MISSOURI PUBLIC SERVICE COMMISSION

MISSOURI GAS ENERGY

CASE NO. GR-2006-0422

REVISED

REBUTTAL TESTIMONY OF

FRANK J. HANLEY·

FILED[2]

FEB 0 7 2007

Missouri Public
Service Commission

NOVEMBER 21, 2006

TABLE OF CONTENTS

REBUTTAL TESTIMONY OF FRANK J. HANLEY

CASE NO. GR-2006-0422

NOVEMBER 21, 2006

1 ### I. INTRODUCTION

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

3 A. My name is Frank J. Hanley and I am President of AUS Consultants – Utility Services. My

4   business address is 155 Gaither Drive, P.O. Box 1050, Moorestown, New Jersey 08057.

5

6 **Q. ARE YOU THE SAME FRANK J. HANLEY WHO PREVIOUSLY SUBMITTED**

7 **DIRECT TESTIMONY IN THIS PROCEEDING?**

8 A. Yes, I am.

9

10 **Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?**

11 A. The purpose of my testimony is to rebut the direct testimony of David Murray, Staff

12   Witness for the Missouri Public Service Commission (the Commission) concerning his

13   recommendation regarding a proper ratemaking capital structure for Missouri Gas Energy

14   (MGE or the Company) and his recommended common equity cost rate range of 8.65% to

15   9.25% relative to Southern Union's common equity ratio of 36.31%.

16

17 **Q. HAVE YOU PREPARED SCHEDULES IN SUPPORT OF THIS REBUTTAL**

18 **TESTIMONY?**

19 A. Yes, I have. They have been marked for identification as Schedules FJH-18 through FJH-

20   30.

REBUTTAL TESTIMONY OF FRANK J. HANLEY

CASE NO. GR-2006-0422

NOVEMBER 21, 2006

II. SUMMARY

1

2 Q. **PLEASE BRIEFLY SUMMARIZE YOUR TESTIMONY.**

3 A. My rebuttal testimony describes the error of Mr. Murray's logic in his choice of using

4 Southern Union's capital structure as a proxy for MGE's ratemaking capital structure as

5 well as recommending a range of common equity cost rate well beneath the low end of any

6 reasonable range for MGE because:

7 • Mr. Murray erroneously relies upon the year-end 2005 capital structure ratios of

8 Southern Union, MGE's parent. Even though he acknowledges the need to update to

9 June 30, 2006 and true-up to September 30, 2006, the reliance on Southern Union's

10 capital structure would still be incorrect. In the first instance, there is a gross mismatch

11 between the use of the December 31, 2005 Southern Union capital structure and its

12 36.31% common equity ratio and current 2006 market data which reflects investors'

13 very different perspective of Southern Union, i.e., not as a gas distribution company

14 (LDC), and understatement of common equity cost rate. Second, the use of a

15 subsequent period such as September 30, 2006 for a true-up will further exacerbate the

16 understatement, i.e., because it ignores the risk to which the capital invested in MGE is

17 put, causing a mismatch between capital structure and common equity cost rate. In

18 other words, Southern Union's capital structure for a subsequent period is definitely no

19 longer reflective of the risk of a LDC like MGE. Moreover, applying a common equity

20 cost rate derived from a proxy group of LDCs, which has a significantly greater

2

1   average common equity, to Southern Union's common equity ratio, results in a gross

2   mismatch and understatement of the required common equity cost rate as well as the

3   overall fair rate of return related to MGE's rate base.

4   In addition, Mr. Murray's use of the Southern Union consolidated capital

5   structure, which includes all of Southern Union's long-term debt capital including that

6   held at the Panhandle Eastern subsidiaries, but excludes the carrying costs associated

7   with those subsidiaries, is blatantly incorrect as it represents a cost of debt which is not

8   in synchronization with the amount of debt included in the capital structure.

9   • I review recently allowed rates of return on common equity (ROEs) authorized by

10   other regulatory commissions in litigated cases which average about 10.6% relative to

11   an average common equity ratio of about 48.6%. In addition, I note that the average

12   awarded equity risk premium over A rated public utility bonds was 4.71%. With an

13   updated prospective yield of 6.39% on A rated public utility bonds (equal to the

14   average bond rating of my proxy LDC companies), an 11.10% common equity cost

15   rate is indicated (6.39% + 4.71% = 11.10%) <u>before</u> any necessary updated adjustments

16   to reflect MGE's unique risks. Moreover, the average of all litigated awarded ROEs to

17   LDCs during the two-year period ended September 30, 2006 of 10.58% (contained in

18   Schedule FJH-18) provide confirmation that Mr. Murray's recommended range of

19   common equity cost rate of 8.65% - 9.25% does not pass a reality check, especially

20   when the extremely low common equity ratio he utilizes in his capital structure and

3

1   MGE's greater risk attributable to small size and lack of protection from the vagaries

2   of the weather are taken into account. Further confirmation of the gross inadequacy of

3   Mr. Murray's recommended range of common equity cost rate are found in Schedule

4   FJH-19 where I show that the average currently authorized rate of return on Mr.

5   Murray's proxy group of six LDCs is 10.66% relative to an average authorized

6   common equity ratio of 49.20%; and 10.89% relative to a common equity ratio of

7   48.90% for the companies with operations in Missouri (other than Southern Union with

8   MGE) since 2002.

9   As for MGE, it was awarded an ROE of 10.50% in September 2004. In

10   August 2004, the average yield on A rated utility bonds was about 6.1%, very similar

11   to the current yield of about 6.1% and less than the prospective yield of 6.39% (see

12   Schedule FJH-28, page 1, Line No. 3). Thus, in view of this fact and the fact that the

13   foregoing average awarded ROE to all LDCs in litigated cases of 10.58% for the two

14   years ended September 30, 2006, an average authorized ROE of 10.66% on Mr.

15   Murray's six proxy companies and the indicated 11.10% prospective cost rate based

16   upon the risk premia over A rated public utility bond yields implied in the average

17   awarded ROEs to all LDCs also discussed supra, it is evident that any common equity

18   cost rate below 10.50% completely fails these common sense reality checks.

19   • Mr. Murray erroneously relies solely upon the Discounted Cash Flow Model (DCF) to

20   arrive at his recommended common equity cost rate despite the Commission's

4

1   consideration of the results of other cost of equity models and the results of recently

2   awarded ROEs to LDCs by various regulatory commissions around the country in

3   Case No. GR-2004-0209. He uses, albeit incorrectly, the CAPM model but only as a

4   check on his flawed and understated recommendation. The Efficient Market

5   Hypothesis (EMH), upon which all the cost of common equity models are premised,

6   confirms that investors rely upon multiple cost of common equity models in

7   formulating their required rates of return.

8   • Mr. Murray's so-called tests of reasonableness, i.e., his CAPM analysis, is flawed, as

9   are the so-called lower required equity risk premiums.

10   • Mr. Murray erroneously attributes greater relevance to the expected return on Southern

11   Union's pension fund than is warranted.

12   In addition, I update my recommended common equity cost rate to 11.75% which is

13   a reduction of my recommended 11.95%.

14

15   **III. CAPITAL STRUCTURE**

16 Q.   **MR. MURRAY RELIES UPON THE CAPITAL STRUCTURE RATIOS OF**

17   **SOUTHERN UNION AT DECEMBER 31, 2005. THOSE RATIOS INCLUDE A**

18   **36.31% COMMON EQUITY RATIO. DO YOU AGREE WITH MR. MURRAY'S**

19   **RECOMMENDED USE OF THE SOUTHERN UNION CAPITAL STRUCTURE**

20   **RATIOS?**

1   A.   No. I believe that their use is incorrect, despite the knowledge that in the last rate case, the

2   Commission did utilize Southern Union's capital structure ratios. I disagree with their use

3   at this time for several reasons:

4   • Ratemaking is prospective. It is already November, 2006 and rates set in this

5   proceeding will be in effect over a future period of time from the present. The market

6   prices that Mr. Murray utilizes are fairly recent market prices which reflect investors'

7   expectations of the future. Because investors no longer look at Southern Union as

8   primarily an LDC, but rather a midstream company, there is a substantial mis-match

9   between the common equity cost rate and the capital structure ratios utilized by Mr.

10   Murray.

11   • The Southern Union capital structure ratios are not consistent with those of the proxy

12   group of eight LDCs or Mr. Murray's group of six LDCs. Risk relates to where the

13   capital is invested, or put. It is very clear that my proxy group of eight LDCs maintain

14   capital structure ratios which include approximately 47% common equity capital as

15   shown on page 1 of Schedule FJH-4. Mr. Murray's six proxy LDCs had an average

16   common equity ratio of 48% in 2005 as follows:

MPSC Staff Witness Murray's	
<u>Six Comparable LDCs</u>	<u>2005 Common Equity Ratio</u>
AGL Resources, Inc.	40.80%
New Jersey Resources Corp.	46.97
Northwest Natural Gas Co.	47.21
Piedmont Natural Gas Co., Inc.	51.93
South Jersey Industries, Inc.	45.47
WGL Holdings, Inc.	<u>55.97</u>
Average	<u>48.06%</u>

Source of Information: Standard & Poor's Compustat Services, Inc.
PC Plus/Research Insight Data Base
Company Annual Forms 10K
(Sinking Fund Requirement)

There is a further mis-match attributable to Mr. Murray's application of a common equity cost rate derived from proxy LDC companies which have a much higher average common equity ratio to the much lower common equity ratio of Southern Union.

Q. **PLEASE EXPLAIN WHAT YOU MEAN BY THE MIS-MATCH OF UTILIZING SOUTHERN UNION'S CAPITAL STRUCTURE RATIOS AND THE CURRENT MARKET PRICES OF PROXY LDC COMPANIES.**

A. Mr. Murray utilized market data for his proxy LDCs for the months of May, June, July and August 2006 in his DCF analyses. Under the EMH, current market prices reflect investors' expectations of the future. As indicated in my direct testimony and in Footnote 1(a) of

1   Schedule FJH-1, page 1 of 23, to my direct testimony, public statements made by Southern

2   Union executives, including CEO Lindemann, in February 2006 confirm that Southern

3   Union is transforming itself into "a leader in the natural gas transportation and services

4   industry" (i.e., a midstream natural gas company). This was attributable to the $1.6 billion

5   acquisition of Sid Richardson Energy Services and the recent sale of its gas distribution

6   businesses in Pennsylvania and Rhode Island. Consequently, investors no longer will look

7   at Southern Union (and hence Southern Union's capital structure) as a meaningful indicator

8   of how gas distribution assets are, or should be, financed. Moreover, Mr. Murray

9   acknowledges this transformation at pages 13 through 16 of his direct testimony. He states,

10   at page 13, lines 23-26:

11   This acquisition is consistent with Southern Union's recent strategy of
12   transforming itself from primary a natural gas distribution utility company
13   to a more diversified natural gas service provider, which will be discussed
14   later, involves more business risk than a regulated transmission and
15   distribution company.
16
17   Mr. Murray acknowledges at the top of page 14 of his testimony that as a result of

18   the announcement of these various transactions, Standard & Poor's placed Southern

19   Union's credit rating on a Negative CreditWatch. Also, at page 15 of his testimony, Mr.

20   Murray acknowledges and discusses his communication with S&P analyst Plana Lee at

21   lines 25-29, stating:

22   In fact, S&P analyst Plana Lee informed Staff by email on October 5,
23   2006, that Southern Union would no longer be assigned a business profile
24   ranking used to compare it to other natural gas distribution and

8

1 transmission companies.   S&P now considers Southern Union as

2 predominately (sic) a midstream natural gas company.

3

4 In addition, at the bottom of page 16, Mr. Murray acknowledges the impact of

5 Southern Union's transition when he states:

6 Because Southern Union is transitioning into a diversified natural gas
7 energy company from a natural gas distribution company, <u>any comparison</u>
8 <u>of Southern Union's recent ROEs to those of more traditional natural gas</u>
9 <u>companies is inappropriate</u>. (underlining added for emphasis)

10

11 Q. **WHAT ARE THE IMPLICATIONS OF THESE ACKNOWLEDGEMENTS BY MR.**

12 **MURRAY?**

13 A. The implications are clear that Mr. Murray recognizes that Southern Union is no longer

14 recognized by investors, or indeed by major rating agencies such as S&P, as a natural gas

15 distribution company. Rather, Southern Union is now considered a midstream natural gas

16 company. In addition, Mr. Murray acknowledges that comparison of Southern Union to

17 more traditional natural gas distribution companies is inappropriate. If a comparison of

18 Southern Union's ROEs is inappropriate, the use of Southern Union's capital structure

19 ratios is also inappropriate because MGE is a gas distribution company. It should be

20 abundantly clear then, that Southern Union cannot be viewed as a company typifying gas

21 distribution operations. Moreover, since Mr. Murray does not see fit to rely upon Southern

22 Union's market data for purposes of determining common equity cost rate, it is

23 inappropriate to rely upon Southern Union's capital structure and fixed capital cost rates.

1   Since Southern Union is no longer viewed as a gas distribution entity, but rather a

2   midstream company, its capital structure is not suitable for ratemaking purposes for MGE.

3

4   **Q.**   **PLEASE EXPLAIN.**

5   **A.**   If the entity which owns an organization is not financed in the same manner in which

6   similar risk organizations are financed, then it is appropriate to adopt a hypothetical capital

7   structure. Moreover, Morin[1], in discussing a critique of double leverage, confirms that "the

8   returns granted an equity investor must be based on the risks to which the investor's capital

9   is exposed and not on the investor's source of funds" (see Schedule FJH-20, at p. 475). He

10   further explains that the cost of equity is the risk-adjusted opportunity cost to investors and

11   not the cost of the specific capital sources employed by investors. He goes on to state:

12
13
14
15
16
17
> The *Hope* and *Bluefield* doctrines have made clear that the relevant considerations in calculating a company's cost of capital are the alternatives available to investors and the returns and risks associated with those alternatives. The specific source of funding and the cost of those funds to the investor are irrelevant considerations. (italics in original) (p. 476)

18   Morin also states:

19
20
21
22
> *The cost of capital is governed by the risk to which the capital is exposed and not by the cost of those funds or whether they were obtained from bondholders or common shareholders.* (italics added for emphasis) (p. 477)

---

[1]   Roger A. Morin, <u>Regulatory Finance – Utilities' Cost of Capital</u>, 1994, Public Utilities Reports, Inc., Arlington, VA, pp. 475-477.

1   Another indicator that the risk is where capital is put is contained in <u>Principles of</u>

2   <u>Corporate Finance</u>, Third Edition, by Richard A. Brealey and Stewart C. Myers, McGraw-

3   Hill Book Company, 1988, when they state at page 173:

4   *The true cost of capital depends on the use to which the capital is put.*
5   (italics in original)
6
7   This means that Southern Union's capital structure, because it is no longer

8   representative of how a gas distribution entity is financed, should not be utilized. Rather, a

9   hypothetical capital structure should be utilized such as that which I recommended in my

10   direct testimony and is summarized in Schedule FJH-1, page 1 of 23, to my direct

11   testimony. That capital structure consists of 54.0% total debt and 46.0% common equity

12   capital.

13

14   **Q.   ASIDE FROM THE TIMING MISMATCH DISCUSSED <u>SUPRA</u>, YOU**

15   **INDICATED THAT MR. MURRAY'S RECOMMENDED COST OF CAPITAL**

16   **CONTAINS AN ADDITIONAL MISMATCH. PLEASE EXPLAIN.**

17   A.   Mr. Murray utilized, albeit incorrectly, Southern Union's capital structure ratios. He also

18   utilized Southern Union's fixed capital cost rates. However, with regard to common equity

19   cost rate, he analyzed a group of six LDCs which have a substantially higher average (48%)

20   common equity ratio than Southern Union's 36.31% common equity ratio, to formulate his

21   recommendation. He then applied his range of common equity cost rate derived from that

1   group of LDCs to Southern Union's 36.31% common equity ratio, thereby creating a

2   mismatch and a gross understatement of the cost of capital.

3   Morin[2] states with regard to capital structure as follows:

4   Regulators frequently assign hypothetical, or deemed, capital structures to
5   utility companies for purposes of revenue requirements computation. This
6   procedure is appropriate only if the cost of equity estimated from current
7   investor expectations is revised to take into account the new capital structure
8   prescribed by the regulator. The cost of equity estimate based on the actual
9   capital structure is no longer consistent with the new capital structure. ... In
10   other words, the greater the debt ratio, the greater is the return required by
11   equity investors. ... *In summary, it is logically inconsistent to combine a*
12   *fictitious capital structure with a return on equity estimate that excludes the*
13   *effects of the proposed capital structure. By omitting the repercussions on*
14   *equity costs and debt costs, a serious conceptual error would be committed*
15   *in determining the cost of equity capital.* (italics and underlining added for
16   emphasis) (see Schedule FJH-21)
17

18   It is clear from the foregoing that a serious conceptual error has been committed by

19   Mr. Murray in utilizing the common equity cost rate derived from a proxy group of LDCs

20   with a much greater common equity ratio and applying that cost rate to Southern Union's

21   substantially lower common equity ratio.

22

23   **Q. YOU STATED THAT MR. MURRAY UTILIZED SOUTHERN UNION'S**

24   **CONSOLIDATED LONG-TERM DEBT CAPITAL, WHICH INCLUDES DEBT**

25   **HELD AT THE PANHANDLE EASTERN SUBSIDIARIES BUT EXCLUDES THE**

26   **CARRYING COSTS OF SUCH DEBT IN CALCULATING THE EMBEDDED**

---

[2]   Id., page 438-439.

1 **LONG-TERM DEBT COST RATE IS BLATANTLY INCORRECT. PLEASE**

2 **EXPLAIN.**

3 A. Common sense and fairness mandates that the level of debt and its cost be in harmony. If it

4 is correct to exclude the costs associated with the long-term debt of the Panhandle Eastern

5 subsidiaries, the capital associated with such costs should also be excluded from the capital

6 structure. What has been done by Mr. Murray is the equivalent of a person who has a first

7 and second mortgage on his/her home, but who calculates the carrying costs on only the

8 first mortgage. If Southern Union's consolidated capital structure is to be utilized, even

9 though I do not believe that it is appropriate to do so, it should exclude both the debt capital

10 and its related costs associated with the Panhandle Eastern subsidiaries.

11

12 **IV. COST RATE OF COMMON EQUITY CAPITAL**

13 Q. **PLEASE COMMENT ON MR. MURRAY'S EXCLUSIVE RELIANCE UPON THE**

14 **DCF MODEL IN REACHING HIS RECOMMENDED COMMON EQUITY COST**

15 **RATE RANGE OF 8.65% TO 9.25%.**

16 A. It is clear that Mr. Murray relies exclusively upon the DCF, as he states at page 26 of his

17 direct testimony that he performed a CAPM analysis "to determine the reasonableness of"

18 his DCF model cost of common equity. I believe that exclusive, even primary, reliance on

19 the DCF model is incorrect.

20

1   Q.   **PLEASE EXPLAIN WHY.**

2   A.   The goal of a rate of return expert in a proceeding such as this is to attempt to best emulate

3   investors' actions in formulating the required ROE. The DCF model is based upon the

4   EMH, as are all other market-based cost of common equity models. The generally-

5   accepted, semi-strong version of the EMH states that investors are aware of all publicly-

6   available information and that such information is embedded in the market prices they pay.

7   The financial literature is replete with discussions of all of the cost of common equity

8   models such as the DCF, the Risk Premium Model (RPM), the CAPM and the Comparable

9   Earnings Model (CEM). I provided a number of such examples at pages 29-31 of my direct

10   testimony. Those examples make it clear that the financial literature encourages the use of

11   multiple models and investors are aware of them. In addition, many state regulatory

12   commissions consider a number of cost of common equity models and do not rely upon any

13   single model. There is no empirical evidence with which I am familiar, which

14   demonstrates that investors rely exclusively upon a single model such as the DCF.

15   Moreover, there is also no empirical evidence of which I am aware that proves the DCF

16   model to be a superior predictor of actual earned returns experienced by investors vis-à-vis

17   other cost of common equity models.

18   In view of the foregoing, and because the EMH requires the assumption that

19   investors take into account multiple cost of equity models when formulating their required

20   rates of return, sole reliance upon any single model, including the DCF, is incorrect.

