87
Piedmont Natural Gas	10.96	10.46	10.46	10.96	9.96	8.96	10.96	10.46	10.96	10.66	10.46	13.31	13.70	6.32	8.62	8.43	8.75
Providence Energy	6.68	8.18	10.18	6.68	0.68	10.68	3.68	18.68	13.18	9.68	11.68	4.85	9.18	13.28	5.65	7.65	9.25
South Jersey Ind.	8.26	7.76	7.76	7.26	6.26	6.76	7.26	7.26	12.76	8.76	12.76	8.54	8.35	8.33	6.93	6.53	9.42
Washington Gas	7.80	8.80	10.30	7.80	6.80	7.80	7.30	10.30	10.30	9.10	8.80	11.98	9.89	9.78	7.51	7.86	10.34
LOW	3.17	6.17	7.61	1.17	-1.83	5.67	-1.33	-2.74	9.34	7.72	8.42	4.85	5.02	3.16	4.43	4.24	8.20
AVERAGE	8.75	8.58	9.58	8.19	6.44	8.08	6.78	9.64	11.87	10.46	10.84	10.84	9.57	9.69	7.13	7.17	9.73
HIGH	11.11	10.52	11.19	11.50	9.96	10.68	10.96	18.68	16.26	14.97	14.17	16.13	17.45	16.36	8.62	8.50	12.06

NMF -- No Meaningful Figure.

Source: Computed using information contained in The Value Line Investment Survey (September 26, 1997, October 2, 1992, & October 9, 1987); Institutional Brokers Estimate System August 14, 1997); Standard & Poor's Earnings Guide (September 18, 1997); Standard & Poor's Daily Stock Price Record (1987).

CONSTANT GROWTH DCF MODEL

NATURAL GAS DISTRIBUTION GROUP

PRICE, DIVIDEND, & GROWTH DATA (a) (%)