1

2   Q.   **IN ADDITION TO YOUR CALCULATIONS OF COMMON EQUITY COST RATE**

3   **BY THE USE OF OTHER COST OF COMMON EQUITY MODELS SUCH AS**

4   **THE RPM, THE CAPM AND CEM, HAVE YOU MADE ANY COMPARISON TO**

5   **MR. MURRAY'S RECOMMENDED RANGE OF COMMON EQUITY OF 8.65% -**

6   **9.25% AGAINST RECENTLY-AWARDED ROES TO LDCS (OR THE GAS**

7   **OPERATIONS OF COMBINATION ELECTRIC AND GAS COMPANIES)**

8   **DURING THE TWO YEARS ENDED SEPTEMBER 30, 2006?**

9   A.   Yes, I have. As discussed previously, that information is set forth in Schedule FJH-18. It

10   is shown that the average awarded ROE in litigated cases was 10.58% relative to an

11   average common equity ratio of 48.61%. These awards contained an average equity risk

12   premium of 4.71% over the yields on A rated public utility bonds. The updated prospective

13   yield on A rated public utility bonds is 6.39% (page 1 of Schedule FJH-28) plus an equity

14   risk premium of 4.71% indicates a common equity cost rate of 11.10% as shown at the

15   bottom of Schedule FJH-18. Such a cost rate confirms that Mr. Murray's recommended

16   range of common equity cost rate of 8.65% - 9.25% is completely unrealistic and outside

17   the regulatory mainstream. I believe if this Commission were to concur with Mr. Murray's

18   recommendation, the financial community would have a very adverse view of Missouri

19   regulation.

20

1 Q. **PLEASE COMMENT UPON THE APPLICABILITY OF MR. MURRAY'S**

2   **RECOMMENDED DCF-BASED RANGE OF COMMON EQUITY COST RATE OF**

3   **8.65% - 9.25%.**

4 A. Such a common equity cost rate range, based upon what is known as the "simplified" DCF

5   model which both Mr. Murray and I are using in this case, will mathematically mis-specify

6   investors' required return rate when the market value of common stock differs significantly

7   from its book value. As utility rate of return experts all know, and as discussed in my direct

8   testimony, market value and book values are seldom at unity. The market-based DCF

9   model will result in a total annual dollar return on book common equity equal to the total

10   annual dollar return expected by investors only when market and book values are equal, a

11   rare and unlikely situation.

12   Roger A. Morin has stated at page 236 of <u>Regulatory Finance – Utilities' Cost of</u>

13   <u>Capital</u>, (1994):

14   The third reason for caution and skepticism is that application of the DCF
15   model produces estimates of common equity cost that are consistent with
16   investors' expected return only when stock price and book value are
17   reasonably similar, that is, when the M/B is close to unity. As shown below,
18   application of the standard DCF model to utility stocks understates the
19   investor's expected return when the market-to-book ratio of a given stock
20   exceeds unity. This is particularly relevant in the capital market
21   environment of the 1990s where utility stocks are trading at M/B ratios well
22   above unity. The converse is also true, that is, the DCF model overstates
23   that investor's return when the stock's M/B ratio is less than unity. The
24   reason for the distortion is that the DCF market return is applied to a book
25   value rate base by the regulator, that is, a utility's earnings are limited to
26   earnings on a book value rate base.
27

1   Although Professor Morin discusses the capital market environment of the 1990s, utility

2   stocks continue to trade at market-to-book ratios well above unity, as shown on Schedule

3   FJH-1, page 11 of 23, the market-to-book ratios of all of the proxy LDCs are substantially

4   above their book values for my proxy groups as well as for Mr. Murray's proxy group of

5   six LDCs.

6   As discussed in my direct testimony at page 34, line 22 through page 35, line 10:

7   Under the DCF model, the rate of return investors require is related to the
8   price paid for a stock. Thus, market price is the basis upon which investors
9   formulate their required rate of return. A regulated utility (under the
10   traditional rate base/rate of return paradigm) is limited to earning on its net
11   book value (depreciated original cost) rate base. Market values diverge
12   from book values for many reasons unrelated to allowed and/or achieved
13   rates of earnings on book common equity (ROEs). Thus, when market
14   values depart from book values, a market-based DCF cost rate applied to the
15   book value of common equity will not reflect investors' expected common
16   equity cost rate based on market prices. This is true because there are many
17   macroeconomic factors which influence the demand for, and hence the
18   market prices of, common stocks in addition to company-specific earnings
19   per share (EPS) and dividends per share (DPS). Consequently, a market-
20   based DCF cost rate applied to the book value per share will either overstate
21   investors' required common equity cost rate when market value is less than
22   book value or understate investors' required common equity cost rate when
23   market value is above book value.
24

25   I demonstrated the inadequacy of a DCF-based cost rate applicable to the book value of

26   common equity when the market value of such equity is substantially above its book value

27   on Schedule FJH-8, which demonstrates that there is no realistic opportunity to earn the

28   market-based rate of return when it is applied to a much lower book value. In that example,

29   market price is 180.00% in excess of book value and the investor expects a total return rate

1   of 10.00% but can only achieve a 5.55% return on market value when the 10.00% market

2   rate is applied to the lower book value of common equity.

3

4 Q. **AT THE TOP OF PAGE 28 OF HIS DIRECT TESTIMONY, MR. MURRAY**

5   **SUGGESTS THAT THE COMMISSION SHOULD ADOPT HIS DCF**

6   **RECOMMENDATION IN VIEW OF HIS CAPM ANLAYSES AND BECAUSE HE**

7   **BELIEVES THAT HE PROVIDES INFORMATION REGARDING LOWER**

8   **REQUIRED EQUITY RISK PREMIUMS. PLEASE COMMENT.**

9 A. There are three major problems associated with Mr. Murray's CAPM analyses: 1) his

10   reliance, even in part, on geometric average market risk premiums; 2) his reliance, in part,

11   upon short-term risk premiums; and 3) his failure to utilize the empirical Capital Asset

12   Pricing Model (ECAPM).

13

14 Q. **WHY IS IT INCORRECT TO RELY UPON THE GEOMETRIC MEAN WHEN**

15   **ESTIMATING THE COST RATE OF COMMON EQUITY CAPITAL?**

16 A. In view of the more than six months'' passage of time since the filing of my direct

17   testimony, it is useful to look at the more current information from the 2006 Valuation

18   Yearbook of Stocks, Bonds, Bills and Inflation by Ibbotson Associates. It is identified as

19   Schedule FJH-22 and consists of 15 pages. Ibbotson Associates explains clearly why, only

20   the arithmetic mean data are appropriate when estimating the cost rate for common equity

1   capital. The classic definition of business risk is the expected variability in EBIT (Earnings

2   Before Interest and Income Taxes).   Consequently, in making investment decisions,

3   expected volatility is crucial to investors in their analyses of risk. The geometric mean

4   reduces the volatility of yearly data to a constant rate. Thus, observing the geometric mean

5   provides no insight into the volatility, i.e., year-to-year fluctuations, so critical to investors'

6   analyses of risk.

7

8 Q.   **WHAT   PERIOD   OF   TIME   DOES   THE   STANDARD   DCF   MODEL**

9   **CONTEMPLATE?**

10 A.   The standard DCF model contains the assumption that the dividend growth rate is constant

11   in every year to infinity. Schedule FJH-23, which consists of 6 pages, is an excerpt of

12   pages 110-113 from Roger A. Morin's Regulatory Finance: Utilities' Cost of Capital. Dr.

13   Morin lists the assumptions of the standard DCF model therein.

14

15 Q.   **WHY IS IT THEN NOT APPROPRIATE TO UTILIZE THE GEOMETRIC MEAN**

16   **IN ESTIMATING COST OF CAPITAL?**

17 A.   Pages 4-6 of Schedule FJH-22 contain the explanation by Ibbotson Associates as to why the

18   use of the arithmetic mean is appropriate when estimating the cost of capital. It is because

19   only the arithmetic mean takes into account year-to-year fluctuations of random variables,

20   such as the equity risk premium.   Risk assessment is a function of the potential for

1   volatility. A standard measure of business risk is the volatility of earnings before interest

2   and income taxes (EBIT). Information about potential volatility is critical to investors'

3   decision-making. Schedule FJH-24, which consists of two pages, shows the returns by

4   year on large company stocks for all of the years 1926-2005 on page 1. As can be seen,

5   this results in an approximate normal distribution. Page 2 of Schedule FJH-24 shows the

6   returns and their volatility chronologically by year from 1926-2005. It is easily noted that

7   the volatility is considerable. The geometric mean, or the compound return, only takes into

8   account the first and last year, i.e., 1926 and 2005, and reduces the return to a constant. A

9   geometric (or compound) growth rate provides no insight into the potential for future

10 volatility because it ignores all of the intervening years' returns. When estimating the cost

11 of capital, which is forward-looking, only the arithmetic mean of all the historic returns (as

12 indicated on pages 5 and 6 of Schedule FJH-22) provides insight into the potential for

13 volatility because it takes all of the past performance (observations) into account.

14   The classic definition of the riskiness of an asset is defined as the likely variability

15 of future returns.[3] Only the arithmetic mean provides insight into the likely variability of

16 future returns. Mr. Murray's reliance upon geometric mean return data are of no relevance

17 to estimating the cost of capital.

18

---

[3]   J. Fred Weston and Eugene F. Brigham, Essentials of Managerial Finance, 3rd Edition, the Dryden
      Press, 1974, p. 272.

REBUTTAL TESTIMONY OF FRANK J. HANLEY

CASE NO. GR-2006-0422

NOVEMBER 21, 2006

1 Q. WHY IS MR. MURRAY'S USE OF SHORT-TERM (10-YEAR) EQUITY RISK

2 PREMIUMS INCORRECT?

3 A. The reasons are explained very well by Ibbotson Associates (upon whose data he relies) as

4 contained Schedule FJH-22 at pages 7 through 13. Ibbotson Associates show that equity

5 risk premiums are random variables. That is, they have a serial correlation of near zero

6 (which can be seen on page 8 of Schedule FJH-22). Because the presumed investment

7 horizon in utilities' common equity is infinite (in practical terms, a very long period of

8 time), Ibbotson Associates states:

9 Restricting attention to a shorter historical period underestimates the amount
10 of change that could occur in a long future period. Finally, because
11 historical event-types (not specific events) tend to repeat themselves, long-
12 run capital market return studies can reveal a great deal about the future.
13 Investors probably expect 'unusual' events to occur from time to time and
14 their expectations reflect this. (pages 9 and 10)
15
16 Thus, in view of the foregoing and the fact that the DCF model presumes an infinite

17 investment horizon, the use of short-term periods such as 10 years is entirely inappropriate,

18 as is the use of the geometric mean equity risk premiums.

19

20 Q. AT PAGE 29 OF HIS DIRECT TESTIMONY, MR. MURRAY CITES SEVERAL

21 INDIVIDUALS WHO BELIEVE THAT EQUITY RISK PREMIUMS "ARE

22 CURRENTLY QUITE LOW". PLEASE COMMENT.

23 A. That is precisely the problem with relying upon current periods of time or short historical

24 periods of time. Once again, for the reasons specified by Ibbotson Associates and common

1   sense in view of the infinite investment horizon presumed in the standard DCF model, a

2   long range view should be taken based upon the arithmetic mean of long-term historical

3   data.

4

5   Q.   PLEASE COMMENT ON MR. MURRAY'S COMPLETE RELIANCE UPON THE

6   STANDARD CAPM, DESPITE THE INCORRECT INPUT DATA AND

7   INTERPETATION OF SUCH DATA AS DISCUSSED SUPRA.

8   A.   Mr. Murray failed to take into account the ECAPM, which is discussed in my direct

9   testimony at pages 58 and 59. His failure to utilize the ECAPM results in a further

10   understatement of the cost rate of common equity capital. Adjusted betas are used in the

11   application of the traditional CAPM. The purpose of using adjusted betas is to account for

12   regression analysis bias, i.e., the tendency of low beta stocks to rise toward 1 and of high

13   beta stocks to decline toward 1. Empirical studies have shown that the traditional CAPM,

14   which requires the use of adjusted betas, understates the common equity cost rate for

15   companies whose betas are less than 1 and overstates the common equity cost rate for those

16   companies whose betas are greater than 1 because the slope of the line is not as steep as the

17   Security Market Line (SML) predicted by the CAPM. The ECAPM process takes that

18   *additional tendency* into account. On this subject, I was in communication with Professor

19   Roger A. Morin in the past via email. Professor Morin is the author of the textbook

20   Regulatory Finance: Utilities' Cost of Capital cited supra. That correspondence contains

22

1   Professor Morin's explanation of the ECAPM and why it is essential to reflect the true cost

2   of capital is contained in Schedule FJH-25 which consists of 4 pages. Please note that

3   Professor Morin indicated that regulatory support for the ECAPM can be found in the New

4   York Public Service Commission's Generic Financing Docket, Case 91-M-0509.

5

6   **Q.**   **THE STANDARD DCF MODEL PRESUMES A CONSTANT GROWTH RATE IN**

7   **DIVIDENDS TO INFINITY AS NOTED BY MORIN, <u>SUPRA</u>. ARE EQUITY RISK**

8   **PREMIUMS CONSTANT?**

9   **A.**   No. Equity risk premiums change over time as do the growth rate expectations assumed for

10   use in the constant growth standard DCF model. However, in the application of the DCF

11   and risk premium models (including CAPM and ECAPM), the growth rate in the DCF

12   model and the equity risk premium in risk premium models are "expectationally constant".

13   As discussed at page 56, lines 1-15 of my direct testimony, the DCF growth rate may vary

14   randomly around some average expected value, which is perfectly acceptable as long as the

15   mean expected growth is constant. Similarly, to the extent that "g", or DCF growth rate

16   varies randomly around its mean expected value over the presumed infinite horizon, so

17   does the equity risk premium. To the extent that relative risk varies in the short run, it

18   averages out over the very long run (infinity) and is taken into account by using the

19   arithmetic mean of long-run historic equity risk premiums which is a random variable.

20

1 Q. AT PAGES 33-34 OF HIS DIRECT TESTIMONY, MR. MURRAY CONSIDERED

2 THE EXPECTED RETURN ON SOUTHERN UNION'S PENSION FUND ASSETS

3 EQUITY OF 10.0% AS A TEST OF REASONABLENESS FOR HIS

4 RECOMMENDATION IN THIS CASE. PLEASE COMMENT ON THE

5 RELEVANCE OF THE USE OF THE EXPECTED RETURNS FROM SOUTHERN

6 UNION'S PENSION FUND ASSETS AND THEIR USE IN THE RATEMAKING

7 PARADIGM.

8 A. The use of such expected returns has no relevance to the establishment of a common equity

9 cost rate for MGE in this proceeding for the following reasons. The expected pension fund

10 returns are those on a portfolio of assets which reflect the risk-reducing benefits of portfolio

11 theory as opposed to the greater risk associated with investment in a single asset, which in

12 this case would be MGE's jurisdictional rate base. The pension fund investment horizon is

13 a limited time horizon as opposed to the infinite investment horizon implicit in the standard

14 DCF model. It is incorrect for Mr. Murray to compare his recommended common equity

15 cost rate for MGE with the expected return on the equity portion of the entire pension

16 portfolio because of the portfolio effect described supra. It must be kept in mind that when

17 MGE needs capital in order to provide service to its customers, it must obtain that capital

18 regardless of capital market conditions at that time. Also, whatever common equity cost

19 rate is allowed by this Commission, it will simply be an opportunity cost rate which will be

20 impacted by attrition caused by rising investment in rate base, increasing expenses, and the

1   impact of weather attributable to not having a weather normalization clause in effect in the

2   Missouri jurisdiction versus the expected actually-earned rate of return on Southern

3   Union's pension fund portfolio of assets.

4   For the foregoing reasons, Mr. Murray's use and reliance upon the expected return

5   on the portfolio of equity assets of Southern Union's pension fund is inappropriate and

6   should be rejected.

7

8   Q.   AT THE BOTTOM OF PAGE 35 AND THE TOP OF PAGE 36 OF HIS DIRECT

9   TESTIMONY, MR. MURRAY COMPARES RATE OF RETURN DECISIONS

10   WITH HIS RECOMMENDATION IN AN ATTEMPT TO JUSTIFY HIS

11   RECOMMENDED OVERALL RATE OF RETURN. IS THIS A VALID TYPE OF

12   COMPARISON?

13   A.   No. The overall cost of capital and fair rate of return is the result of a number of factors,

14   including differences in the levels of financial risk reflected in different capital structure

15   ratios. In addition, since a major portion of the capitalization of most natural gas

16   distribution companies consists of fixed capital, i.e., debt and preferred stock capital,

17   comparisons cannot be made. They cannot be made because the embedded costs of debt

18   capital and preferred stock capital are impacted by, among other things, the time at which

19   various issues were made and the capital markets which existed at those times in which

20   they were made. Hence, the comparison of overall allowed rates of return is not a valid

1   comparison. Unlike recently awarded rates of return on common equity capital, which can

2   be related to specific common equity ratios, the overall rates of return are impacted by

3   many various issues of debt and preferred stock capital issued at many different points in

4   time. His analysis of overall rates of return is not valid as a means of attempting to justify

5   his recommendation.

6

7   **V. UPDATED COMMON EQUITY COST RATE AND**
8   **RESULTANT OVERALL COST OF CAPITAL**
9
10   Q.   HAVE YOU PREPARED AN UPDATE OF YOUR COMMON EQUITY COST

11   RATE TO REFLECT MORE CURRENT CAPITAL MARKET CONDITIONS?

12   A.   Yes, I have. In my update, I utilized the most recent information available. I also utilized

13   the same hypothetical capital structure which includes 44.09% long-term debt and 9.91%

14   short-term debt, equaling a total debt ratio of 54.00% and a common equity ratio of 46.00%

15   as discussed in my direct testimony. The long- and short-term debt cost rates remain

16   unchanged at 6.57% and 5.47%, respectively. In my update, I utilize the same cost of

17   common equity models and applied them in the same manner as discussed in detail in my

18   direct testimony. My updated cost rate of common equity capital is 11.75% and the

19   resultant overall cost of capital is now 8.85%. In my updating, I utilized the same

20   methodologies in precisely the same manner as discussed in my direct testimony. They

21   need not be repeated here. I have also calculated averages for each proxy group and also

22   excluded Cascade Natural Gas Corp. and Peoples Energy Corp. due to their pending

1   merger/acquisition activity which became known after my direct testimony was prepared

2   and filed. A brief summary of my updated common equity cost rates and updated cost of

3   common equity of 11.75% is shown on page 2 of Schedule FJH-26[4]. Schedules FJH-27

4   through 30 contain the information relating to the updated results of my application of the

5   DCF, RPM, CAPM, and CEM, respectively.

6   My updated common equity cost rate of 11.75% confirms the unreasonableness of

7   Mr. Murray's recommended range of 8.65% - 9.25%. Further affirmation of its

8   unreasonableness is the indicated 11.10% cost rate shown on Schedule FJH-18. As

9   discussed <u>supra</u> , the average equity risk premium implicit in all of the awarded equity cost

10   rates shown on Schedule FJH-18 is 4.71%. When added to the prospective A rated utility

11   bond yield of 6.39%, an 11.10% cost rate is indicated which, of course, does not include

12   any provision for MGE's unique risks related to size and lack of protection from the

13   vagaries of the weather. Moreover, if it were to be applied to Southern Union's common

14   equity ratio of 36.31%, a substantial additional upward adjustment to the 11.10% cost rate

15   would be required to reflect the greater financial risk in a 36.31% common equity ratio

16   versus the average ratio of 48.61% of all the litigated awards as shown on Schedule FJH-

17   18.

---

[4]   Page 3 of Schedule FJH-26 shows a brief summary of my updated common equity cost rates and updated cost of common equity of 11.75 excluding Cascade Natural Gas Co. and Peoples Energy Corp.

1   In view of the evidence presented <u>supra</u>, MGE should be afforded an opportunity to

2   earn an 11.75% ROE relative to a 46.00% hypothetical common equity ratio

3

4 **Q.   DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?**

5 A.   Yes, it does.

6

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Missouri Gas Energy's)
Tariff Sheets Designed to Increase Rates)   Case No. GR-2006-0422
for Gas Service in the Company's Missouri)
Service Area.)
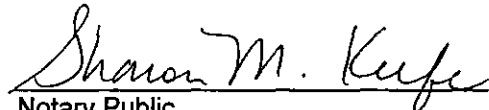
AFFIDAVIT OF FRANK J. HANLEY

STATE OF _New Jersey_)
)   ss.
COUNTY OF _Burlington_)

Frank J. Hanley, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Rebuttal Testimony in question and answer form, to be presented in the above case; that the answers in the foregoing Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

_____
FRANK J. HANLEY

Subscribed and sworn to before me this _16th_ day of November 2006.

_____
Notary Public

My Commission Expires: _7/9/2011_

SHARON M. KEEFE
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES JULY 9, 2011

Missouri Gas Energy
Authorized Returns on Common Equity and
Common Equity Ratios for Gas Distribution Companies
for the period October 2004 through September 2006

	1	2	3	4	5	6
Company	Date	Jurisdiction	Authorized Return on Common Equity	Authorized Common Equity Ratio	Moody's A Rated Public Utility Bond Yields (7)	Spread between Authorized Return on Common Equity and Moody's A Rated Public Utility Bond Yields (8)
Chattanooga Gas	10/20/04	TN	10.20 %	35.50 %	6.14 %	4.06 %
Indiana Gas	11/30/04	IN	10.60 (1)	50.06	5.94	4.66
Yankee Gas Service	12/08/04	CT	9.90 (1)	47.90	5.94	3.96
Wisconsin Public Service	12/21/04	WI	11.50	57.35	5.97	5.53
Madison Gas and Electric	12/22/04	WI	11.50	57.64	5.97	5.53
Centerpoint Energy Arkla	12/28/04	OK	10.25 (1)	49.86	5.97	4.28
Puget Sound Energy	02/18/05	WA	10.30	43.00	5.97	4.33
SEMCO Energy Gas	03/29/05	MI	11.00 (1)	- -	5.61	5.39
Vectren Energy Delivery of Ohio	04/13/05	OH	10.60	48.10 (5)	5.61	4.99
Michigan Consolidated Gas	04/28/05	MI	11.00	39.31 (2, 3)	5.83	5.17
AmerenIP - Formerly Illinois Power	05/17/05	IL	10.00 (1)	53.09	5.83	4.17
CenterPoint Energy Minnegasco	06/08/05	MN	10.18	50.27	5.64	4.54
Atlanta Gas Light	06/10/05	GA	10.90 (1)	- - (6)	5.64	5.26
Entergy Gulf States	07/06/05	LA	10.50 (1)	47.52	5.53	4.97
Wisconsin Power and Light	07/19/05	WI	11.50	61.75	5.53	5.97
Northern States Power	08/11/05	MN	10.40 (1)	50.24 (3)	5.40	- -
CenterPoint Energy Arkansas Gas	09/19/05	AR	9.45	31.80 (2)	5.51	- -
Northern Illinois Gas - Now Nicor Gas	09/30/05	IL	10.51	56.37	5.50	- -
Oklahoma Natural Gas	10/04/05	OK	9.90 (1)	46.76	5.50	4.40
Interstate Power & Light	10/14/05	IA	10.40 (1)	49.35 (3)	5.50	- -
South Carolina Electric & Gas	10/31/05	SC	10.25 (1)	50.75	5.52	4.73
Arkansas Western Gas	11/02/05	AR	9.70	33.03 (2)	5.52	- -
Bay State Gas	11/30/05	MA	10.00	53.95	5.79	4.21
Arkansas Oklahoma Gas	12/09/05	AR	9.70	41.04 (2, 5)	5.79	3.91
Madison Gas and Electric	12/12/05	WI	11.00	56.65	5.79	5.21
Pacific Gas and Electric	12/16/05	CA	11.35	52.00	5.79	- -
San Diego Gas & Electric	12/16/05	CA	10.70	49.00	5.79	4.91
Baltimore Gas & Electric	12/21/05	MD	11.00	48.40	5.88	- -
Avista Corporation	12/21/05	WA	10.40 (1)	40.00	5.88	4.52
Wisconsin Public Service	12/22/05	WI	11.00	59.73	5.88	- -
Union Light, Heat & Power	12/22/05	KY	10.20	54.45	5.88	4.32
Southern Connecticut Gas	12/28/05	CT	10.00 (1)	51.28	5.88	- -
Northern States Power	01/05/06	WI	11.00	53.66	5.88	5.12
Wisconsin Electric Power	01/25/06	WI	11.20	56.34	5.80	- -
Wisconsin Gas	01/25/06	WI	11.20	50.20	5.80	5.40
Public Service Co of Colorado	02/03/06	CO	10.50 (1)	55.49	5.80	4.70
Southwest Gas	02/23/06	AZ	9.50	40.00 (4)	5.71	3.79
Aquila	03/01/06	IA	10.40 (1)	51.39 (5)	5.71	4.69
Sierra Pacific Power	04/26/06	NV	10.60	40.76	5.98	4.62
LS Gas Service / Trans LA Gas	05/25/06	LA	10.40 (1)	48.00 (4)	6.29	4.11
Central Hudson Gas & Electric	07/24/06	NY	9.60	45.00	6.40	3.20
Average			10.49 %	48.90 %	5.79 %	4.67 %
Average of Litigated Cases			10.58 %	48.61 %	5.81 %	4.71 %

Prospective Yield on A Rated Public Utility Bonds (9)	6.39 %
Average Spread between Authorized Returns on Common Equity and Moody's A Rated Public Utility Bond Yields	4.71
Reality Check Indicated Common Equity Cost Rate	11.10 %

Notes: (1) Order followed stipulation or settlement by the parties. Decision particulars not necessarily precedent-setting or specifically adopted by the regulatory body.

(2) Capital structure includes cost-free items or tax credit balances at the overall rate of return

(3) Interim rates implemented prior to issuance of final order

(4) Hypothetical capital structure utilized.

(5) Estimated

(6) Revised

(7) Actual A rated yield represents the yield of the previous month if the order was issued on or after the 21st of each month, or the yield of two months prior if the order was issued on or before the 20th of each month. For example, the yield for 10/20/04 is the A rated Public Utility yield for August 2004. On the other hand, the yield for 11/30/04 is the A rated Public Utility yield for October 2004

(8) Column 3 - Column 5

(9) From page 1 of Schedule FJH-28 of this Exhibit

Source of Information: Major Rate Case Decisions - January 2004 - December 2005
Regulatory Focus - Supplemental Studies, January 12, 2006
Major Rate Case Decisions - January 2006 - September 30, 2006
Regulatory Focus - Supplemental Studies, October 5, 2006
Published by Regulatory Research Associates, Inc., An SNL Energy Company
Mergent Bond Record Monthly Update, September 2006, Vol 73, No 9

Current Authorized Returns on Common Equity and Common Equity Ratios for
Witness Murray's Proxy Group of Six Comparable Natural Gas Distribution Companies for Missouri Gas Energy
and Two Natural Gas Distribution Companies Identified by Witness Murray as having operations in Missouri
As of October 31, 2006

Witness Murray's Proxy Group of Six Comparable Natural Gas Distribution Companies for Missouri Gas Energy	Authorized Returns on Equity (1)	Authorized Common Equity Ratios (2)	Order Date (3)
AGL Resources Inc. (4)	10.47 %	44.93 %	--
New Jersey Resources Corp.	11.50	52.74	01/94
Northwest Natural Gas Company (5)	10.20	49.50	--
Piedmont Natural Gas Co., Inc. (6)	11.15 (9)	51.14	--
South Jersey Industries, Inc.	10.00	46.00	07/04
WGL Holdings, Inc. (7)	10.62	50.92	--
Average	10.66 %	49.20 %	

Two Natural Gas Distribution Companies Identified by Witness Murray as Having Operations in Missouri			
Atmos Energy Corporation (8)	10.89 %	48.90 %	--
The Laclede Group, Inc.	-- (10)	--	10/05
Average	10.89 %	48.90 %	

Notes: (1) Most recent reported state-level allowed return rate on common equity (ROE). ROE for companies operating in multiple jurisdictions are averages.

(2) Most recent authorized common equity ratios.

(3) The date of the commission order authorizing reported ROE. For companies operating in multiple jurisdictions, no date is given because the reported ROE is an average derived from multiple commission orders issued at different times.

(4) AGL Resources through its major operating subsidiaries, Atlanta Gas Light, Chattanooga Gas Company, City Gas of Florida, Elizabethtown Gas Company and Virginia Natural Gas, provides gas distribution services in the states of Georgia, Tennessee, Florida, New Jersey and Virginia, respectively.

(5) Northwest Natural Gas Company operates as itself in the states of Oregon and Washington.

(6) Piedmont Natural Gas as itself and through its two major operating subsidiaries, North Carolina Natural Gas and Nashville Gas, provides gas distribution services in the states of South Carolina, North Carolina and Tennessee,

(7) WGL Holdings, Inc., through its operating subsidiary, Washington Gas Light Company, provides gas distribution services in the District of Columbia, Maryland and Virginia.

(8) Atmos Energy Corporation through its various operating subsidiaries, all of which are now doing business as Atmos energy Corporation, provides gas distribution services in the following states: Colorado, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Tennessee, Texas and Virginia.

(9) The averages for Piedmont Natural Gas Company are based on the most recent order for North Carolina Natural Gas, and Piedmont's order of its own operations in North Carolina, which was issued in October 2002. Please note that the order from October 2002 is not the most recent order, which was issued in November 2005. However, since such order is silent regarding ROE issues, the order from 2002 was used for the study.

(10) The most recent order for Laclede Gas Company, which is Laclede Groups' operating subsidiary in the state of Missouri, is silent regarding ROE issues. Also, the previous order from October 2002 was silent regarding ROE issues.

Source of Informati Focus Notes
      Regulatory Focus - January 1, 1998 through October 31, 2006
      Major Rate Case Decisions - January 1990 - December 2005
      Regulatory Focus - Supplemental Studies, October 5, 2006
      Major Rate Case Decisions - January 2006 - September 30, 2006
      Regulatory Focus - Supplemental Studies, October 5, 2006
      Major Rate Case Decisions - January 2004 - December 2005
      Regulatory Focus - Supplemental Studies, January 12, 2006
      Major Rate Case Decisions - January 2003 - December 2004
      Regulatory Focus - Supplemental Studies, January 14, 2005
      Published by Regulatory Research Associates, Inc., An SNL Energy Company
      AUS Monthly Utility Report - December 2006
      Published by AUS Utility Reports
      Company Annual Forms 10-Ks, 10-Qs, Company Provided

REGULATORY FINANCE:

UTILITIES' COST OF CAPITAL

Roger A. Morin, PhD

in collaboration with
Lisa Todd Hillman

A few points regarding consolidated capital structures are in order. First, the debt of the consolidated company is the sum of the holding company's debt and the subsidiary's debt. Hence, the consolidated cost of debt is a weighted cost of parent and subsidiary debt. Second, the cost of equity of the holding company is identical to that of the consolidated entity. This is because the value of the parent holding company's stock expressly recognizes subsidiary income to parent investment if accounted on an equity basis. Accounting on the equity basis treats subsidiary net income as income to the parent's equity investment whether such income is received as dividends or not. The parent's retained earnings necessarily reflect this. Accordingly, the cost of equity associated with market valuation of holding company equity is also the cost of equity for the consolidated network. Third, a consolidated capital structure is equivalent to a double-levered capital structure when all the parent's subsidiaries have the same amounts of leverage. Lastly, some analysts contend that assignment of the consolidated weighted cost to the equity cost of the subsidiary is equivalent to imputation of the holding company's equity cost. This can only be true in the highly unlikely event that the costs of consolidated debt and equity are exactly equal, or, if they are unequal, that the differences in weights between the consolidated and the subsidiary capital structure exactly offset the differences in costs. This is proven formally in Morin and Andrews (1993).

20.2 Critique of Double Leverage

Adherents to the double leverage calculation argue that the true cost of capital to a utility subsidiary is the weighted cost of its own debt and the weighted cost of the parent's debt and equity funding. Moreover, unless the subsidiary's equity is assigned the parent's weighted cost of capital, parent shareholders will reap abnormally high returns. Although persuasive on the surface, these arguments conceal serious conceptual and practical problems. Moreover, the validity of double leverage rests on questionable assumptions.

The flaws associated with the double leverage approach have been discussed thoroughly in the following academic literature. Pettway and Jordan (1983) and Beranek and Miles (1988) pointed out the flaws in the double leverage argument, particularly the excess return argument, and also demonstrated that the stand-alone method is a superior procedure. Rozeff (1983) discussed the ratepayer cross-subsidies of one subsidiary by another when employing double leverage. Lerner (1973) concluded that the returns granted an equity investor must be based on the risks to which the investor's capital is exposed and not on the investor's source of funds.

Theoretical Issues

The double leverage approach contradicts the core of the cost of capital concept. Financial theory clearly establishes that the cost of equity is the risk-adjusted opportunity cost to the investors and not the cost of the specific capital sources employed by investors. The true cost of capital depends on the use to which the capital is put and not on its source. The *Hope* and *Bluefield* doctrines have made clear that the relevant considerations in calculating a company's cost of capital are the alternatives available to investors and the returns and risks associated with those alternatives. The specific source of funding and the cost of those funds to the investor are irrelevant considerations.

Carrying the double leverage standard to its logical conclusion leads to even more unreasonable prescriptions. If the common shares of the subsidiary were held by both the parent and by individual investors, the equity contributed by the parent would have one cost under the double leverage computation while the equity contributed by the public would have another. This is clearly illogical. Or, does double leverage require tracing the source of funds used by each individual investor so that its cost can be computed by applying double leverage to each individual investor? Of course not! Equity is equity, irrespective of its source, and the cost of that equity is governed by its use, by the risk to which it is exposed.

For example, if an individual investor borrows money at the bank at an after-tax cost of 8% and invests the funds in a speculative oil exploration venture, the required return on the investment is not the 8% cost but rather the return foregone in speculative projects of similar risk, say 20%. Yet, under the double leverage approach, the individual's fair return on this risky venture would be 8%, which is the cost of the capital source, and not 20%, which is the required return on investments of similar risk. Double leverage implies that for all investors who inherited stock or received stock as a gift, the allowed return on equity would be zero, since the cost of the stock to the investors is zero. It also implies that if, tomorrow morning, a subsidiary were sold to a company with a higher cost of capital than the parent, the subsidiary's cost of equity would suddenly become higher as a result of the change in ownership. If we assumed that the double leverage concept were appropriate, we would also have to assume that the day following AT&T's divestiture in 1984, the cost of equity of the newly created Bell Regional Holding Companies suddenly rose by a substantial amount. This is logically absurd, as it is the use of capital that governs its cost, and not its source. For example, if a subsidiary with a double leverage cost of equity of 12% were sold to another company with a higher cost of capital of, for example, 15%, would regulation alter the return accordingly just because of the change in ownership?

Chapter 20:   Double Leverage

If so, the same utility with the same assets and providing the same service under the new management would have a higher cost of service to rate-payers because of the transfer of ownership. Clearly, if a utility subsidiary were allowed an equity return equal to the parent's weighted cost of capital while the same utility were allowed a fair, presumably higher, return were it not part of a holding company complex, an irresistible incentive to dissolve the holding company structure would exist in favor of the one-copany operating utility format. The attendant benefits of scale economies and diversification would then be lost to the ratepayers.

The cost of capital is governed by the risk to which to the capital is exposed and not by the cost of those funds or whether it is they were obtained from bondholders or common shareholders. The identity of the subsidiary's shareholders should have no bearing on its cost of equity because it is the risk to which the subsidiary's equity is exposed that governs its cost of money, not whether it is borrowed from bondholders or sold to common shareholders for issued shares. Had the parent company not been in the picture, and had the subsidiary's stock been widely held by the public, the subsidiary would be entitled to a return that would fully cover the cost of both its debt and equity.

Just as individual investors require different returns from different assets in managing their personal affairs, why should regulation cause parent companies making investment decisions on behalf of their shareholders to act any differently? A parent company normally invests money in many operating companies of varying sizes and varying risks. These operating subsidiaries pay different rates for the use of investor capital, such as long-term debt capital, because investors recognize the differences in capital structure, risk, and prospects between the subsidiaries. Yet, the double leverage calculation would assign the same return to each activity, based on the parent's cost of capital. Investors do recognize that different subsidiaries are exposed to different risks, as evidenced by the different bond ratings and cost rates of operating subsidiaries. The same argument carries over to common equity. If the cost rate for debt is different because the risk is different, the cost rate for common equity is also different, and the double leverage adjustment should not obscure this fact.

The double leverage concept is at odds with the opportunity cost concept of economics. According to this principle of economics, the cost of any resource is the cost of an alternative foregone. The cost of investing funds in an operating utility subsidiary is the return foregone on investments of similar risk. If the fair risk-adjusted return assigned by the market on utility investments is 15%, and the regulator assigns a return less than 15% because of a double leverage calculation, there is no incentive or defensible reason for a parent holding company to invest in that utility.

477

REGULATORY FINANCE:

UTILITIES' COST OF CAPITAL

Roger A. Morin, PhD

in collaboration with
Lisa Todd Hillman

$$K_e = \rho + [\rho - i(1 - T)] \, B/S$$

$$12\% = \rho + [\rho - .08 \, (1 - .40)].35/.65$$

from which $\rho = 9.48\%$. Inserting the latter value of ρ in the equation and using the new capital structure, the revised cost of equity is obtained:

$$K_e = .0948 + [.0948 - .08 \, (1 - .40)] \, .40/.60 = .1260 = 12.60\%$$

Still another way to tackle the problem is to compute an unlevered beta, as in Example 1 of Chapter 14 using Equation 14-1, then relever the beta with the new capital structure. The CAPM formula is then employed to measure the cost of equity under the new capital structure.

The major thrust of this example is that an estimate of cost of capital on the basis of an observed capital structure is erroneous if the capital structure is expected to change. The revised cost of equity can be estimated with three methodologies: the Modigliani-Miller, Miller, and the levered beta-CAPM equations.

Comparable Groups

A measurement problem similar to that of the previous numerical example can arise when using the cost of equity capital of other companies as a check against estimates based on the market data for the utility itself. If the group of comparable companies has been carefully designed using adequate risk filters for both business risk and capital structure differences, this will not be a problem. But if substantial capital structure differences exist between the utility and the reference companies, all else being constant, the same remedial correction as in the above example is necessary, using Equation 17-7 and the average capital structure of the reference group to compute the cost of capital for an all-equity firm, and the subject utility's own capital structure to compute its cost of capital using the same equation in reverse. Here also the unlevered-relevered beta approach discussed in Chapter 14 and illustrated in the General Gas case example can be used to adjust the results of the comparable groups for differences in leverage.

Hypothetical Capital Structures

Another implication of leverage theory is that cost of capital estimates based on a utility's current market data and the capital structure expected by investors cannot be applied to any other capital structure without the adjustment described in previous examples. Regulators frequently assign

Chapter 18:   Capital Structure Issues

hypothetical, or deemed, capital structures to utility companies for pur-
poses of revenue requirements computation. This procedure is
appropriate only if the cost of equity estimated from current investor
expectations is revised to take into account the new capital structure
prescribed by the regulator. The cost of equity estimate based on the
actual capital structure is no longer consistent with the new capital
structure. Of course, the imposition of an hypothetical capital structure
presupposes that the existing actual capital structure is not optimal in the
first place.

If it is assumed for a moment that it is proper to impute a capital structure
consisting of substantially more debt, the higher common equity cost rate
related to a changed common equity ratio must be reflected in the ap-
proach. In ascribing a capital structure different from the company's
actual capital structure, which, for example, imputes a higher debt
amount, the repercussions on equity costs must be recognized. As dis-
cussed in previous chapters, it is a rudimentary tenet of basic finance that
the greater the amount of financial risk borne by common shareholders,
the greater the return required by shareholders in order to be compen-
sated for the added financial risk imparted by the greater use of senior
debt financing. In other words, the greater the debt ratio, the greater is
the return required by equity investors. Both the cost of incremental debt
and the cost of equity must be adjusted to reflect the additional risk
associated with the hypothetical capital structure. The arguments work in
reverse if a hypothetical capital structure consisting of less debt than the
actual were to be imputed.[2]

In summary, it is logically inconsistent to combine a fictitious capital
structure with a return on equity estimate that excludes the effects of the
proposed capital structure. By omitting the repercussions on equity costs
and debt costs, a serious conceptual error would be committed in deter-
mining the cost of equity capital.

A similar problem arises in the double leverage approach to computing
equity costs. If a cost of equity estimate based on a given capital structure
is not modified to account for the double levered capital structure used by
the regulator to determine the allowed return, a distorted measure of
capital cost results. The double leverage issue is discussed at length in
Chapter 20.