				Book Value Growth			Dividend Growth			Earnings Growth (b)					Price Growth (c)			"BxR" Growth		
	Recent	1996–97	Divd	Past	Past	V Line	Past	Past	V Line	Past	Past	Projected			Past	Past	V Line	Past	Past	V Line
Company	Price	Divds	Yield	10 Yrs	5 Yrs	Proj	10 Yrs	5 Yrs	Proj	10 Yrs	5 Yrs	V Line	I/B/E/S	S&P	10 Yrs	5 Yrs	Proj	10 Yrs	5 Yrs	Proj
AGL Resources, Inc.	$19.00	$1.14	6.0	3.5	2.5	3.5	5.5	1.5	3.5	3.0	5.5	6.5	5.1	5.0	6.1	0.0	10.4	1.5	1.7	4.8
Atmos Energy Corp.	28.00	1.02	3.6	4.5	3.5	5.0	4.5	3.5	2.5	3.0	7.0	6.0	8.7	7.0	11.7	13.8	-0.5	3.3	2.8	6.6
Bay State Gas	30.00	1.58	5.3	5.5	4.5	5.0	5.5	3.5	3.5	3.5	2.5	8.5	4.5	5.0	6.9	3.7	9.7	3.1	1.9	5.6
Brooklyn Union Gas	31.00	1.50	4.8	4.5	4.5	4.0	3.0	2.5	3.0	2.0	3.5	4.5	6.7	5.0	6.8	5.8	1.3	2.9	2.5	4.2
CTG Resources, Inc.	23.00	1.52	6.6	4.5	3.5	1.0	1.5	1.5	2.5	1.5	3.0	4.0	4.0	5.0	2.5	0.0	7.3	1.6	1.9	3.0
Cascade Natural Gas	17.00	0.98	5.8	2.5	3.5	4.5	1.0	NMF	1.5	-1.5	-8.5	10.5	5.8	8.0	5.4	2.1	5.1	0.3	-1.5	3.2
Connecticut Energy	24.00	1.32	5.5	3.5	4.0	3.5	2.0	1.5	3.5	3.0	5.0	5.0	5.7	6.0	4.9	1.8	6.1	1.6	1.9	2.7
Indiana Energy, Inc.	27.00	1.22	4.5	6.0	6.0	5.5	5.5	4.5	4.0	3.5	6.0	6.5	5.8	6.0	11.6	6.2	0.5	3.8	3.6	5.5
Laclede Gas	24.00	1.30	5.4	3.0	2.0	4.0	4.0	1.0	2.5	-1.5	3.5	5.0	2.3	3.0	3.8	4.8	3.7	2.0	1.9	3.3
NUI Corp.	24.00	1.00	4.2	-1.0	2.0	6.0	-3.0	-6.0	1.5	-5.5	3.5	10.5	10.8	10.0	0.9	0.9	6.1	0.3	1.0	5.2
New Jersey Resources	32.00	1.66	5.2	5.0	2.0	6.0	4.0	1.5	3.5	5.0	12.5	9.0	5.5	5.0	3.9	7.8	6.1	0.7	2.2	6.9
Northwest Natural Gas	26.00	1.24	4.8	3.5	3.5	5.0	2.0	1.5	2.5	3.0	6.0	5.5	5.0	5.0	6.9	3.4	3.9	2.2	2.6	5.1
Peoples Energy Corp.	39.00	1.92	4.9	3.5	2.5	4.5	4.5	2.0	2.5	0.5	1.0	6.5	3.1	4.0	7.5	4.7	0.7	2.8	2.2	4.9
Piedmont Natural Gas	28.00	1.25	4.5	6.5	6.0	6.0	6.5	5.5	4.5	6.5	8.0	6.5	6.2	6.0	8.8	9.2	1.9	4.2	4.0	4.3
Providence Energy	19.00	1.08	5.7	1.0	2.5	4.5	1.0	-5.0	5.0	-2.0	13.0	7.5	4.0	6.0	-0.8	3.5	7.6	-0.0	2.0	3.6
South Jersey Ind.	25.00	1.44	5.8	2.5	2.0	2.0	1.5	0.5	1.0	1.5	1.5	7.0	3.0	7.0	2.8	2.6	2.6	1.2	0.8	3.7
Washington Gas	25.00	1.20	4.8	3.0	4.0	5.5	3.0	2.0	3.0	2.5	5.5	5.5	4.3	4.0	7.2	5.1	5.0	2.7	3.1	5.5
AVERAGE			5.1	3.6	3.4	4.4	3.1	1.3	2.9	1.6	4.5	6.7	5.3	5.7	5.7	4.4	4.6	2.0	2.0	4.6

(a) The Value Line Investment Survey (September 26, 1997).

(b) The Value Line Investment Survey (September 26, 1997); Institutional Brokers Estimate System (August 14, 1997); Standard & Poor's Earnings Guide (September 18, 1997).

(c) Calculated based on price data from Value Line Investment Survey (September 26, 1997, October 2, 1992, & October 9, 1987) and Standard & Poor's Daily Stock Price Record (1987).

COMPARATIVE RISK INDICATORS

Risk Measure	Southern Union	Natural Gas Distribution Group	Value Line Electrics	DJUA Electrics	S&P Utilities	Moody's Gas Distribution
Moody's Bond Rating	Baa3	A2	A3	Baa1	A2	A1
Standard & Poor's Bond Rating	BBB	A	A	A–	A	A+
Standard & Poor's Common Stock Ranking	NR	B+	B+	B+	B+	B+
Value Line Beta	0.95	0.62	0.72	0.78	0.81	0.68
Value Line Safety Ranking	3	2	2	3	2	2
Value Line Financial Strength Ranking	B	B++	B++	B++	B++	B++
Value Line Price Stability Index	40	91	93	85	86	94

Source: Moody's Bond Record (October 1997); Standard & Poor's Utilities & Perspectives (August 25, 1997); Standard & Poor's CreditWire (October 14, 1997); Standard & Poor's Stock Guide (November 1997); Value Line Investment Survey (as of October 14, 1997).