---

[2] The use of hypothetical capital structures necessarily entails the use of
hypothetical equity costs, hypothetical debt costs, hypothetical interest
payments, and hypothetical taxation.

439

Stocks, Bonds, Bills,
and Inflation

SBBI

Valuation Edition
2006 Yearbook

ibbotson

The Market Benchmark and Firm Size

Although not restricted to include only the 500 largest companies, the S&P 500 is considered a large company index. The returns of the S&P 500 are capitalization weighted, which means that the weight of each stock in the index, for a given month, is proportionate to its market capitalization (price times number of shares outstanding) at the beginning of that month. The larger companies in the index therefore receive the majority of the weight. The use of the NYSE "Deciles 1–2" series results in an even purer large company index. Yet many valuation professionals are faced with valuing small companies, which historically have had different risk and return characteristics than large companies. If using a large stock index to calculate the equity risk premium, an adjustment is usually needed to account for the different risk and return characteristics of small stocks. This will be discussed further in Chapter 7 on the size premium.

The Risk-Free Asset

The equity risk premium can be calculated for a variety of time horizons when given the choice of risk-free asset to be used in the calculation. The *Stocks, Bonds, Bills, and Inflation Yearbook* provides equity risk premia calculations for short-, intermediate-, and long-term horizons. The short-, intermediate-, and long-horizon equity risk premia are calculated using the income return from a 30-day Treasury bill, a 5-year Treasury bond, and a 20-year Treasury bond, respectively.

Although the equity risk premia of several horizons are available, the long-horizon equity risk premium is preferable for use in most business-valuation settings, even if an investor has a shorter time horizon. Companies are entities that generally have no defined life span; when determining a company's value, it is important to use a long-term discount rate because the life of the company is assumed to be infinite. For this reason, it is appropriate in most cases to use the long-horizon equity risk premium for business valuation.

20-Year versus 30-Year Treasuries

Our methodology for estimating the long-horizon equity risk premium makes use of the income return on a 20-year Treasury bond; however, the Treasury currently does not issue a 20-year bond. The 30-year bond that the Treasury recently began issuing again is theoretically more correct due to the long-term nature of business valuation, yet Ibbotson Associates instead creates a series of returns using bonds on the market with approximately 20 years to maturity. The reason for the use of a 20-year maturity bond is that 30-year Treasury securities have only been issued over the relatively recent past, starting in February of 1977, and were not issued at all through the early 2000s.

The same reason exists for why Ibbotson does not use the 10-year Treasury bond; that is, a long enough history of market data is not available for 10-year bonds. Ibbotson Associates has persisted in using a 20-year bond to keep the basis of the time series consistent.

Income Return

Another point to keep in mind when calculating the equity risk premium is that the income return on the appropriate-horizon Treasury security, rather than the total return, is used in the calculation. The total return is comprised of three return components: the income return, the capital appreciation return, and the reinvestment return. The income return is defined as the portion of the total return

that results from a periodic cash flow or, in this case, the bond coupon payment. The capital appreciation return results from the price change of a bond over a specific period. Bond prices generally change in reaction to unexpected fluctuations in yields. Reinvestment return is the return on a given month's investment income when reinvested into the same asset class in the subsequent months of the year. The income return is thus used in the estimation of the equity risk premium because it represents the truly riskless portion of the return.[2]

Yields have generally risen on the long-term bond over the 1926–2005 period, so it has experienced negative capital appreciation over much of this time. This trend has turned around since the 1980s, however. Graph 5-2 illustrates the yields on the long-term government bond series compared to an index of the long-term government bond capital appreciation. In general, as yields rose, the capital appreciation index fell, and vice versa. Had an investor held the long-term bond to maturity, he would have realized the yield on the bond as the total return. However, in a constant maturity portfolio, such as those used to measure bond returns in this publication, bonds are sold before maturity (at a capital loss if the market yield has risen since the time of purchase). This negative return is associated with the risk of unanticipated yield changes.

Graph 5-2

Long-term Government Bond Yields versus Capital Appreciation Index
1925–2005

Year-end
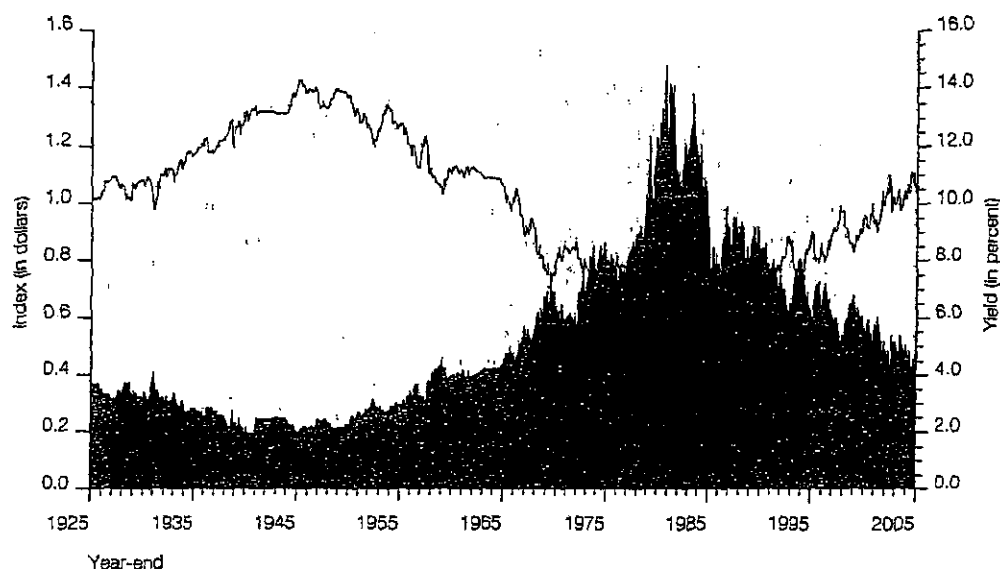
2 Please note that the appropriate forward-looking measure of the riskless rate is the yield to maturity on the appropriate-horizon government bond. This differs from the riskless rate used to measure the realized equity risk premium historically. Chapter 4 includes a thorough discussion of riskless rate selection in this context.

Schedule FJH-22
Page 4 of 15

Schedule FJH-14
Page 2 of 8
(Update)

The Equity Risk Premium

For example, if bond yields rise unexpectedly, investors can receive a higher coupon payment from a newly issued bond than from the purchase of an outstanding bond with the former lower-coupon payment. The outstanding lower-coupon bond will thus fail to attract buyers, and its price will decrease, causing its yield to increase correspondingly, as its coupon payment remains the same. The newly priced outstanding bond will subsequently attract purchasers who will benefit from the shift in price and yield; however, those investors who already held the bond will suffer a capital loss due to the fall in price.

Anticipated changes in yields are assessed by the market and figured into the price of a bond. Future changes in yields that are not anticipated will cause the price of the bond to adjust accordingly. Price changes in bonds due to unanticipated changes in yields introduce price risk into the total return. Therefore, the total return on the bond series does not represent the riskless rate of return. The income return better represents the unbiased estimate of the purely riskless rate of return, since an investor can hold a bond to maturity and be entitled to the income return with no capital loss.

Arithmetic versus Geometric Means

The equity risk premium data presented in this book are arithmetic average risk premia as opposed to geometric average risk premia. The arithmetic average equity risk premium can be demonstrated to be most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. This is because both the CAPM and the building block approach are additive models, in which the cost of capital is the sum of its parts. The geometric average is more appropriate for reporting past performance, since it represents the compound average return.

The argument for using the arithmetic average is quite straightforward. In looking at projected cash flows, the equity risk premium that should be employed is the equity risk premium that is expected to actually be incurred over the future time periods. Graph 5-3 shows the realized equity risk premium for each year based on the returns of the S&P 500 and the income return on long-term government bonds. (The actual, observed difference between the return on the stock market and the riskless rate is known as the realized equity risk premium.) There is considerable volatility in the year-by-year statistics. At times the realized equity risk premium is even negative.

Schedule FJH-22
Page 5 of 15

Schedule FJH-14
Page 3 of 8
(Update)

Chapter 5

Graph 5-3

Realized Equity Risk Premium Per Year
1926–2005
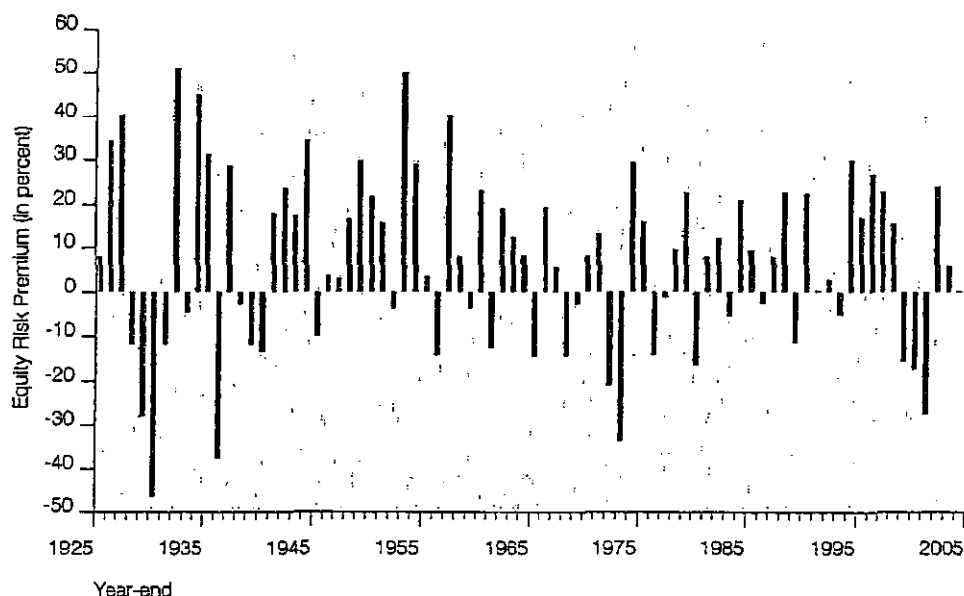
To illustrate how the arithmetic mean is more appropriate than the geometric mean in discounting cash flows, suppose the expected return on a stock is 10 percent per year with a standard deviation of 20 percent. Also assume that only two outcomes are possible each year— +30 percent and –10 percent (i.e., the mean plus or minus one standard deviation). The probability of occurrence for each outcome is equal. The growth of wealth over a two-year period is illustrated in Graph 5-4.

Graph 5-4

Growth of Wealth Example
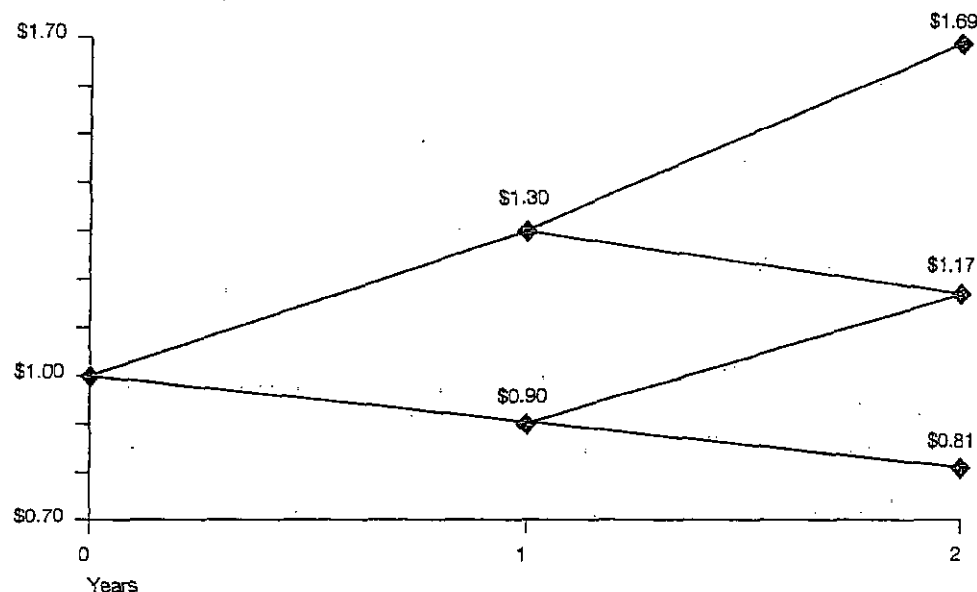
The most common outcome of $1.17 is given by the geometric mean of 8.2 percent. Compounding the possible outcomes as follows derives the geometric mean:

$$[(1+0.30)\times(1-0.10)]^{\frac{1}{2}}-1=0.082$$

However, the expected value is predicted by compounding the arithmetic, not the geometric, mean. To illustrate this, we need to look at the probability-weighted average of all possible outcomes:

$$
\begin{aligned}
(0.25 \times \$1.69) &= \$0.4225 \\
+ (0.50 \times \$1.17) &= \$0.5850 \\
+ (0.25 \times \$0.81) &= \underline{\$0.2025} \\
\text{Total} \quad\quad & \ \ \$1.2100
\end{aligned}
$$

Therefore, $1.21 is the probability-weighted expected value. The rate that must be compounded to achieve the terminal value of $1.21 after 2 years is 10 percent, the arithmetic mean:

$$\$1\times(1+0.10)^2 = \$1.21$$

The geometric mean, when compounded, results in the median of the distribution:

$$\$1\times(1+0.082)^2 = \$1.17$$

The arithmetic mean equates the expected future value with the present value; it is therefore the appropriate discount rate.

Schedule FJH-22
Page 7 of 15

Schedule FJH-14
Page 5 of 8
(Update)

Chapter 5

Appropriate Historical Time Period

The equity risk premium can be estimated using any historical time period. For the U.S., market data exists at least as far back as the late 1800s. Therefore, it is possible to estimate the equity risk premium using data that covers roughly the past 100 years.

The Ibbotson Associates equity risk premium covers the time period from 1926 to the present. The original data source for the time series comprising the equity risk premium is the Center for Research in Security Prices. CRSP chose to begin their analysis of market returns with 1926 for two main reasons. CRSP determined that the time period around 1926 was approximately when quality financial data became available. They also made a conscious effort to include the period of extreme market volatility from the late twenties and early thirties; 1926 was chosen because it includes one full business cycle of data before the market crash of 1929. These are the most basic reasons why Ibbotson Associates' equity risk premium calculation window starts in 1926.

Implicit in using history to forecast the future is the assumption that investors' expectations for future outcomes conform to past results. This method assumes that the price of taking on risk changes only slowly, if at all, over time. This "future equals the past" assumption is most applicable to a random time-series variable. A time-series variable is random if its value in one period is independent of its value in other periods.

Does the Equity Risk Premium Revert to Its Mean over Time?

Some have argued that the estimate of the equity risk premium is upwardly biased since the stock market is currently priced high. In other words, since there have been several years with extraordinarily high market returns and realized equity risk premia, the expectation is that returns and realized equity risk premia will be lower in the future, bringing the average back to a normalized level. This argument relies on several studies that have tried to determine whether reversion to the mean exists in stock market prices and the equity risk premium.[3] Several academics contradict each other on this topic; moreover, the evidence supporting this argument is neither conclusive nor compelling enough to make such a strong assumption.

Our own empirical evidence suggests that the yearly difference between the stock market total return and the U.S. Treasury bond income return in any particular year is random. Graph 5-3, presented earlier, illustrates the randomness of the realized equity risk premium.

3 Fama, Eugene F., and Kenneth R. French. "Permanent and Temporary Components of Stock Prices," *Journal of Political Economy*, April 1988, pp. 246–273. Poterba, James M., and Lawrence H. Summers. "Mean Reversion in Stock Prices," *Journal of Financial Economics*, October 1988, pp. 27–59. Lo, Andrew W., and A. Craig MacKinlay. "Stock Market Prices Do Not Follow Random Walks: Evidence from a Simple Specification Test," *The Review of Financial Studies*, Spring 1988, pp. 41–66. Finnerty, John D., and Dean Leistikow. "The Behavior of Equity and Debt Risk Premiums: Are They Mean Reverting and Downward-Trending?" *The Journal of Portfolio Management*, Summer 1993, pp. 73–84. Ibbotson, Roger G., and Scott L. Lummer. "The Behavior of Equity and Debt Risk Premiums: Comment," *The Journal of Portfolio Management*, Summer 1994, pp. 98–100. Finnerty, John D., and Dean Leistikow. "The Behavior of Equity and Debt Risk Premiums: Reply to Comment," *The Journal of Portfolio Management*, Summer 1994, pp. 101–102.

A statistical measure of the randomness of a return series is its serial correlation. Serial correlation (or autocorrelation) is defined as the degree to which the return of a given series is related from period to period. A serial correlation near positive one indicates that returns are predictable from one period to the next period and are positively related. That is, the returns of one period are a good predictor of the returns in the next period. Conversely, a serial correlation near negative one indicates that the returns in one period are inversely related to those of the next period. A serial correlation near zero indicates that the returns are random or unpredictable from one period to the next. Table 5-3 contains the serial correlation of the market total returns, the realized long-horizon equity risk premium, and inflation.

Table 5-3

Interpretation of Annual Serial Correlations
1926–2005

Series	Serial Correlation	Interpretation
Large Company Stock Total Returns	0.03	Random
Equity Risk Premium	0.04	Random
Inflation Rates	0.65	Trend

The significance of this evidence is that the realized equity risk premium next year will not be dependent on the realized equity risk premium from this year. That is, there is no discernable pattern in the realized equity risk premium—it is virtually impossible to forecast next year's realized risk premium based on the premium of the previous year. For example, if this year's difference between the riskless rate and the return on the stock market is higher than last year's, that does not imply that next year's will be higher than this year's. It is as likely to be higher as it is lower. The best estimate of the expected value of a variable that has behaved randomly in the past is the average (or arithmetic mean) of its past values.

Table 5-4 also indicates that the equity risk premium varies considerably by decade, from a high of 17.9 percent in the 1950s to a low of 0.3 percent in the 1970s. This look at the historical equity risk premium reveals no observable pattern.

Table 5-4

Long-Horizon Equity Risk Premium by Decade
1926–2005

1920s*	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s**	1996-2005
17.6%	2.3%	8.0%	17.9%	4.2%	0.3%	7.9%	12.1%	–5.1%	5.1%

*Based on the period 1926–1929.

**Based on the period 2000–2005.

Finnerty and Leistikow perform more econometrically sophisticated tests of mean reversion in the equity risk premium. Their tests demonstrate that—as we suspected from our simpler tests—the equity risk premium that was realized over 1926 to the present was almost perfectly free of mean reversion and had no statistically identifiable time trends.[4] Lo and MacKinlay conclude, "the rejection of the random walk for weekly returns does not support a mean-reverting model of asset prices."

Choosing an Appropriate Historical Period

The estimate of the equity risk premium depends on the length of the data series studied. A proper estimate of the equity risk premium requires a data series long enough to give a reliable average without being unduly influenced by very good and very poor short-term returns. When calculated using a long data series, the historical equity risk premium is relatively stable.[5] Furthermore, because an average of the realized equity risk premium is quite volatile when calculated using a short history, using a long series makes it less likely that the analyst can justify any number he or she wants. The magnitude of how shorter periods can affect the result will be explored later in this chapter.

Some analysts estimate the expected equity risk premium using a shorter, more recent time period on the basis that recent events are more likely to be repeated in the near future; furthermore, they believe that the 1920s, 1930s, and 1940s contain too many unusual events. This view is suspect because all periods contain "unusual" events. Some of the most unusual events of this century took place quite recently, including the inflation of the late 1970s and early 1980s, the October 1987 stock market crash, the collapse of the high-yield bond market, the major contraction and consolidation of the thrift industry, the collapse of the Soviet Union, and the development of the European Economic Community—all of these happened approximately in the last 30 years.

It is even difficult for economists to predict the economic environment of the future. For example, if one were analyzing the stock market in 1987 before the crash, it would be statistically improbable to predict the impending short-term volatility without considering the stock market crash and market volatility of the 1929–1931 period.

Without an appreciation of the 1920s and 1930s, no one would believe that such events could happen. The 80-year period starting with 1926 is representative of what can happen: it includes high and low returns, volatile and quiet markets, war and peace, inflation and deflation, and prosperity and depression. Restricting attention to a shorter historical period underestimates the amount of change that could occur in a long future period. Finally, because historical event-types (not specific

---

4   Though the study performed by Finnerty and Leistikow demonstrates that the traditional equity risk premium exhibits no mean reversion or drift, they conclude that, "the processes generating these risk premiums are generally mean-reverting." This conclusion is completely unrelated to their statistical findings and has received some criticism. In addition to examining the traditional equity risk premia, Finnerty and Leistikow include analyses on "real" risk premia as well as separate risk premia for income and capital gains. In their comments on the study, Ibbotson and Lummer show that these "real" risk premia adjust for inflation twice, "creating variables with no economic content." In addition, separating income and capital gains does not shed light on the behavior of the risk premia as a whole.

5   This assertion is further corroborated by data presented in *Global Investing: The Professional's Guide to the World of Capital Markets* (by Roger G. Ibbotson and Gary P. Brinson and published by McGraw-Hill, New York). Ibbotson and Brinson constructed a stock market total return series back to 1790. Even with some uncertainty about the accuracy of the data before the mid-nineteenth century, the results are remarkable. The real (adjusted for inflation) returns that investors received during the three 50-year periods and one 51-year period between 1790 and 1990 did not differ greatly from one another (that is, in a statistically significant amount). Nor did the real returns differ greatly from the overall 201-year average. This finding implies that because real stock-market returns have been reasonably consistent over time, investors can use these past returns as reasonable bases for forming their expectations of future returns.

events) tend to repeat themselves, long-run capital market return studies can reveal a great deal about the future. Investors probably expect "unusual" events to occur from time to time, and their return expectations reflect this.

A Look at the Historical Results

It is interesting to take a look at the realized returns and realized equity risk premium in the context of the above discussion. Table 5-5 shows the average stock market return and the average (arithmetic mean) realized long-horizon equity risk premium over various historical time periods. Similarly, Graph 5-5 shows the average (arithmetic mean) realized equity risk premium calculated through 2005 for different starting dates. The table and the graph both show that using a longer historical period provides a more stable estimate of the equity risk premium. The reason is that any unique period will not be weighted heavily in an average covering a longer historical period. It better represents the probability of these unique events occurring over a long period of time.

Table 5-5
Stock Market Return and Equity Risk Premium Over Time
1926–2005

Period Length	Period Dates	Large Company Stock Arithmetic Mean Total Return	Long-Horizon Equity Risk Premium
80 years	1926–2005	12.3%	7.1%
70 years	1936–2005	12.5%	7.0%
60 years	1946–2005	12.8%	6.8%
50 years	1956–2005	11.7%	5.0%
40 years	1966–2005	11.6%	4.2%
30 years	1976–2005	13.8%	6.0%
20 years	1986–2005	13.2%	6.4%
15 years	1991–2005	13.0%	6.7%
10 years	1996–2005	10.7%	5.1%
5 years	2001–2005	2.1%	–3.0%

Looking carefully at Graph 5-5 will clarify this point. The graph shows the realized equity risk premium for a series of time periods through 2005, starting with 1926. In other words, the first value on the graph represents the average realized equity risk premium over the period 1926–2005. The next value on the graph represents the average realized equity risk premium over the period 1927–2005, and so on, with the last value representing the average over the most recent five years, 2001–2005. Concentrating on the left side of Graph 5-5, one notices that the realized equity risk premium, when measured over long periods of time, is relatively stable. In viewing the graph from left to right, moving from longer to shorter historical periods, one sees that the value of the realized equity risk premium begins to decline significantly. Why does this occur? The reason is that the severe bear market of 1973–1974 is receiving proportionately more weight in the shorter, more recent average. If you continue to follow the line to the right, however, you will also notice that when 1973 and 1974 fall out of the recent average, the realized equity risk premium jumps up by nearly 1.3 percent.

Graph 5-5

Equity Risk Premium Using Different Starting Dates
1926–2005
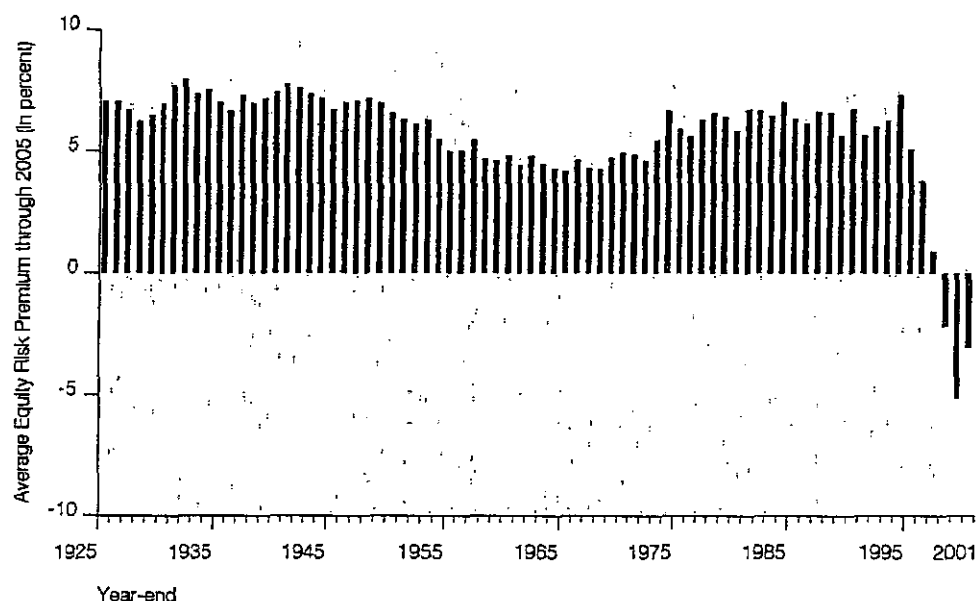
Additionally, use of recent historical periods for estimation purposes can lead to illogical conclusions. As seen in Table 5-5, the recent bear market has caused the realized equity risk premium in the shorter historical periods to be much lower than the long-term average.

The impact of adding one additional year of data to a historical average is lessened the greater the initial time period of measurement. Short-term averages can be affected considerably by one or more unique observations. On the other hand, long-term averages produce more stable results. A series of graphs looking at the realized equity risk premium will illustrate this effect. Graph 5-6 shows the average (arithmetic mean) realized long-horizon equity risk premium starting in 1926. Each additional point on the graph represents the addition of another year to the average. Although the graph is extremely volatile in the beginning periods, the stability of the long-term average is quite remarkable. Again, the "unique" periods of time will not be weighted heavily in a long-term average, resulting in a more stable estimate.

Graph 5-6

Equity Risk Premium Using Different End Dates
1926–2005

Year-end
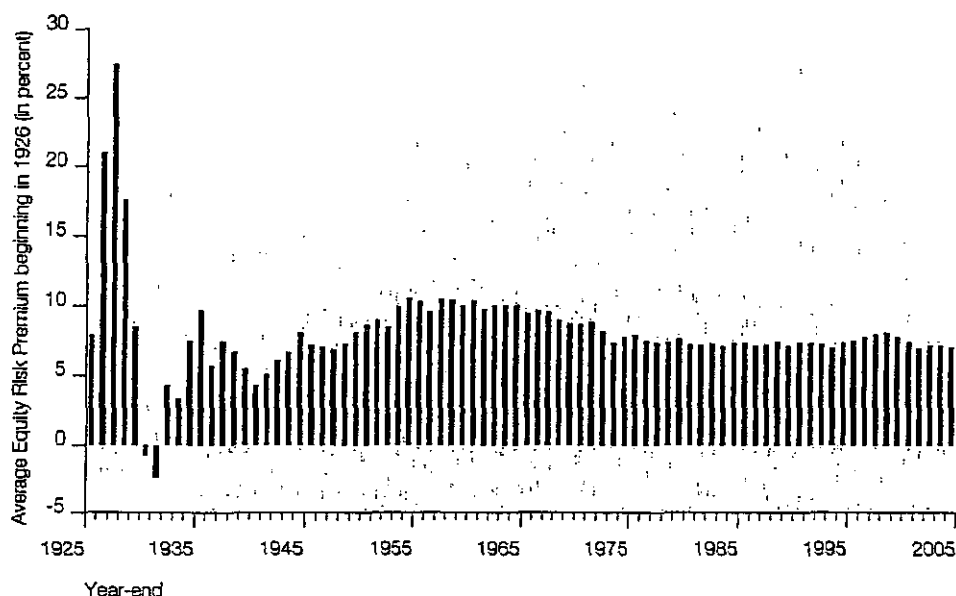
Some practitioners argue for a shorter historical time period, such as 30 years, as a basis for the equity risk premium estimation. The logic for the use of a shorter period is that historical events and economic scenarios present before this time are unlikely to be repeated. Graph 5-7 shows the equity risk premium measured over 30-year periods, and it appears from the graph that the premium has been trending downwards. The 30-year equity risk premium remained close to 4 percent for several years in the 1980s and 1990s. However, it has fallen and then risen in the most recent 30-year periods.

Graph 5-7

Equity Risk Premium Over 30-Year Periods
1926–2005

30-Year Period Ending
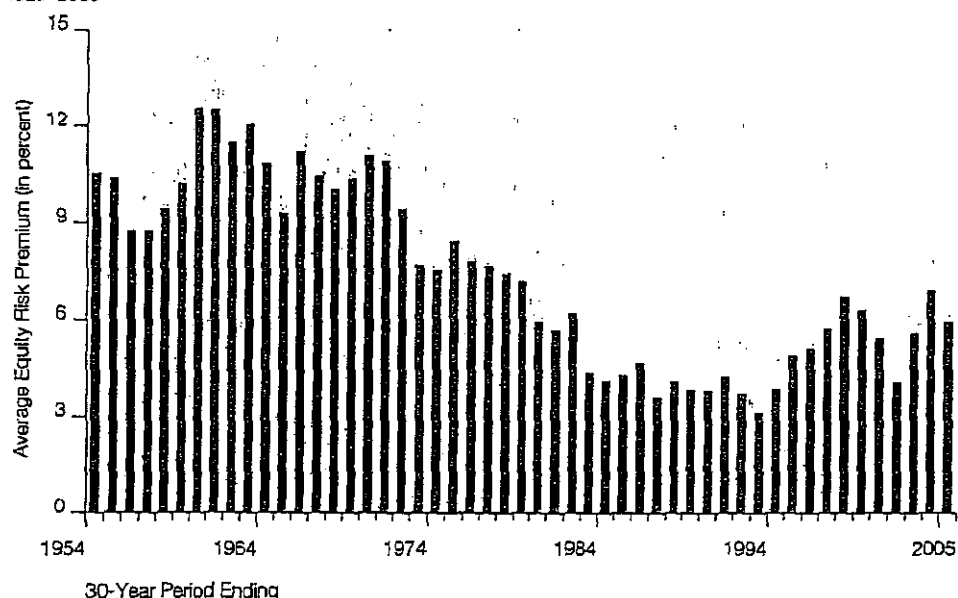
The key to understanding this result lies again in the years 1973 and 1974. The oil embargo during this period had a tremendous effect on the market. The equity risk premium for these years alone was 21 and 34 percent, respectively. Periods that include the years 1973 and 1974 result in an average equity risk premium as low as 3.1 percent. In the most recent 30-year periods that excludes 1973 and 1974, the average rises to over 6 percent. The early 2000s have also had an enormous effect on the equity risk premium.

The effect of the 1973–1974 period is even more pronounced when looking at the equity risk premium over 20-year periods, as seen in Graph 5-8. Using the 20-year historical average equity risk premium results in a very unstable estimate. Periods that include the years 1973 and 1974 result in an equity risk premium as low as 1.4 percent. In the more recent 20-year periods that exclude 1973 and 1974, the average rises dramatically to over 9.0 percent in some cases. It is difficult to justify such a large divergence in estimates of return over such a short period of time. This does not suggest, however, that the years 1973 and 1974 should be excluded from any estimate of the equity risk premium; rather, it emphasizes the importance of using a long historical period when measuring the equity risk premium in order to obtain a reliable average that is not overly influenced by short-term returns. The same holds true when analyzing the poor performance of the early 2000s.

Graph 5-8
Equity Risk Premium Over 20-Year Periods
1926–2005

20-Year Period Ending
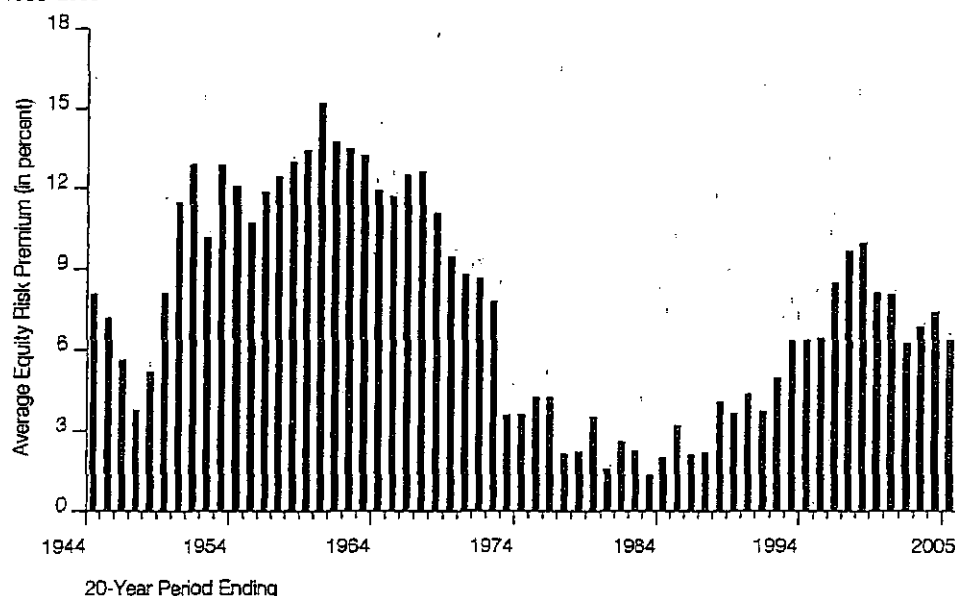
Does the Equity Risk Premium Represent Minority or Controlling Interest?

There is quite a bit of confusion among valuation practitioners regarding the use of publicly traded company data to derive the equity risk premium. Is a minority discount implicit in this data? Recall that the equity risk premium is typically derived from the returns of a market index: the S&P 500, the New York Stock Exchange (NYSE), or the NYSE Deciles 1-2. (The Ibbotson Associates' size premia that are covered in Chapter 7 are derived from the returns of companies traded on the NYSE, in addition to those on the AMEX and NASDAQ). Both the S&P 500 and the NYSE include a preponderance of companies that are minority held. Does this imply that an equity risk premium (or size premium) derived from these data represents a minority interest premium? This is a critical issue that must be addressed by the valuation professional, since applying a minority discount or a control premium can have a material impact on the ultimate value derived in an appraisal.

Since most companies in the S&P 500 and the NYSE are minority held, some assume that the risk premia derived from these return data represent minority returns and therefore have a minority discount implicit within them. However, this assumption is not correct. The returns that are generated by the S&P 500 and the NYSE represent returns to equity holders. While most of these companies are minority held, there is no evidence that higher rates of return could be earned if these companies were suddenly acquired by majority shareholders. The equity risk premium represents expected premiums that holders of securities of a similar nature can expect to achieve on average into the future. There is no distinction between minority owners and controlling owners.

The discount rate is meant to represent the underlying risk of being in a particular industry or line of business. There are instances when a majority shareholder can acquire a company and improve the cash flows generated by that company. However, this does not necessarily have an impact on the general risk level of the cash flows generated by the company.

When performing discounted cash flow analysis, adjustments for minority or controlling interest value may be more suitably made to the projected cash flows than to the discount rate. Adjusting the expected future cash flows better measures the potential impact a controlling party may have while not overstating or understating the actual risk associated with a particular line of business.

Appraisers need to note the distinction between a publicly traded value and a minority interest value. Most public companies have no majority or controlling owner. There is thus no distinction between owners in this setting. One cannot assume that publicly held companies with no controlling owner have the same characteristics as privately held companies with both a controlling interest owner and a minority interest owner.

Other Equity Risk Premium Issues

There are a number of other issues that are commonly brought up regarding the equity risk premium that, if correct, would reduce its size. These issues include:

1. Survivorship bias in the measurement of the equity risk premium
2. Utility theory models of estimating the equity risk premium
3. Reconciling the discounted cash flow approach to the equity risk premium
4. Over-valuation effects of the market
5. Changes in investor attitudes toward market conditions
6. Supply side models of estimating the equity risk premium

In this section, we will examine each of these issues.

Survivorship

One common problem in working with financial data is properly accounting for survivorship. In working with company-specific historical data, it is important for researchers to include data from companies that failed as well as companies that succeeded before drawing conclusions from elements of that data.

The same argument can be made regarding markets as a whole. The equity risk premium data outlined in this book represent data on the United States stock market. The United States has arguably been the most successful stock market of the twentieth century. That being the case, might equity risk premium statistics based only on U.S. data overstate the returns of equities as a whole because they only focus on one successful market?

In a recent paper, Goetzmann and Jorion study this question by looking at returns from a number of world equity markets over the past century.[6] The Goetzmann-Jorion paper looks at the survivorship bias from several different perspectives. They conclude that once survivorship is taken

6 Goetzmann, William, and Philippe Jorion. "A Century of Global Stock Markets," Working Paper 5901, National Bureau of Economic Research, 1997.

REGULATORY FINANCE:

UTILITIES' COST OF CAPITAL

Roger A. Morin, PhD

in collaboration with
Lisa Todd Hillman

EXAMPLE 4-1

We have the following market data for Utility X:

current dividend per share = $1.62

current stock price = $13.00

expected dividend growth = 4%

From Equation 4-8, the standard DCF model produces a cost of equity of:

$$K = D_1/P_0 + g$$

$$= D_0(1 + g)/P_0 + g$$

$$= \$1.62(1.04)/\$13 + .04$$

Note that next year's expected dividend is the current spot dividend increased by the expected growth rate in dividends. In general, implementation of the approach requires finding D_0 and P_0 from readily available sources of market data; the growth rate, g, can be estimated using several techniques. One way is to extrapolate the historical compound growth of dividends over some past period. Chapter 5 will discuss the applicational aspects of the DCF formulation in detail.

Standard DCF Model Assumptions

The assumptions underlying the standard DCF model have been the source of controversy, confusion, and misunderstanding in rate hearings. This section will attempt to clarify these assumptions.

Theories are simplifications of reality and the models articulated from theories are necessarily abstractions from the existing world so as to facilitate understanding and explanation of the real world. The DCF model is no exception to the rule. A model should not be judged by the severity and surrealism of its assumptions, but rather by its intended use and ability to predict, explain, and help the decision-maker attain his or her goal. The assumptions of the standard DCF model are as follows:

Assumption #1. The 4 assumptions discussed earlier in conjunction with the general classical theory of security valuation still remain in force.

110

Assumption #2. The discount rate, K, must exceed the growth rate, g. In other words, the standard DCF model does not apply to growth stocks. In Equation 4-7, it is clear that as g approaches K, the denominator gets progressively smaller, and the price of the stock infinitely large. If g exceeds K, the price becomes negative, an implausible situation. In the derivation of the standard DCF equation (4-7) from the general stock valuation equation (4-5), it was necessary to assume g less than K in order for the series of terms to converge toward a finite number. With this assumption, the present value of steadily growing dividends becomes smaller as the discounting effect of K in the denominator more than offsets the effect of such growth in the numerator.

This assumption is realistic for most public utilities. Investors require a return commensurate with the amount of risk assumed, and this return likely exceeds the expected growth rate in dividends for most public utilities. Although it is possible that a firm could sustain very high growth rates for a few years, no firm could double or triple its earnings and dividends indefinitely.

Assumption #3. The dividend growth rate is constant in every year to infinity. This assumption is not as problematic as it appears. It is not necessary that g be constant year after year to make the model valid. The growth rate may vary randomly around some average expected value. Random variations around trend are perfectly acceptable, as long as the mean expected growth is constant. The growth rate must be "expectationally constant," to use formal statistical jargon. This assumption greatly simplifies the model without detracting from its usefulness.

If investors expect growth patterns to prevail in the future other than constant infinite growth, more complex DCF models are available. For example, investors may expect dividends to grow at a relatively modest pace for the first 5 years and to resume a higher normal steady-state course thereafter, or conversely. The general valuation framework of Equation 4-5 can handle such situations. The "non-constant growth" model presented later in the chapter is an example of such a model.

It should be pointed out that the standard DCF model does not require infinite holding periods to remain valid. It simply assumes that the stock will be yielding the same rate of return at the time of sale as it is currently yielding.