ANALYSIS OF AUTHORIZED RATES OF RETURN ON EQUITY
FOR NATURAL GAS UTILITIES

YEAR	QTR	(a) ALLOWED ROE	(b) AVERAGE PUBLIC UTILITY BOND YIELD	RISK PREMIUM
1980	1	13.45%	13.31%	0.14%
	2	14.38%	12.51%	1.87%
	3	13.87%	12.74%	1.13%
	4	14.35%	14.03%	0.32%
1981	1	14.69%	14.64%	0.05%
	2	14.61%	15.48%	-0.87%
	3	14.86%	16.36%	-1.50%
	4	15.70%	16.01%	-0.31%
1982	1	15.55%	16.51%	-0.96%
	2	15.62%	15.87%	-0.25%
	3	15.72%	15.27%	0.45%
	4	15.62%	13.67%	1.95%
1983	1	15.41%	13.45%	1.96%
	2	14.84%	13.07%	1.77%
	3	15.24%	13.38%	1.86%
	4	15.41%	13.33%	2.08%
1984	1	15.39%	13.64%	1.75%
	2	15.07%	14.80%	0.27%
	3	15.37%	14.42%	0.95%
	4	15.33%	13.26%	2.07%
1985	1	15.03%	13.18%	1.85%
	2	15.44%	12.74%	2.70%
	3	14.64%	11.92%	2.72%
	4	14.44%	11.33%	3.11%
1986	1	14.05%	10.05%	4.00%
	2	13.28%	9.35%	3.93%
	3	13.09%	9.25%	3.84%
	4	13.62%	9.17%	4.45%
1987	1	12.61%	8.78%	3.83%
	2	13.13%	9.66%	3.47%
	3	12.56%	10.45%	2.11%
	4	12.73%	11.04%	1.69%
1988	1	12.94%	10.50%	2.44%
	2	12.48%	10.66%	1.82%
	3	12.79%	10.87%	1.92%
	4	12.98%	9.94%	3.04%

Regression Output:		
Constant		0.0756
Std Err of Y Est		0.0061
R Squared		0.8136
No. of Observations		67
Degrees of Freedom		65
X Coefficient(s)	-0.4737	
Std Err of Coef.	0.0281	

YEAR	QTR	(a) ALLOWED ROE	(b) AVERAGE PUBLIC UTILITY BOND YIELD	RISK PREMIUM
1989	1	12.99%	10.07%	2.92%
	2	13.25%	9.85%	3.40%
	3	12.56%	9.38%	3.18%
	4	12.94%	9.34%	3.60%
1990	1	12.60%	9.62%	2.98%
	2	12.81%	9.82%	2.99%
	3	12.34%	9.84%	2.50%
	4	12.77%	9.76%	3.01%
1991	1	12.69%	9.42%	3.27%
	2	12.53%	9.34%	3.19%
	3	12.43%	9.20%	3.23%
	4	12.38%	8.89%	3.49%
1992	1	12.42%	8.76%	3.66%
	2	11.98%	8.72%	3.26%
	3	11.87%	8.37%	3.50%
	4	11.94%	8.44%	3.50%
1993	1	11.75%	8.03%	3.72%
	2	11.71%	7.74%	3.97%
	3	11.39%	7.25%	4.14%
	4	11.15%	7.21%	3.94%
1994	1	11.12%	7.53%	3.59%
	2	10.81%	8.28%	2.53%
	3	10.95%	8.51%	2.44%
	4	11.64%	8.89%	2.75%
1995	2 (c)	11.00%	7.95%	3.05%
	3	11.07%	7.74%	3.33%
	4	11.56%	7.41%	4.15%
1996	1	11.45%	7.43%	4.02%
	2	10.88%	7.98%	2.90%
	3	11.25%	7.96%	3.29%
	4	11.32%	7.61%	3.71%
Average			10.76%	2.46%

Implied Cost of Equity	
Average Yield over Study Period	10.76%
April 1997 Average Utility Bond Yield	8.08%
Change in Bond Yield	-2.68%
Risk Premium/Interest Rate Relationship	-0.47
Adjustment to Average Risk Premium	1.27%
Average Risk Premium over Study Period	2.46%
Adjusted Risk Premium	3.73%
April 1997 Single-A Utility Bond Yield	8.03%
Implied Cost of Equity	11.76%

(a) Major Rate Case Decisions, Regulatory Focus, Regulatory Research Associates, Inc. (January 16, 1997 & January 16, 1990).
(b) Moody's Public Utility Manual (1995); Moody's Credit Survey (January 13, 1997 & March 11, 1996).
(c) No decisions reported for first quarter.