EXAMPLE 4-2

To illustrate this point, consider a 3-year holding period in the previous numerical example. If both price and dividend grow at the 4% expected rate, dividends for each of the next 3 years are $1.68

Regulatory Finance

$1.75, and $1.82 respectively, and the price at the end of the third year is $13 (1 + .04)³ = $14.62. If the investor sells the stock at the end of the third year, the return expected by the investor is still 17%, because the present value of the dividend stream and the stock price at resale is exactly equal to the current purchase price.

$$P_0 = \frac{1.68}{1.17} + \frac{1.75}{1.17^2} + \frac{1.82}{1.17^3} + \frac{14.62}{1.17^3}$$

$$= \$13$$

This will be true for any length of holding period. The main result of the DCF model does not depend on the value of n.

Another way of stating this assumption is that the DCF model assumes that market price grows at the same rate as dividends. Although g has been specified in the model to be the expected rate of growth in dividends, it is also implicitly the expected rate of increase in stock price (expected capital gain) as well as the expected growth rate in earnings per share. This can be seen from Equation 4-7, which in period 1 would give:

$$P_1 = D_2/(K - g)$$

but $\quad D_2 = D_1 (1 + g)$, and $P_0 = D_1/(k - g)$

so that $\quad P_1 = D_1 (1 + g)/(K - g) = P_0 (1 + g)$

Hence, g is the expected growth in stock price. Similarly, if a fixed fraction of earnings are distributed in dividends, then:

$$D_1 = aE_1$$

$$D_2 = aE_2$$

where a is the constant payout ratio and E the earnings per share. Since $D_2 = D_1 (1 + g)$, we also have $E_2 = E_1 (1 + g)$ and, hence, g is the expected growth in earnings per share.

Still another way to express the idea that the validity of the standard DCF model does not depend on the value of the investor's holding period is to say that investors expect the ratio of market price to dividends (or earnings) in year n, P_n/D_n, to be the same as the current price/dividend ratio, P_0/D_0. This must be true if the infinite growth assumption is made. Investors will only expect $(P/E)_n$ to differ from $(P/E)_0$ if they believe that

the growth following year n will differ from the growth expected before year n, since the price in year n is the present value of all subsequent dividends from $n+1$ to infinity.

The constancy of the price/earnings (P/E) assumption is not prohibitive to DCF usage. If there is reason to believe that stock price will grow at a different rate than dividends, for example, if the stock price is expected to converge to book value, a slightly more complex model is warranted. Such a model is presented in section 4.6.

Assumption #4. Investors require the same return K every year. The assumption of a flat yield curve was alluded to earlier, but requires elaboration. A firm's cost of capital, K, varies directly with the risk of the firm. By assuming the constancy of K, the model abstracts from the effects of a change in risk on the value of the firm. If K is to remain constant, the firm's capital structure policy and dividend payout policy must be assumed to remain stable so as to neutralize any effect of capital structure changes or dividend policy changes on K.

The assumption of a constant dividend payout policy not only simplifies the mathematics but also insulates the model from any effects of dividend policy on risk, if any, and hence on K. Besides, this assumption was indirectly stated earlier; a constant dividend policy implies that dividends and earnings grow at the same rate. The assumption of constant dividend payout is realistic. Most firms, including utilities, tend to maintain a fixed payout rate when it is averaged over several years.

The simplification of a constant capital structure may be acceptable if the utility exhibits a near constant debt-equity ratio over time and is expected to do so in the future.

Assumption #5. The standard DCF model assumes no external financing. All financing is assumed to be conducted by the retention of earnings. No new equity issues are used or, if they are, they are neutral in effect with respect to existing shareholders. The latter neutrality occurs if the market-to-book ratio is 1. Without this assumption, the per share dividends could be watered down by a new stock issue, violating the constant growth assumption. A more comprehensive model allowing for external stock financing is presented in a later section.

4.4 The Determinants of Dividend Growth

It is instructive to describe the factors that cause growth in dividends to occur and to disaggregate the g term in the standard DCF model into its contributory elements.

113

Missouri Gas Energy

Total Returns on Large Company Stocks
1926 to 2005

Large Company Stocks

-50%	-40%	-30%	-20%	-10%	0%	10%	20%	30%	40%	50%	60%
						2004					
						1988	2003	1997			
				1990	**2005**	1986	1999	1995			
				1981	1994	1979	1998	1991			
				1977	1993	1972	1996	1989			
				1969	1992	1971	1983	1985			
				1962	1987	1968	1982	1980			
				1953	1984	1965	1976	1975			
			1973	1946	1978	1964	1967	1955			
			2000	1940	1970	1959	1963	1950			
			2001	1939	1960	1952	1961	1945			
		2002	1966	1934	1956	1949	1951	1938	1958		
		1974	1957	1932	1948	1944	1943	1936	1935	1954	
1931	1937	1930	1941	1929	1947	**1926**	1942	1927	1928	1933	

(Percent)

Arithmetic Mean: $r_A = \sum_{t=1}^{n} r_t \, / \, n$

Source : Stocks, Bonds, Bills and Inflation – Valuation Edition 2006 Yearbook, pp. 30-31. Ibbotson Associates, Chicago, IL

Missouri Gas Energy
Large Company Stock Returns
From 1926 to 2005

(%)

60.00
50.00
40.00
30.00
20.00
10.00
0.00
(10.00)
(20.00)
(30.00)
(40.00)
(50.00)

1926
1929
1932
1935
1938
1941
1944
1947
1950
1953
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1998
2001
2004
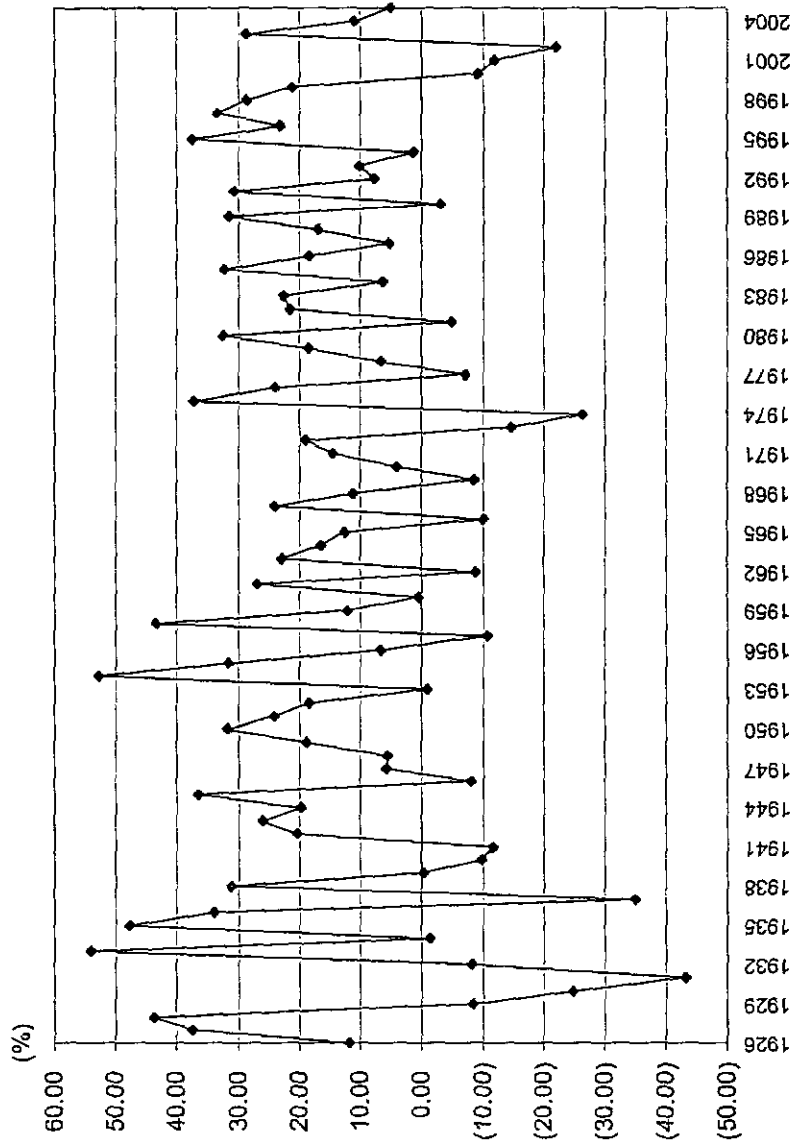
Source of Information:
Stocks, Bonds, Bills and Inflation Valuation Edition 2006 Yearbook.
Ibbotson Associates, Chicago, Il

Frank Hanley

From: "Frank Hanley" <fhanley@ausinc.com>
To: <profmorin@msn.com>
Sent: Thursday, August 31, 2000 3:18 PM
Subject: ECAPM

Dr. Morin,

Quite some time ago I sent you e mail about the ECAPM. You replied that critics were wrong when they say that using the ECAPM with adjusted beta is a double counting. You said that you would provide me with some proof. Could you please send me something or point me to specific empirical support that use of adjusted beta in the ECAPM is not double counting ?

I know that you are a very busy man so I give you many thanks in advance for any time you take in responding to me.

Appreciatively,

Frank Hanley

Frank Hanley

From: "profmorin" <profmorin@email.msn.com>
To: <fhanley@ausinc.com>
Sent: Friday, September 01, 2000 11:51 AM
Attach: response to F.Hanley.doc
Subject: Re: ECAPM

Dear Frank:

I have attached a response to your concern. I also point out that the New York PSC has endorsed the Morin ECAPM following the massive generic cost of capital hearing of a few years ago. I have the exact cite if you need it.

> ---- Original Message ----
> **From:** Frank Hanley
> **To:** profmorin@msn.com
> **Sent:** Thursday, August 31, 2000 4:18 PM
> **Subject:** ECAPM
>
> Dr. Morin,
>
> Quite some time ago I sent you e mail about the ECAPM. You replied that critics were
> wrong when they say that using the ECAPM with adjusted beta is a double counting.
> You said that you would provide me with some proof. Could you please send me something
> or point me to specific empirical support that use of adjusted beta in the ECAPM is
> not double counting ?
>
> I know that you are a very busy man so I give you many thanks in advance for any time
> you take in responding to me.
>
> Appreciatively,
>
> Frank Hanley

MORIN ECAPM

Some have argued that the Morin ECAPM constitutes a double beta adjustment. I do not share the view that the ECAPM is equivalent to a beta adjustment.

There are two distinct separate issues involved when implementing the CAPM. First, given the validity of the standard CAPM, what is the best proxy for expected beta? Second, and more fundamentally, does the standard form of the CAPM provide the best explanation of the risk-return relationship observed on capital markets?

i. Beta measurement

Unadjusted raw betas are inappropriate to use in a CAPM analysis. The raw unadjusted beta is not the appropriate measure of market risk to use. Current stock prices reflect expected risk, that is, expected beta, rather than historical risk or historical beta. Historical betas, whether raw or adjusted, are only surrogates for expected beta. The best of the two surrogates is adjusted beta a la Value Line, Merrill Lynch, and Bloomberg betas.

ii. Standard CAPM

There have been countless empirical tests of the CAPM to determine to what extent security returns and betas are related in the manner predicted by the CAPM. The results of the tests support the idea that beta is related to security returns, that the risk-return tradeoff is positive, and that the relationship is linear. The contradictory finding is that the risk-return tradeoff is not as steeply sloped as the predicted CAPM. That is, low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted. This is one of the most well-known results in finance. A CAPM-based estimate of cost of capital underestimates the return required from low-beta securities and overstates the return from high-beta securities, based on the empirical evidence. The empirical form of the CAPM refines the standard form of the CAPM to account for this phenomenon.

Thus, I do not share the view that the ECAPM is equivalent to a beta adjustment. For utility stocks with betas less than one, the CAPM understates the return. The ECAPM allows for the CAPM's inherent bias by ascribing a higher intercept and flatter slope to the CAPM. The ECAPM is a return (Y-axis, vertical axis) adjustment. It is not a beta risk (x-axis, horizontal) adjustment. The ECAPM is not an attempt to increase the beta estimate, which would be a horizontal x-axis adjustment. The ECAPM is a return adjustment rather than a risk adjustment.

There is a huge financial literature which supports both the use of the ECAPM and the use of adjusted betas. The empirical support for adjusted betas and for the ECAPM is summarized in Chapter 13 of my book, Regulatory Finance, Public Utility Reports Inc., Arlington, Va., 1994.

With few exceptions, the empirical studies support the finding that the implied intercept term exceeds the risk-free rate and the slope term is less than predicted by the CAPM.

Missouri Gas Energy
Summary of Cost of Capital and Fair Rate of Return
Based on Hypothetical Capital Structure Ratios

Type of Capital	Ratios (1)	Cost Rate		Weighted Cost Rate
Long-Term Debt	44.09 %	6.57 %	(2)	2.90 %
Short-Term Debt	9.91	5.47	(3)	0.54
Total Debt	54.00 (5)			3.44
Common Equity	46.00	11.75	(4)	5.41
Total	100.00 %			8.85 %

Notes:

(1) A hypothetical capital structure consisting of 54.00% debt and 46.00% equity is utilized for cost of capital purposes for the following reasons:

  (a) Southern Union Company's transformation from a utility to a gas transportation and energy services company. As George L. Lindemann, Southern Union's chairman, President and CEO has stated: "The sale of these assets is part of the continuing transformation of Southern Union Company from a utility to a leader in the natural gas transportation and services industry." In addition Eric D. Herschmann, senior executive vice president of Southern Union stated: "We believe this transaction [sale of New England Gas Company Rhode Island Assets], as well as our company's ongoing transformation, will further enhance value for our shareholders." (Business Wire - February 16, 2006)

  (b) The sale of New England Gas Company's Rhode Island assets to National Grid PLC as noted in (1)(a) above, which was completed on August 25, 2006..

  (c) The sale of PG Energy to UGI Utilities, Inc., which was completed on August 25, 2006

  (d) Because the cost of common equity is expectational and Southern Union is positioning itself as a gas transportation and energy services company (see (1)(a) above), investors no longer view Southern Union as a regulated natural gas distribution utility, Southern Union's cost of common equity is not applicable to PG Energy, a regulated natural gas distribution utility.

  (e) The use of the proceeds from the sales cited in (1)(b) and (1)(c) above to help fund the acquisition of Sid Richardson Energy Services

(2) From page 1 of Schedule FJH-7 of the Exhibit accompanying Mr. Hanley's direct testimony.

(3) Estimated short-term debt cost rate is based upon the six-quarter average beginning with the first quarter of 2006 and ending with the second quarter 2007 of the 3-month LIBOR rate of 4.97% (as can be gleaned from the information shown on page 7 of Schedule FJH-13 of the Exhibit accompanying Mr. Hanley's direct testimony) plus 0.50% (50 basis points). Thus, 5.47% = 4.97% + 0.50%

(4) Based upon informed judgment from the entire study, the principal results of which are summarized on page 2 of this Schedule.

(5) The 54.00% total debt ratio has been allocated between long-term and short-term debt based upon the midpoint of the average long-term and short-term debt ratios of the proxy group of four gas distribution companies and the proxy group of eight Value Line gas distribution companies for the five quarters ended December 31, 2005 as shown on pages 3 and 4 of Schedule FJH-6 of the Exhibit accompanying Mr. Hanley's direct testimony The allocation is derived as follows:

Average for the five quarters ended December 31, 2005	Proxy Group of Four Gas Distribution Companies		Proxy Group of Eight Value Line Gas Distribution Companies	
	Ratios	% to Total	Ratios	% to Total
Long-Term Debt	42.36 %	82.86 %	41.26 %	80.41 %
Short-Term Debt	8.76	17.14	10.05	19.59
Total Debt	51.12 %	100.00 %	51.31 %	100.00 %

Midpoint of the Proxy Group of Four Gas Distribution Companies and the Proxy Group of Eight Value Line Gas Distribution Companies

	Ratios	% to Total
Long-Term Debt	41.81 %	81.64 %
Short-Term Debt	9.41	18.36
Total Debt	51.22 %	100.00 %

Therefore, the hypothetical long-term debt ratio of 44.09% is derived as 81.64% * 54.00% and the short-term debt ratio of 9.91% is derived as 18.36% * 54.00%

Missouri Gas Energy
Brief Summary of Common Equity Cost Rate

Line No.		Principal Methods	Proxy Group of Four Gas Distribution Companies	Proxy Group of Eight Value Line Gas Distribution Companies	Southern Union Company
1.		Discounted Cash Flow Model (1)	9.76 %	9.81 %	13.03 %
2.		Risk Premium Model (2)	11.50	11.30	11.95
3.		Capital Asset Pricing Model (3)	11.55	11.32	12.49
4.		Comparable Earnings Analysis (4)	14.36	14.35	14.11
5.	A.	Indicated Common Equity Cost Rate before Investment Risk Adjustments	11.79 %	11.70 %	12.90 %
	B.	Adjusted Discounted Cash Flow Model (DCF) (5)	10.89	10.85	15.18
6.		Indicated Common Equity Cost Rate Before Adjustments for Unique Risk	11.31 %		14.04 %
7.	A.	Adjustments for Unique Risk Due to smaller relative size	0.30 (6)		0.50 (6)
	B.	Due to Lack of Protection from the Vagaries of Weather	0.15 (7)		- -
8.		Common Equity Cost Rate after Investment Risk Adjustment	11.76 %		14.54 %
9.		Recommendation	11.75% (8)		

See pages 4 through 6 for notes.

(FOR INFORMATIONAL PURPOSES ONLY)
Brief Summary of Common Equity Cost Rate
For the Proxy Group of Three Gas Distribution Companies (9)
and the Proxy Group of Six Value Line Gas Distribution Companies (9)

Line No.		Principal Methods	Proxy Group of Three Gas Distribution Companies (9)	Proxy Group of Six Value Line Gas Distribution Companies (9)	Southern Union Company
1.		Discounted Cash Flow Model (1)	9.69 %	9.58 %	13.03 %
2.		Risk Premium Model (2)	11.49	11.33	11.95
3.		Capital Asset Pricing Model (3)	11.65	11.34	12.49
4.		Comparable Earnings Analysis (4)	14.15	14.71	14.11
5.	A.	Indicated Common Equity Cost Rate before Investment Risk Adjustments	11.75 %	11.74 %	12.90 %
	B.	Adjusted Discounted Cash Flow Model (DCF) (5)	10.72	10.53	15.18
6.		Indicated Common Equity Cost Rate Before Adjustments for Unique Risk		11.19 %	14.04 %
7.	A.	Adjustments for Unique Risk Due to smaller relative size		0.30 (6)	0.50 (6)
	B.	Due to Lack of Protection from the Vagaries of Weather		0.19 (7)	--
8.		Common Equity Cost Rate after Investment Risk Adjustment		11.68 %	14.54 %
9.		Recommendation		11.75%	

See pages 4 through 6 for notes.

Missouri Gas Energy
Notes to Brief Summary of Cost of Equity

Notes:

(1) From page 1 of Schedule FJH-27.

(2) From page 1 of Schedule FJH-28.

(3) From page 1 of Schedule FJH-29.

(4) From Pages 1 through 6 of Schedule FJH-30.