ANALYSIS OF REALIZED RATES OF RETURN ON EQUITY
FOR THE MOODY'S GAS DISTRIBUTION COMMON STOCKS

	GAS DISTRIBUTION (a)					MOODY'S SINGLE-A PUBLIC UTILITY BONDS (b)				
	DEC		REALIZED RETURN			DEC		REALIZED RETURN		
	PRICE	DIV	ANNUAL	ARITH.	GEO.	YIELD	PRICE	ANNUAL	ARITH.	GEO.
1952	20.57					3.22%				
1953	21.23	1.09	8.51%	8.51%	8.51%	3.38%	97.51	0.73%	0.73%	0.73%
1954	26.47	1.19	30.29%	19.40%	18.90%	3.11%	104.32	7.70%	4.22%	4.16%
1955	28.10	1.32	11.14%	16.65%	16.26%	3.35%	96.25	-0.64%	2.60%	2.53%
1956	28.23	1.43	5.55%	13.87%	13.48%	3.91%	91.72	-4.93%	0.71%	0.61%
1957	25.78	1.49	-3.40%	10.42%	9.88%	4.36%	93.63	-2.46%	0.08%	-0.01%
1958	38.71	1.53	56.09%	18.03%	16.50%	4.49%	98.18	2.54%	0.49%	0.41%
1959	39.59	1.63	6.48%	16.38%	15.02%	4.96%	93.71	-1.80%	0.16%	0.09%
1960	48.21	1.79	26.29%	17.62%	16.37%	4.65%	104.27	9.23%	1.30%	1.19%
1961	64.96	1.91	38.71%	19.96%	18.66%	4.65%	100.00	4.65%	1.67%	1.57%
1962	59.73	2.01	-4.96%	17.47%	16.06%	4.44%	102.95	7.60%	2.26%	2.16%
1963	64.62	2.13	11.75%	16.95%	15.66%	4.46%	99.72	4.16%	2.43%	2.34%
1964	68.24	2.27	9.11%	16.30%	15.10%	4.54%	98.89	3.35%	2.51%	2.42%
1965	64.31	2.40	-2.24%	14.87%	13.66%	4.83%	96.07	0.61%	2.36%	2.28%
1966	53.50	2.75	-12.53%	12.91%	11.56%	5.67%	89.47	-5.70%	1.79%	1.69%
1967	50.49	2.67	-0.64%	12.01%	10.70%	6.67%	88.51	-5.82%	1.28%	1.17%
1968	53.80	2.79	12.08%	12.02%	10.78%	6.87%	97.74	4.41%	1.48%	1.37%
1969	43.88	2.88	-13.09%	10.54%	9.21%	8.59%	83.11	-10.02%	0.80%	0.66%
1970	52.33	2.97	26.03%	11.40%	10.09%	8.48%	101.09	9.68%	1.29%	1.14%
1971	47.86	3.06	-2.69%	10.66%	9.37%	7.90%	106.01	14.49%	1.99%	1.81%
1972	53.54	3.10	18.35%	11.04%	9.81%	7.48%	104.51	12.41%	2.51%	2.31%
1973	43.43	3.21	-12.89%	9.90%	8.60%	8.24%	92.33	-0.19%	2.38%	2.19%
1974	29.71	3.31	-23.97%	8.36%	6.86%	10.27%	82.42	-9.34%	1.85%	1.64%
1975	38.29	3.43	40.42%	9.76%	8.13%	10.11%	101.40	11.67%	2.28%	2.05%
1976	51.80	3.65	44.82%	11.22%	9.46%	8.62%	114.60	24.71%	3.21%	2.91%
1977	50.88	3.85	5.66%	11.00%	9.30%	8.64%	99.80	8.42%	3.42%	3.12%
1978	45.97	4.07	-1.65%	10.51%	8.86%	9.70%	90.43	-0.93%	3.25%	2.97%
1979	53.50	4.33	25.80%	11.08%	9.44%	11.79%	83.72	-6.58%	2.89%	2.60%
1980	56.61	4.59	14.39%	11.19%	9.62%	14.63%	81.49	-6.72%	2.54%	2.25%
1981	53.50	4.95	3.25%	10.92%	9.39%	16.29%	90.15	4.78%	2.62%	2.33%
1982	50.62	5.28	4.49%	10.71%	9.22%	14.43%	112.27	28.56%	3.49%	3.11%
1983	55.79	5.45	20.98%	11.04%	9.58%	13.52%	106.34	20.77%	4.04%	3.64%
1984	69.70	5.71	35.17%	11.79%	10.31%	13.11%	102.93	16.45%	4.43%	4.02%
1985	76.58	6.06	18.57%	12.00%	10.55%	10.97%	117.63	30.74%	5.23%	4.74%
1986	90.89	5.68	26.10%	12.41%	10.98%	9.12%	117.44	28.41%	5.91%	5.37%
1987	77.25	5.86	-8.56%	11.81%	10.36%	10.98%	84.69	-6.19%	5.56%	5.02%
1988	86.76	6.15	20.27%	12.05%	10.63%	10.06%	108.09	19.07%	5.94%	5.39%
1989	117.05	6.45	42.35%	12.87%	11.38%	9.44%	105.70	15.76%	6.21%	5.66%
1990	108.86	6.70	-1.27%	12.49%	11.03%	9.73%	97.39	6.83%	6.22%	5.69%
1991	124.32	6.94	20.58%	12.70%	11.27%	8.88%	108.16	17.89%	6.52%	5.98%
1992	138.79	7.08	17.33%	12.82%	11.41%	8.43%	104.47	13.35%	6.69%	6.16%
1993	154.06	7.23	16.21%	12.90%	11.53%	7.34%	111.83	20.26%	7.02%	6.49%
1994	126.96	7.36	-12.81%	12.29%	10.88%	8.76%	86.24	-6.42%	6.70%	6.16%
1995	155.94	7.48	28.72%	12.67%	11.26%	7.23%	116.76	25.52%	7.14%	6.57%
1996	164.12	7.76	10.22%	12.61%	11.24%	7.59%	96.17	3.40%	7.06%	6.50%
AVERAGE 1953–1996			12.61%		11.24%			7.06%		6.50%

RISK PREMIUM	
GEOMETRIC	4.74%
ARITHMETIC	5.56%
AVERAGE	5.15%

(a) Moody's Public Utility Manual (1996), Moody's Public Utility News Reports (various editions).
(b) Moody's Public Utility Manual (1996), Moody's Credit Survey (January 13, 1997).

APPENDIX A

Qualifications of Bruce H. Fairchild

BRUCE H. FAIRCHILD

FINCAP, Inc.
Financial Concepts and Applications
Economic and Financial Counsel

3907 Red River
Austin, Texas 78751
(512) 458-4644

Summary of Qualifications

M.B.A. and Ph.D. in finance, accounting, and economics; Certified Public Accountant. Extensive consulting experience involving regulated industries, valuation of closely-held businesses, and other economic analyses. Previously held managerial and technical positions in government, academia, and business, and taught at the undergraduate, graduate, and executive education levels. Broad experience in technical research, computer modelling, and expert witness testimony.

Employment

Principal, FINCAP, Inc. Austin, Texas (August 1979-Present)

Economic consulting firm specializing in regulated industries and valuation of closely-held businesses. Assignments have involved electric, gas, telecommunication, and water/sewer utilities, with clients including utilities, consumer groups, municipalities, regulatory agencies, and cogenerators. Areas of participation have included revenue requirements, rate of return, rate design, tariff analysis, avoided cost, forecasting, and negotiations. Other assignments have involved some seventy valuations as well as various economic (e.g., damage) analyses, typically in connection with litigation. Presented expert witness testimony before courts and regulatory agencies on over one hundred occasions.