(5) The 10.89% (4 LDCs), 10.85% (8 LDCs) and 15.18% (Southern Union Company) adjusted DCF cost rates reflect the added financial risk attributable to the application of a market based cost of common equity to a book value common equity ratio as made by the Pennsylvania Public Utility Commission (PAPUC) in Orders re: Pennsylvania-American Water Company (R-00016339) entered January 25, 2002, re: Pennsylvania-American Water Company (R-00038304) entered January 16, 2004, and re: Aqua Pennsylvania, Inc. (formerly Pennsylvania Suburban Water Company) (R-00038805) entered August 5, 2004, in order to reflect understatement of DCF cost rates due to the divergence of market and book value common equity ratios, especially in a volatile stock market. The basis for this adjustment is shown below:

The 9.76%, 9.81% and 13.03% DCF cost rates are relative to the average market value common equity of the proxy group of four gas distribution companies, the proxy group of eight value line gas distribution companies (LDCs), and Southern Union Company, respectively. The cost of common equity for an LDC with 100% common equity must first be calculated as follows:

$$k_u = k_e - [\,\{\,(\,k_u - l\,)\,^*\,(\,1 - t\,)\,^*\,(\,MD/ME\,)\,\} - \{\,(\,k_u - l_s\,)\,^*\,(\,1 - t\,)\,^*\,(\,MS/ME\,)\} - \{\,(\,k_u - d\,)\,^*\,(\,MP/ME\,)\,\}\,]$$

For the Proxy Group of Four Gas Distribution Companies:

$$8.74\% = 9.76\% - [\,\{\,(\,8.74\% - 6.29\%\,)\,^*\,(\,1 - 35\%\,)\,^*\,(\,28.15\%/63.36\%\,)\,\} - \{\,(\,8.74\% - 5.23\%\,)\,^*\,(\,1 - 35\%\,)\,^*\,(\,8.49\%/63.36\%\,)\,\} - \{\,(\,8.74\% - 6.22\%\,)\,^*\,(\,0.0\%/63.36\,)\,\}\,]$$

For the Proxy Group of Eight Value Line Gas Distribution Companies:

$$8.85\% = 9.81\% - [\,\{\,(\,8.85\% - 6.29\%\,)\,^*\,(\,1 - 35\%\,)\,^*\,(\,28.22\%/65.18\%\,)\,\} - \{\,(\,8.85\% - 5.23\%\,)\,^*\,(\,1 - 35\%\,)\,^*\,(\,6.43\%/65.18\%\,)\,\} - \{\,(\,8.85\% - 6.22\%\,)\,^*\,(\,0.17\%/65.18\%\,)\,\}\,]$$

For Southern Union Company:

$$10.28\% = 13.03\% - [\,\{\,(\,10.28\% - 6.29\%\,)\,^*\,(\,1 - 35\%\,)\,^*\,(\,38.72\%/50.40\%\,)\,\} - \{\,(\,10.28\% - 5.23\%\,)\,^*\,(\,1 - 35\%\,)\,^*\,(\,7.03\%/50.40\%\,)\,\} - \{\,(\,10.28\% - 6.22\%\,)\,^*\,(\,3.85\%/50.40\%\,)\,\}\,]$$

Where: k_u = cost of common equity for a firm with 100% common equity.

K_e = market determined cost of common equity, i.e., DCF cost rate, 9.76% (4 LDCs.) / 9.81% (8 LDCs.) / 13.03% (Southern Union Company).

l = cost rate of long-term debt, i.e., 6.29%, the average of the July 2006 (6.37%) and August 2006 (6.20%) yields on Moody's A rated public utility debt.

l_s = cost rate of short-term debt, i.e., 5.23%, the average of the July 2006 (5.24%) and August 2006 (5.22%) commercial paper rate, from Federal Reserve Statistical Release H.15.

t = tax rate, i.e., 35%.

MD = average long-term debt ratio based upon a market-value capital structure, using the fair value of long-term debt at October 13, 2006 from pages 7 to 9 of this schedule.

MS = average short-term debt ratio based upon a market-value capital structure, using the book value of short-term debt October 13, 2006 from pages 7 to 9 of this schedule.

ME = average common equity ratio based upon a market-value capital structure at October 13, 2006.

d = cost rate of preferred stock, i.e., 6.22%, the average of the July 2006 (6.25%) and August 2006 (6.19%) yields on Moody's A rated public utility preferred

Missouri Gas Energy
Notes to Brief Summary of Cost of Equity

stocks.

MP = average preferred stock ratio based upon a market-value capital structure at October 13, 2006, assuming preferred stock has a market-to-book ratio of 1.00, from pages 7 to 9 of this schedule.

From these "unlevered" costs of common equity, 8.74% (4 LDCs), 8.85% (8 LDCs) and 10.28% (Southern Union), the cost of common equity using the average book value capital structure ratios of the proxy groups can be derived as follows:

$$k_u = k_e + [\{(k_u - l) * (1 - t) * (BD / BE)\} + \{(k_u - l_s) * (1 - t) * (BS / BE)\} + \{(k_u - d) * (BP / BE)\}]$$

For the Proxy Group of Four Gas Distribution Companies:

$$10.89\% = 8.74\% +- [\{(8.74\% - 6.29\%) * (1 - 35\%) * (41.52\% / 45.00\%)\} + \{(8.74\% - 5.23\%) * (1 - 35\%) * (13.48\% / 45.00)\} + \{(8.74\% - 6.22\%) * (0.0\% / 45.00)\}]$$

For the Proxy Group of Eight Value Line Gas Distribution Companies:

$$10.85\% = 8.85\% + [\{(8.85\% - 6.29\%) * (1 - 35\%) * (41.64\% / 47.43\%)\} + \{(8.85\% - 5.23\%) * (1 - 35\%) * (10.69\% / 47.43)\} + \{(8.85\% - 6.22\%) * (0.24\% / 47.43)\}]$$

For Southern Union Company:

$$15.18\% = 10.28\% + [\{(10.28\% - 6.29\%) * (1 - 35\%) * (48.89\% / 36.50\%)\} + \{(10.28\% - 5.23\%) * (1 - 35\%) * (9.44\% / 36.50)\} + \{(10.28\% - 6.22\%) * (5.17\% / 36.50)\}]$$

Where: k_u = cost of common equity for a firm with 100% common equity.

k_e = cost of common equity based upon book value capital structure ratios.

l = cost rate of debt, i.e., 6.29%, the average of the July 2006 (6.37%) and August 2006 (6.20%) yields on Moody's A rated public utility debt.

l_s = cost rate of short-term debt, i.e., 5.23%, the average of the July 2006 (5.24%) and August 2006 (5.22%) commercial paper rate, from Federal Reserve Statistical Release H.15.

t = tax rate, i.e., 35%.

BD = average debt ratio based upon the carrying value of long-term debt at October 13, 2006 from pages 7 to 9 of this schedule.

BS = average short-term debt ratio based upon a book value capital structure, using the book value of short-term debt at October 13, 2006 from pages 6 to 8 of this schedule.

d = cost rate of preferred stock, i.e., 6.22%, the average of the July 2006 (6.25%) and August 2006(6.19%) yields on Moody's A rated public utility preferred stocks.

BP = average preferred stock ratio based upon a book-value capital structure at October 13, 2006, from pages 7 to 9 of this schedule.

Had the average capital structure of Cascade Natural Gas Company and Northwest Natural Gas Company been used, the adjusted DCF for the group of four gas distribution companies would be 10.85% as shown on page 1 of Schedule FJH27. Had the average capital structure of Cascade Natural Gas Company, The Laclede Group, Northwest Natural Gas and Peoples Energy been used, the adjusted DCF for the group of eight gas distribution companies would be 10.82% as shown on page 1 of Schedule FJH-27.

As indicated in Note 9 below, Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. Therefore, for informational purposes, the adjusted DCF cost rates to reflect the added financial risk attributable to the application of the averages excluding Cascade in the proxy group of four gas distribution companies and Cascade and Peoples in the proxy group of eight Value Line gas distribution companies have been calculated and the results shown on page 1 of Schedule FJH-27. If such companies were excluded from the proxy the adjusted DCFs would be 10.72% (3 LDCs) and 10.53% (6 LDCs). The 9.69% and 9.58% DCF

Missouri Gas Energy
Notes to Brief Summary of Cost of Equity

cost rates are relative to the average market value common equity of the 3 LDCs (after the exclusion of Cascade Natural) and the proxy group of 6 LDCs (after the exclusion of Cascade Natural and Peoples Energy), respectively. The cost of common equity for an LDC with 100% common equity has been calculated in a similar fashion to those calculated for the proxy groups of 4 LDCs and 8 LDCs, in pages 4 and 5 of this exhibit, using the following formula:

$$k_u = k_e - [\{(k_u - l) * (1 - t) * (MD/ME)\} - \{(k_u - l_s) * (1 - t) * (MS/ME)\} - \{(k_u - d) * (MP/ME)\}]$$

From these "unlevered" costs of common equity, 8.71% (3 LDCs) and 8.70% (6 LDCs), the cost of common equity using the average book value capital structure ratios of the proxy groups can be derived in a similar fashion to those calculated for the proxy groups of 4 LDCs and 8 LDCs, in pages 4 and 5 of this exhibit, using the following formula:

$$k_u = k_e + [\{(k_u - l) * (1 - t) * (BD/BE)\} + \{(k_u - l_s) * (1 - t) * (BS/BE)\} + \{(k_u - d) * (BP/BE)\}]$$

Had the average capital structure of Northwest Natural Gas Company been used, the adjusted DCF for the group of 3 LDCs would be 10.50% as shown on page 1 of Schedule FJH-27. Had the average capital structure of The Laclede Group and Northwest Natural Gas been used, the adjusted DCF for the group of 6 LDCs would be 10.40% as shown on page 1 of Schedule FJH-27.

(6) Business Risk Adjustment due to PG Energy's greater relative business risk due to its small size vis-à-vis the two proxy groups and Southern Union Company, respectively, as fully determined in Mr. Hanley's accompanying direct testimony.

(7) As explained in Mr. Hanley's direct testimony, Missouri Gas Energy does not enjoy protection from the vagaries of weather. Since the majority of the companies in both proxy groups have such clauses (see page 3 of Schedules FJH-3 and FJH-4 of the Exhibit accompanying Mr. Hanley's direct testimony. Missouri Gas Energy has greater relative risk vis-à-vis than the companies in the proxy groups, due to the greater variability of its earnings attributable to the vagaries of weather. In Mr. Hanley's judgment the added risk attributable to the lack of protection from the vagaries of weather is approximately 25 basis points. As shown on Page 3 of Schedule FJH-3 of the Exhibit accompanying Mr. Hanley's direct testimony, the equivalent of 2 companies in the proxy group of four LDCs, have WNCs in place. This equates to about 50% of the full impact or 13 basis points ((0.25% * 50%) = 0.125%, rounded to 0.13%). It can be determined in similar fashion by reference to Page 3 of Schedule FJH-4 of the Exhibit accompanying Mr. Hanley's direct testimony that the equivalent of 5 companies in the proxy group of eight Value Line LDCs enjoy protection from weather, of the full impact or 16 basis points ((0.25% * 625%) = 0.156%, rounded to 0.16%)). The average risk of both groups is equal to 15 basis points ((0.13% for the group of 4 plus 0.17% for the group of 8, divided by 2) or (0.13 + 0.16) / 2 = 0.145%, rounded to 0.15%)). Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade in the proxy group of 4 LDCs, and Cascade and Peoples in the proxy group of eight Value Line LDCs are being calculated and shown on page 3 of this Schedule. If such companies were excluded from the proxy groups, the average risk for both groups would be equal to 19 basis points ((0.17% for the group of 3 LDCs, after the exclusion of Cascade, plus 0.21% for the group of 6 LDCs, after the exclusion of Cascade and Peoples, divided by 2) or (0.17 + 0.21) / 2 = 0.19%)).

(8) Mr. Hanley's recommended common equity cost rate for Missouri Gas Energy is 11.75% based upon current capital market conditions.

(9) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade Natural in the proxy group of four gas distribution companies, and Cascade Natural and Peoples Energy in the proxy group of eight Value Line LDCs are being shown.

Capital Structure Based upon Total Capital
for the Proxy Group of Four Gas Distribution Companies
At September 2005 (1)

	Based Upon Book Value		Based Upon Market Value of Common Equity at October 13, 2006	
	Amount Outstanding ($ mill)	Ratios	Amount Outstanding ($ mill)	Ratios
Cascade Natural Gas Corporation				
Long-Term Debt	$ 173.84	57.00 %	$ 188.63	37.89 %
Short-Term Debt	12.50	4.10	12.50	2.51
Total Debt	186.34	61.10	201.13	40.40
Preferred Stock	-	-	-	-
Common Equity	118.62	38.90	296.67	59.60
Total Equity	118.62	38.90	296.67	59.60
Total Capital	$ 304.96	100.00 %	$ 497.80	100.00 %
NICOR Inc.				
Long-Term Debt	$ 536.40	27.74 %	$ 525.00	17.05 %
Short-Term Debt	586.00	30.30	586.00	19.04
Total Debt	1,122.40	58.04	1,111.00	36.09
Preferred Stock	-	-	-	-
Common Equity	811.30	41.96	1,967.36	63.91
Total Equity	811.30	41.96	1,967.36	63.91
Total Capital	$ 1,933.70	100.00 %	$ 3,078.36	100.00 %
Northwest Natural Gas Company				
Long-Term Debt	$ 529.50	42.60 %	$ 579.38	31.82 %
Short-Term Debt	126.70	10.19	126.70	6.96
Total Debt	656.20	52.79	706.08	38.78
Preferred Stock	-	-	-	-
Common Equity	586.93	47.21	1,114.83	61.22
Total Equity	586.93	47.21	1,114.83	61.22
Total Capital	$ 1,243.13	100.00 %	$ 1,820.91	100.00 %
Piedmont Natural Gas Co., Inc.				
Long-Term Debt	$ 660.00	38.76 %	$ 753.27	25.85 %
Short-Term Debt	158.50	9.31	158.50	5.44
Total Debt	818.50	48.07	911.77	31.29
Preferred Stock	-	-	-	-
Common Equity	884.19	51.93	2,002.00	68.71
Total Equity	884.19	51.93	2,002.00	68.71
Total Capital	$ 1,702.69	100.00 %	$ 2,913.77	100.00 %
Proxy Group of Four Gas Distribution Companies				
Long-Term Debt		41.52 %		28.15 %
Short-Term Debt		13.48		8.49
Total Debt		55.00		36.64
Preferred Stock		-		-
Common Equity		45.00		63.36
Total Equity		45.00		63.36
Total Capital		100.00 %		100.00 %
Proxy Group of Three Gas Distribution Companies (2)				
Long-Term Debt		36.37 %		24.91 %
Short-Term Debt		16.60		10.48
Total Debt		52.97		35.39
Preferred Stock		-		-
Common Equity		47.03		64.61
Total Equity		47.03		64.61
Total Capital		100.00 %		100.00 %
Southern Union Company				
Long-Term Debt	$ 2,175.79 (3)	48.89 %	$ 2,313.06	38.72 %
Short-Term Debt	420.00	9.44	420.00	7.03
Total Debt	2,595.79	58.33	2,733.06	45.75
Preferred Stock	230.00	5.17	230.00	3.85
Common Equity	1,624.07	36.50	3,011.37	50.40
Total Equity	1,854.07	41.67	3,241.37	54.25
Total Capital	$ 4,449.86	100.00 %	$ 5,974.43	100.00 %

(1) Capital Structure based upon Total Capital as of September 2005, except NICOR Northwest Natural and Southern Union, which is December 2005, and for Piedmont Natural Gas, which is October 2005

(2) Cascade Natural Gas Corporation is currently in the process of being acquired by MDU Resources. For informational purposes, the averages excluding Cascade Natural are being shown.

(3) Book Value Long-term debt for Southern Union is based on the carrying amount published by the company in their annual Form 10K

Source of Information:
Standard & Poor's Compustat Services, Inc., PC Plus/Research Insight Data Base
Company Annual Forms 10-K and 10-Q
DTN Trading Markets' DTNIQ/Interquote.com

Capital Structure Based upon Total Capital
for the Proxy Group of Eight Value Line Gas Distribution Companies and Southern Union Company
At September 2005 (1)

	Based Upon Book Value		Based Upon Market Value of Common Equity at October 13, 2006	
	Amount Outstanding ($ mill.)	Ratios	Amount Outstanding ($ mill)	Ratios
Cascade Natural Gas Corporation				
Long-Term Debt	$ 173.84	57.01 %	$ 188.63	37.89 %
Short-Term Debt	12.50	4.10	12.50	2.51
Total Debt	186.34	61.11	201.13	40.40
Preferred Stock	-	-	-	-
Common Equity	118.62	38.90	296.67	59.60
Total Equity	118.62	38.90	296.67	59.60
Total Capital	$ 304.96	100.01 %	$ 497.80	100.00 %
The Laclede Group, Inc.				
Long-Term Debt	$ 380.43	46.48 %	$ 413.52	34.62 %
Short-Term Debt	70.61	8.62	70.61	5.91
Total Debt	451.04	55.10	484.13	40.53
Preferred Stock	1.01	0.12	1.01	0.09
Common Equity	366.53	44.78	709.26	59.38
Total Equity	367.53	44.90	710.27	59.47
Total Capital	$ 818.57	100.00 %	$ 1,194.40	100.00 %
New Jersey Resources Corp.				
Long-Term Debt	$ 264.80 (2)	30.20 %	$ 266.80	14.49 %
Short-Term Debt	174.10	19.85	174.10	9.45
Total Debt	438.90	50.05	440.90	23.94
Preferred Stock	-	-	-	-
Common Equity	438.05	49.95	1,400.89	76.06
Total Equity	438.05	49.95	1,400.89	76.06
Total Capital	$ 876.95	100.00 %	$ 1,841.79	100.00 %
NICOR Inc.				
Long-Term Debt	$ 536.40	27.74 %	$ 525.00	17.05 %
Short-Term Debt	586.00	30.30	586.00	19.04
Total Debt	1,122.40	58.04	1,111.00	36.09
Preferred Stock	-	-	-	-
Common Equity	811.30	41.96	1,967.36	63.91
Total Equity	811.30	41.96	1,967.36	63.91
Total Capital	$ 1,933.70	100.00 %	$ 3,078.36	100.00 %
Northwest Natural Gas Company				
Long-Term Debt	$ 529.50	42.60 %	$ 579.38	31.82 %
Short-Term Debt	126.70	10.19	126.70	6.96
Total Debt	656.20	52.79	706.08	38.78
Preferred Stock	-	-	-	-
Common Equity	586.93	47.21	1,114.83	61.22
Total Equity	586.93	47.21	1,114.83	61.22
Total Capital	$ 1,243.13	100.00 %	$ 1,820.91	100.00 %
Peoples Energy Corporation				
Long-Term Debt	$ 895.58	52.56 %	$ 912.80	36.32 %
Short-Term Debt	8.15	0.48	8.15	0.32
Total Debt	903.73	53.04	920.95	36.64
Preferred Stock	-	-	-	-
Common Equity	800.15	46.96	1,592.41	63.36
Total Equity	800.15	46.96	1,592.41	63.36
Total Capital	$ 1,703.89	100.00 %	$ 2,513.36	100.00 %

Capital Structure Based upon Total Capital
for the Proxy Group of Eight Value Line Gas Distribution Companies and Southern Union Company
At September 2005 (1)

	Based Upon Book Value		Based Upon Market Value of Common Equity at October 13, 2006	
	Amount Outstanding ($ mill)	Ratios	Amount Outstanding ($ mill)	Ratios
Piedmont Natural Gas Co., Inc.				
Long-Term Debt	$ 660.00	38.76 %	$ 753.27	25.85 %
Short-Term Debt	158.50	9.31	158.50	5.44
Total Debt	818.50	48.07	911.77	31.29
Preferred Stock	-	-	.	.
Common Equity	884.19	51.93	2,002.00	68.71
Total Equity	884.19	51.93	2,002.00	68.71
Total Capital	$ 1,702.69	100.00 %	$ 2,913.77	100.00 %
WGL Holdings, Inc.				
Long-Term Debt	$ 584.20 (2)	37.76 %	$ 626.80	27.76 %
Short-Term Debt	40.88	2.64	40.88	1.81
Total Debt	625.08	40.40	667.68	29.57
Preferred Stock	28.17	1.82	28.20	1.25
Common Equity	893.99	57.78	1,561.85	69.18
Total Equity	922.17	59.60	1,590.05	70.43
Total Capital	$ 1,547.24	100.00 %	$ 2,257.73	100.00 %
Proxy Group of Eight Gas Distribution Companies				
Long-Term Debt		41.64 %		28.22 %
Short-Term Debt		10.69		6.43
Total Debt		52.33		34.65
Preferred Stock		0.24		0.17
Common Equity		47.43		65.18
Total Equity		47.67		65.35
Total Capital		100.00 %		100.00 %
Proxy Group of Six Gas Distribution Companies (2)				
Long-Term Debt		37.26 %		25.27 %
Short-Term Debt		13.49		8.10
Total Debt		50.75		33.37
Preferred Stock		0.32		0.22
Common Equity		48.93		66.41
Total Equity		49.25		66.63
Total Capital		100.00 %		100.00 %
Southern Union Company				
Long-Term Debt	$ 2,175.79 (3)	48.89 %	$ 2,313.06	38.72 %
Short-Term Debt	420.00	9.44	420.00	7.03
Total Debt	2,595.79	58.33	2,733.06	45.75
Preferred Stock	230.00	5.17	230.00	3.85
Common Equity	1,624.07	36.50	3,011.37	50.40
Total Equity	1,854.07	41.67	3,241.37	54.25
Total Capital	$ 4,449.86	100.00 %	$ 5,974.43	100.00 %

(1) Capital Structure based upon Total Capital as of September 2005, except NICOR Northwest Natural and Southern Union, which is December 2005, and for Piedmont Natural Gas, which is October 2005.