Adjunct Assistant Professor, University of Texas at Austin (September 1979-May 1981)

Taught undergraduate courses in finance; Fin. 370 -- Integrative Finance and Fin. 357 -- Managerial Finance.

Assistant Director of Economic Research Division, Public Utility Commission of Texas (September 1976-August 1979)

Division consisted of approximately twenty-five financial analysts, economists, and systems analysts responsible for rate of return, rate design, special projects, and computer systems. Directed Staff participation in rate cases, presented testimony on approximately thirty-five occasions, and was involved in some forty other cases ultimately settled. Instrumental in the initial development of rate of return and financial policy for newly-created agency. Performed independent research and managed State and Federal funded projects. Assisted in preparing appeals to the Texas Supreme Court and testimony presented before the Interstate Commerce Commission and Department of Energy. Maintained communications with financial community, industry representatives, media, and consumer groups. Appointed by Commissioners as Acting Director.

Assistant Professor, College of Business Administration, University of Colorado at Boulder (January 1977-December 1978)

Taught graduate and undergraduate courses in finance: Fin. 305 -- Introductory Finance, Fin. 401 -- Managerial Finance, Fin. 402 -- Case Problems in Finance, and Fin. 602 -- Graduate Corporate Finance.

Teaching Assistant, University of Texas at Austin (January 1973-December 1976)

Taught undergraduate courses in finance and accounting; Acc. 311 -- Financial Accounting, Acc. 312 -- Managerial Accounting, and Fin. 357 -- Managerial Finance. Elected to College of Business Administration Teaching Assistants' Committee.

Internal Auditor, Sears, Roebuck and Company, Dallas, Texas (November 1970-August 1972)

Performed audits on internal operations involving cash, accounts receivable, merchandise, accounting, and operational controls, purchasing, payroll, etc. Developed operating and administrative policy and instruction. Performed special assignments on inventory irregularities and Justice Department Civil Investigative Demands.

Accounts Payable Clerk, Transcontinental Gas Pipeline Corp., Houston, Texas (May 1969-August 1969)

Processed documentation and authorized payments to suppliers and creditors.

Education

Ph.D., Finance, Accounting, and Economics, University of Texas at Austin (September 1974-May 1980)

Doctoral program included coursework in corporate finance, investment theory, accounting, and economics. Elected to honor society of Phi Kappa Phi. Received University outstanding doctoral dissertation award.

Dissertation: Estimating the Cost of Equity to Texas Public Utility Companies

M.B.A., Finance and Accounting, University of Texas at Austin (September 1972-August 1974)

Awarded Wright Patman Scholarship by World and Texas Credit Union Leagues.

Professional Report: Planning a Small Business Enterprise in Austin, Texas

B.B.A., Accounting and Finance, Southern Methodist University (September 1967-December 1971)	Dean's List 1967-1971 and member of Phi Gamma Delta Fraternity.

Other Professional Activities

Certified Public Accountant, Texas Certificate No. 13,710 (October 1974); entire exam passed in May 1972. Member of the American Institute of Certified Public Accountants and Texas Society of Certified Public Accountants.

Member of Advisory Council, Center for Public Utilities, College of Business Administration and Economics, New Mexico State University.

Member of Financial Management Association, Southwestern Finance Association, and American Finance Association. Participated as session chairman, moderator, and paper discussant at annual meetings of these and other professional associations.

Visiting lecturer in Executive M.B.A program at the University of Stellenbosch Graduate Business School, Belleville, South Africa (1983 and 1984).

Associate Editor of Austin Financial Digest, 1974-1975. Wrote and edited a series of investment and economic articles published in a local investment advisory service.

Military

Texas Army National Guard, February 1970-September 1976. Specialist 5th Class with duty assignments including recovery vehicle operator for armor unit and company clerk for finance unit.

Bibliography

Monographs

"On the Use of Security Analysts' Growth Projections in the DCF Model" (with William E. Avera), Earnings Regulation Under Inflation, J. R. Foster and S. R. Holmberg, ed., Institute for Study of Regulation, 1982.

An Examination of the Concept of Using Relative Customer Class Risk to Set Target Rates of Return in Electric Cost-of-Service Studies (with William E. Avera), Electricity Consumers Resource Council (ELCON), Washington, D.C., 1981; portions reprinted in Public Utilities Fortnightly, November 11, 1982.

The Spring Thing (A) and (B) and Teaching Notes, (with Mike E. Miles), a two-part case study in the evaluation, management, and control of risk; distributed by Harvard's Intercollegiate Case Clearing House; reprinted in

Strategy and Policy: Concepts and Cases, A. A. Strickland and A. J. Thompson, Business Publications, Inc., 1978, and Cases in Managing Financial Resources, I. Matur and D. Loy, Reston Publishing Co., Inc., 1984.

Energy Conservation in Existing Residences, Project Director for development of instruction manual and workshops promoting retrofitting of existing homes, Governor's Office of Energy Resources and Department of Energy, 1977-1978.

Linear Algebra, Calculus, Sets and Functions, and Simulation Techniques, contributed to and edited four mathematics programmed learning texts for MBA students, Texas Bureau of Business Research, 1975.

Articles and Notes

"How to Value Personal Service Practices" (with Keith Wm. Fairchild), The Practical Accountant, August 1989.

"The Impact of Regulatory Climate on Utility Capital Costs: An Alternative Test" (with Adrien M. McKenzie), Public Utilities Fortnightly, May 25, 1989.

"North Artic Industries, Limited" (with Keith Wm. Fairchild), Case Research Journal, Spring 1988.

"Regulatory Effects on Electric Utilities' Cost of Capital Reexamined" (with Louis E. Buck, Jr.), Public Utilities Fortnightly, September 2, 1982.

"Capital Needs for Electric Utility Companies in Texas: 1976-1985", Texas Business Review, January-February 1979; reprinted in The Energy Picture: Problems and Prospects, J. E. Pluta, ed., Bureau of Business Research, 1980.

"Some Thoughts on the Rate of Return to Public Utility Companies" (with William E. Avera), Proceedings of the NARUC Biennial Regulatory Information Conference, 1978.

"Regulatory Problems of EFTS" (with Robert McLeod), Issues in Bank Regulation, Summer 1978; reprinted in Illinois Banker, January 1979.

"Regulation of EFTS as a Public Utility" (with Robert McLeod), Proceedings of the Conference on Bank Structure and Competition, 1978.

"Equity Management of REA Cooperatives" (with Jerry Thomas), Proceedings of the Southwestern Finance Association, 1978.

"Capital Costs Within a Firm", Proceedings of the Southwestern Finance Association, 1977.

"The Cost of Capital to a Wholly-Owned Public Utility Subsidiary", Proceedings of the Southwestern Finance Association, 1977.

Selected Papers and Presentations

"Legislative Changes Affecting Texas Utilities", Texas Committee of Utility and Railroad Tax Representatives, Fall Meeting, Austin, Texas, September 1995.

"Rate of Return", "Origins of Information", "Economics", and "Deferred Taxes and ITC's", New Mexico State University and National Association of Regulatory Utility Commissioners Public Utility Conferences on Regulation and the Rate-Making Process, Albuquerque, New Mexico, October 1983, 1984, 1985, 1986, 1987, 1988, 1990, 1991, 1992, 1994, and 1995, and September 1989; Pittsburgh, Pennsylvania, April 1993; and Baltimore, Maryland, May 1994 and 1995.

"Developing a Cost-of-Service Study", 1994 Texas Section American Water Works Association Annual Conference, Amarillo, Texas, March 1994.

"Financial Aspects of Cost of Capital and Common Cost Considerations", Kidder, Peabody & Co. Two-Day Rate Case Workshop for Regulated Utility Companies, New York, New York, June 1993.

"Cost-of-Service Studies and Rate Design", General Management of Electric Utilities (A Training Program for Electric Utility Managers from Developing Countries), Austin, Texas, October 1989 and November 1990 and 1991.

"Rate Base and Revenue Requirements", The University of Texas Regulatory Institute Fundamentals of Utility Regulation, Austin, Texas, June 1989 and 1990.

"Determining the Cost of Capital in Today's Diversified Companies", New Mexico State University Public Utilities Course Part II, Advanced Analysis of Pricing and Utility Revenues, San Francisco, California, June 1990.

"Estimating the Cost of Equity", Oklahoma Association of Tax Representatives, Tulsa, Oklahoma, May 1990.

"Impact of Regulations", Business and the Economy, Leadership Dallas, Dallas, Texas, November 1989.

"Accounting and Finance Workshop" and "Divisional Cost of Capital", New Mexico State University Current Issues Challenging the Regulatory Process, Albuquerque, New Mexico, April 1985 and 1986, and Santa Fe, New Mexico, March 1989.

"Divisional Cost of Equity by Risk Comparability and DCF Analyses", NARUC Advanced Regulatory Studies Program, Williamsburg, Virginia, February 1988 and USTA Rate of Return Task Force, Chicago, Illinois, June 1988.

"Revenue Requirements", Revenue, Pricing, and Regulation in Texas Water Utilities, Texas Water Utilities Conference, Austin, Texas, August 1987 and May 1988.

"Rate Filing -- Basic Ratemaking", Texas Gas Association Accounting Workshop, Austin, Texas, March 1988.

"The Effects of Regulation on Fair Market Value: P.H. Robinson -- A Case Study", Annual Meeting of the Texas Committee of Utility and Railroad Tax Representatives, Austin, Texas, September 1987.

"How to Value Closely-held Businesses", TSCPA 1987 Entrepreneurs Conference, San Antonio, Texas, May 1987.

"Revenue Requirements" and "Determining the Rate of Return", New Mexico State University Regulation and the Rate-Making Process, Southwestern Water Utilities Conference, Albuquerque, New Mexico, July 1986, and El Paso, Texas, November 1980.

"How to Evaluate Personal Service Practices", TSCPA CPE Exposition 1985, Houston and Dallas, Texas, December 1985.

"How to Start a Small Business -- Accounting and Record Keeping", University of Texas Management Development Program, Austin, Texas, October 1984.

"Project Financing of Public Utility Facilities", TSCPA Conference on Public Utilities Accounting and Ratemaking, San Antonio, Texas, April 1984.

"Valuation of Closely-Held Businesses", Concho Valley Estate Planning Council, San Angelo, Texas, September 1982.

"Rating Regulatory Performance and Its Impact on the Cost of Capital", New Mexico State University Seminar on Regulation and the Cost of Capital, El Paso, Texas, May 1982.

"Effect of Inflation on Rate of Return", Cost of Capital Conference and Workshop, Pinehurst, North Carolina, April 1981.

"Original Cost Versus Current Cost Regulation: A Re-examination", Financial Management Association, New Orleans, Louisiana, October 1980.

"Capital Investment Analysis for Electric Utilities", The University of Texas at Dallas, Richardson, Texas, June 1980.

"The Determinants of Capital Costs to the Electric Utility Industry" (with Cedric E. Grice), Southwestern Finance Association, San Antonio, Texas, March 1980.

"The Entrepreneur and Management: A Case Study", Small Business Administration Seminar, Austin, Texas, October 1979.

"Capital Budgeting by Public Utilities: A New Perspective" (with W. Clifford Atherton, Jr.), Financial Management Association, Boston, Massachusetts, October 1979.

"Issues in Regulated Industries -- Electric Utilities", University of Texas at Dallas 4th Annual Public Utilities Conference, Dallas, Texas, July 1979.

"Investment Conditions and Strategies in Today's Markets", American Society of Women Accountants, Austin, Texas, January 1979.