(2) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively For informational purposes, the averages excluding Cascade Natural and Peoples Energy are being shown

(3) Book Value Long-term debt for Southern Union is based on the carrying amount published by the company in their annual Form 10K.

Source of Information:
    Standard & Poor's Compustat Services, Inc., PC Plus/Research Insight Data Base
    Company Annual Forms 10-K and 10-Q
    DTN Trading Markets' DTNIQ/Interquote com

Missouri Gas Energy
Derivation of Investment Risk Adjustment Based upon
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

		1		2		3	4	5
Line No.		Total Capitalization (Incl. Short-Term Debt) for the Year 2005 (millions)	(times larger)	Market Capitalization on October 13, 2006 (1) (millions)	(times larger)	Applicable Decile of the NYSE/AMEX/ NASDAQ	Applicable Size Premium	Spread from Applicable Size Premium (2)
1.	Missouri Gas Energy							
A.	Based upon the Proxy Group of Four Gas Distribution Companies	$ 580.602 (3)						
	Based upon the Proxy Group of Three Gas Distribution Companies (15)			$ 583.296		8 - 9 (4)	2.55% (5)	
B.	Based upon the Proxy Group of Eight Value Line Gas Distribution Companies			$ 554.451		8 - 9 (4)	2.55% (5)	
	Based upon the Proxy Group of Six Value Line Gas Distribution Companies (15)			$ 547.507		8 - 9 (4)	2.55% (5)	
C.	Based upon Southern Union Company			$ 541.632		8 - 9 (4)	2.55% (5)	
				$ 467.811		9 (4)	2.76% (5)	
2.	Proxy Group of Four Gas Distribution Companies	$ 1,296.120 (6)	2.2	$ 1,345.214	2.3	6 - 7 (7)	1.70% (7)	0.85% (8)
	Proxy Group of Three Gas Distribution Companies (15)	$ 1,626.506 (6)	2.8	$ 1,487.346	2.7	6 - 7 (7)	1.70% (7)	0.85% (8)
3.	Proxy Group of Eight Value Line Gas Distribution Companies	$ 1,279.600 (9)	2.2 x	$ 1,330.656	2.4 x	6 - 7 (10)	1.70% (11)	0.85% (11)
	Proxy Group of Six Value Line Gas Distribution Companies (15)	$ 1,371.336 (9)	2.4 x	$ 1,459.363	2.7 x	6 - 7 (10)	1.70% (11)	0.85% (11)
4.	Southern Union Company	$ 4,449.858 (12)	7.7	$ 3,011.366	6.4	4 (13)	1.10% (14)	1.45%

Decile	Number of Companies	Recent Total Market Capitalization (millions)	Recent Average Market (millions)
1 - Largest	169	$8,869,801.117	$52,464.030
2	182	2,025,323.685	11,128.152
3	195	1,074,448.763	5,509.994
4	206	656,297.060	3,185.908
5	207	452,329.097	2,185.165
6	238	389,595.517	1,636.956
7	299	319,642.175	1,069.037
8	352	287,783.718	817.567
9	693	268,738.291	387.790
10 - Smallest	1746	215,334.858	123.903

See page 11 for notes.

Missouri Gas Energy
Derivation of Investment Risk Adjustment Based upon
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE

Notes:

(1)   From page 12 of this Schedule.

(2)   Line No. 1 – Line No. 2 and Line No. 1 – Line No. 3 of Columns 3 and 4, respectively. For example, the 0.85% in Column 5, Line No. 2 is derived as follows 0.85% = 2.55% - 1.70%.

(3)   Company-provided rate base at December 31, 2005 presumed to equal total capitalization if it were a stand alone entity rather than a division.

(4)   With an estimated market capitalization of $583.296 million (based upon the proxy group of four gas distribution companies), $547.507 (based upon the proxy group of Eight Value Line gas distribution companies) and $467.811 (based upon Southern Union Company), Missouri Gas Energy falls between the 8th and 9th deciles for the two proxy groups, and in the 9th decile for Southern Union, of the NYSE/AMEX/NASDAQ, which have an average market capitalization of $602.679 and $387.790, respectively, as shown in the table on the bottom half of page 10 of this Schedule. If Cascade Natural Gas Corporation and Peoples Energy Corporation were excluded as indicated in Note 15 below, the estimated market capitalization for the proxy group of three gas distribution companies and six gas distribution companies would be $554.451 and $541.632, respectively, and based on both groups Missouri Gas Energy would also fall between the 8th and 9th deciles.

(5)   Size premium applicable to the 8th and 9th decile of the NYSE/AMEX/NASDAQ as shown on page 24 of this Schedule.

(6)   From page 1 of Schedule FJH-3 of the Exhibit accompanying Mr. Hanley's direct testimony.

(7)   With an estimated market capitalization of $1,345.214 million, the proxy group of four gas distribution companies falls between the 6th and 7th deciles of the NYSE/AMEX/NASDAQ which have an average market capitalization of $1,352.997 million as can be gleaned from the information shown in the table on the bottom half of page 10 of this Schedule. If Cascade Natural Gas Corporation were excluded form the group of four gas distribution companies, as indicated in Note 15 below, the estimated market capitalization would be $1,487.346 and the group would also fall between the 6th and 7th deciles.

(8)   Average size premium applicable to the 6th and 7th deciles of the NYSE/AMEX/NASDAQ as can be gleaned from the information shown on page 24 of this schedule.

(9)   From page 1 of Schedule FJH-4 of the Exhibit accompanying Mr. Hanley's direct testimony.

(10) With an estimated market capitalization of $1,330.658 million, the proxy group of eight Value Line gas distribution companies falls between the 6th and 7th deciles of the NYSE/AMEX/NASDAQ which have an average market capitalization of $1,352.997 as shown in the table on the bottom half of page 10 of this Schedule. If Cascade Natural Gas Corporation and Peoples Energy Corporation were excluded form the group of eight Value Line gas distribution companies, as indicated in Note 15 below, the estimated market capitalization would be $1,459.363 and the group would also fall between the 6th and 7th deciles.

(11) Average size premium applicable to the 6th and 7th deciles of the NYSE/AMEX/NASDAQ as can be gleaned from the information shown on page 24 of this schedule.

(12) From page 1 of Schedule FJH-5 of the Exhibit accompanying Mr. Hanley's direct testimony.

(13) With an estimated market capitalization of $3,011.366 million, Southern Union Company falls in the 4th decile of the NYSE/AMEX/NASDAQ which has an average market capitalization of $3,185.908 as shown in the table on the bottom half of page 10 of this Schedule.

(14) Average size premium applicable to 4th deciles of the NYSE/AMEX/NASDAQ as can be gleaned from the information shown on page 24 of this schedule.

(15) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade in the proxy group of 4 LDCs, and Cascade and Peoples in the proxy group of eight Value Line LDCs are being shown.

Source of Information: Ibbotson Associates, Stocks, Bonds, Bills and Inflation – Valuation Edition – 2006 Yearbook, Chicago, IL, 2006

Missouri Gas Energy
Market Capitalization of Missouri Gas Energy
for the Proxy Group of Four Gas Distribution Companies, the Proxy Group of Eight
Value Line Gas Distribution Companies and Southern Union Company

	1	2	3	4	5	6
Company	Common Stock Shares Outstanding at June 30, 2006 (1) & (*) (millions)	Book Value per Share at September 30, 2005 (1) & (*)	Total Common Equity at June 30, 2006 (*) (millions)	Closing Stock Market Price on October 13, 2006	Market-to-Book Ratio at October 13, 2006 (2)	Market Capitalization on October 13, 2006 (3) (millions)
Missouri Gas Energy	NA (4)	NA	S 267.077 (4)	NA		
Based upon the Proxy Group of Four Gas Distribution Companies					218.4 % (5)	S 583.296 (6)
Based upon the Proxy Group of Three Gas Distribution Companies (11)					207.6 % (5)	S 554.451 (6)
Based upon the Proxy Group of Eight Value Line Gas Distribution Companies					205.0 % (7)	S 547.507 (8)
Based upon the Proxy Group of Six Value Line Gas Distribution Companies (11)					202.8 % (7)	S 541.632 (8)
Based upon Southern Union Company					175.2 % (9)	S 467.811 (10)
Proxy Group of Four Gas Distribution Companies						
Cascade Natural Gas Corporation	11.499	S 11.138	S 128.081	S 25.800	231.6 %	S 296.674
NICOR Inc	44.440	18.630	827.900	44.270	237.6	1,967.359
Northwest Natural Gas Company	27.547	22.176	610.876	40.470	182.5	1,114.827
Piedmont Natural Gas Co , Inc	75.348	11.971	902.021	26.570	222.0	2,001.996
Average	39.709	S 15.979	S 617.220	S 34.278	218.4 %	S 1,345.214
Average Excluding Cascade Natural (11)	49.112	S 17.592	S 710.039	S 33.773	207.6 %	S 1,487.346
Proxy Group of Eight Value Line Gas Distribution Companies						
Cascade Natural Gas Corporation	11.499	S 11.138	S 128.081	S 25.800	231.6 %	S 296.674
The Laclede Group, Inc	21.331	19.075	406.886	33.250	174.3	709.256
New Jersey Resources Corp.	28.074	21.211	595.471	49.900	235.3	1,400.693
NICOR Inc.	44.440	18.630	827.900	44.270	237.6	1,967.359
Northwest Natural Gas Company	27.547	22.176	610.876	40.470	182.5	1,114.827
Peoples Energy Corporation	38.427	21.620	830.796	41.440	191.7	1,592.415
Piedmont Natural Gas Co , Inc	75.348	11.971	902.021	26.570	222.0	2,001.996
WGL Holdings, Inc	48.762	19.412	946.556	32.030	165.0	1,561.847
Average	36.929	S 18.154	S 656.073	S 36.716	205.0 %	S 1,330.658
Average Excluding Cascade Natural and Peoples Energy (11)	40.917	S 18.746	S 714.952	S 37.748	202.8 %	S 1,459.363
Southern Union Company	112.030	S 15.346	S 1,719.179	S 26.880	175.2 %	S 3,011.366

NA = Not Available

Notes:
(1) Column 3 / Column 1.
(2) Column 4 / Column 2
(3) Column 5 * Column 3
(4) Based upon allocating Missouri Gas Energy's rate base at December 31, 2005 of $580.601647 by Mr Hanley's recommended hypothetical common equity ratio of 46.00%. $267 077 = $580.601647 * 46.00%.
(5) The market-to-book ratio of Missouri Gas Energy, at October 13, 2006 is assumed to be equal to the average market-to-book ratio at October 13, 2006 of the proxy group of four gas distribution companies, as well as the proxy group of three gas distribution companies (after the exclusion of Cascade Natural Gas Corporation) as indicated in Note 11 below.
(6) Missouri Gas Energy's common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio at October 13, 2006 of the proxy group of four gas distribution companies, 218 4%, and Missouri Gas Energy's market capitalization at October 13, 2006 would therefore have been $583.296 million ($583.296 = $267.077 * 218.4%). If Cascade Natural Gas Corporation were excluded from the proxy group of four LDCs, Missouri Gas Energy's market capitalization at October 13, 2006 would have been $554.451 million.
(7) The market-to-book ratio of Missouri Gas Energy at October 13, 2006 is assumed to be equal to the average market-to-book ratio at October 13, 2006 of the proxy group of eight Value Line gas distribution companies, as well as the proxy group of six Value Line gas distribution companies (after the exclusion of Cascade Natural Gas Corporation and Peoples Energy Corporation) as indicated in Note 11 below.
(8) Missouri Gas Energy's common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio at October 13, 2006 of the proxy group of eight Value Line gas distribution companies, 205.0%, and Missouri Gas Energy's market capitalization at October 13, 2006 would therefore have been $547.507 million ($547.507 = $267 077 * 205.0%). If Cascade Natural Gas Corporation and Peoples Energy Corporation were to be excluded from the proxy group of eight Value Line LDCs, Missouri Gas Energy's market capitalization at October 13, 2006 would therefore have been $541.632 million.
(9) The market-to-book ratio of Missouri Gas Energy, at October 13, 2006 is assumed to be equal to the average market-to-book ratio at October 13, 2006 of Southern Union Company
(10) Missouri Gas Energy's common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio at October 13, 2006 of Southern Union Company, 175.2%, and Missouri Gas Energy's market capitalization at October 13, 2006 would therefore have been $467.811 million. ($467.811 = $267 077 * 175.2%).
(11) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively For informational purposes, the averages excluding Cascade Natural in the proxy group of four LDCs, and Cascade Natural and Peoples Energy in the proxy group of eight Value Line LDCs are being shown
(*) As of June 30, 2006, except Piedmont Natural Gas which is at July 31, 2006

Stocks, Bonds, Bills,
and Inflation

SBBI

Valuation Edition
2006 Yearbook

ibbotson

Chapter 7

Firm Size and Return

The Firm Size Phenomenon

One of the most remarkable discoveries of modern finance is that of a relationship between firm size and return. The relationship cuts across the entire size spectrum but is most evident among smaller companies, which have higher returns on average than larger ones. Many studies have looked at the effect of firm size on return.[1] In this chapter, the returns across the entire range of firm size are examined.

Construction of the Decile Portfolios

The portfolios used in this chapter are those created by the Center for Research in Security Prices (CRSP) at the University of Chicago's Graduate School of Business. CRSP has refined the methodology of creating size-based portfolios and has applied this methodology to the entire universe of NYSE/AMEX/NASDAQ-listed securities going back to 1926.

The New York Stock Exchange universe excludes closed-end mutual funds, preferred stocks, real estate investment trusts, foreign stocks, American Depository Receipts, unit investment trusts, and Americus Trusts. All companies on the NYSE are ranked by the combined market capitalization of their eligible equity securities. The companies are then split into 10 equally populated groups, or deciles. Eligible companies traded on the American Stock Exchange (AMEX) and the Nasdaq National Market (NASDAQ) are then assigned to the appropriate deciles according to their capitalization in relation to the NYSE breakpoints. The portfolios are rebalanced, using closing prices for the last trading day of March, June, September, and December. Securities added during the quarter are assigned to the appropriate portfolio when two consecutive month-end prices are available. If the final NYSE price of a security that becomes delisted is a month-end price, then that month's return is included in the quarterly return of the security's portfolio. When a month-end NYSE price is missing, the month-end value of the security is derived from merger terms, quotations on regional exchanges, and other sources. If a month-end value still is not determined, the last available daily price is used.

Base security returns are monthly holding period returns. All distributions are added to the month-end prices, and appropriate price adjustments are made to account for stock splits and dividends. The return on a portfolio for one month is calculated as the weighted average of the returns for its individual stocks. Annual portfolio returns are calculated by compounding the monthly portfolio returns.

Size of the Deciles

Table 7-1 reveals that the top three deciles of the NYSE/AMEX/NASDAQ account for most of the total market value of its stocks. Nearly two-thirds of the market value is represented by the first decile, which currently consists of 169 stocks, while the smallest decile accounts for just over

---

[1] Rolf W. Banz was the first to document this phenomenon. See Banz, Rolf W. "The Relationship Between Returns and Market Value of Common Stocks," *Journal of Financial Economics*, Vol. 9, 1981, pp. 3–18.

Schedule FJH-26
Page 15 of 25

Schedule FJH-1
Page 14 of 23
(Update)

Chapter 7

one percent of the market value. The data in the second column of Table 7-1 are averages across all 80 years. Of course, the proportion of market value represented by the various deciles varies from year to year.

Columns three and four give recent figures on the number of companies and their market capitalization, presenting a snapshot of the structure of the deciles near the end of 2005.

Table 7-1

Size-Decile Portfolios of the NYSE/AMEX/NASDAQ Size and Composition
1926 through September 30, 2005

Decile	Historical Average Percentage of Total Capitalization	Recent Number of Companies	Recent Decile Market Capitalization (in thousands)	Recent Percentage of Total Capitalization
1-largest	63.29%	169	$8,869,801,117	60.92%
2	13.97%	182	2,025,323,685	13.91%
3	7.57%	195	1,074,448,763	7.38%
4	4.74%	206	656,297,080	4.51%
5	3.24%	207	452,329,097	3.11%
6	2.37%	238	389,595,517	2.68%
7	1.73%	299	319,642,175	2.20%
8	1.26%	352	287,783,718	1.98%
9	0.99%	693	268,738,291	1.85%
10-Smallest	0.81%	1,746	216,334,858	1.49%
Mid-Cap 3-5	15.55%	608	2,183,074,940	14.99%
Low-Cap 6-8	5.39%	889	997,021,410	6.85%
Micro-Cap 9-10	1.80%	2,439	485,073,149	3.33%

Source: © 200603 CRSP® Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.uchicago.edu.

Historical average percentage of total capitalization shows the average, over the last 80 years, of the decile market values as a percentage of the total NYSE/AMEX/NASDAQ calculated each month. Number of companies in deciles, recent market capitalization of deciles, and recent percentage of total capitalization are as of September 30, 2005.

Table 7-2 gives the current breakpoints that define the composition of the NYSE/AMEX/NASDAQ size deciles. The largest company and its market capitalization are presented for each decile. Table 7-3 shows the historical breakpoints for each of the three size groupings presented throughout this chapter. Mid-cap stocks are defined here as the aggregate of deciles 3–5. Based on the most recent data (Table 7-2), companies within this mid-cap range have market capitalizations at or below $7,187,244,000 but greater than $1,728,888,000. Low-cap stocks include deciles 6–8 and currently include all companies in the NYSE/AMEX/NASDAQ with market capitalizations at or below $1,728,888,000 but greater than $586,393,000. Micro-cap stocks include deciles 9–10 and include companies with market capitalizations at or below $586,393,000. The market capitalization of the smallest company included in the micro-capitalization group is currently $1,079,000.

Firm Size and Return

Table 7-2

Size-Decile Portfolios of the NYSE/AMEX/NASDAQ, Largest Company
and Its Market Capitalization by Decile
September 30, 2005

Decile	Market Capitalization of Largest Company (in thousands)	Company Name
1-Largest	$367,495,144	General Electric Co.
2	16,016,450	Entergy Corp.
3	7,187,244	Chesapeake Energy Corp.
4	3,961,425	Ball Corp.
5	2,519,280	Celanese Corp.
6	1,728,888	AGCO Corp.
7	1,280,966	ESCO Technologies Inc.
8	872,103	West Pharmaceutical Services Inc.
9	586,393	General Cable Corp.
10-Smallest	264,981	4Kids Entertainment Inc.

Source: Center for Research in Security Prices, University of Chicago.

Presentation of the Decile Data

Summary statistics of annual returns of the 10 deciles over 1926–2005 are presented in Table 7-4. Note from this exhibit that both the average return and the total risk, or standard deviation of annual returns, tend to increase as one moves from the largest decile to the smallest. Furthermore, the serial correlations of returns are near zero for all but the smallest two deciles. Serial correlations and their significance will be discussed in detail later in this chapter.

Graph 7-1 depicts the growth of one dollar invested in each of three NYSE/AMEX/NASDAQ groups broken down into mid-cap, low-cap, and micro-cap stocks. The index value of the entire NYSE/AMEX/NASDAQ is also included. All returns presented are value-weighted based on the market capitalizations of the deciles contained in each subgroup. The sheer magnitude of the size effect in some years is noteworthy. While the largest stocks actually declined 9 percent in 1977, the smallest stocks rose more than 20 percent. A more extreme case occurred in the depression-recovery year of 1933, when the difference between the first and tenth decile returns was far more substantial, with the largest stocks rising 46 percent, and the smallest stocks rising 224 percent. This divergence in the performance of small and large company stocks is a common occurrence.

Chapter 7

Table 7-3

Size-Decile Portfolios of the NYSE/AMEX/NASDAQ
Largest and Smallest Company by Size Group

from 1926 to1965

Date (Sept 30)	Capitalization of Largest Company (in thousands)			Capitalization of Smallest Company (in thousands)		
	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10
1926	$61,490	$14,040	$4,305	$14,100	$4,325	$43
1927	$65,281	$14,746	$4,450	$15,311	$4,496	$72
1928	$81,998	$18,975	$5,074	$19,050	$5,119	$135
1929	$107,085	$24,328	$5,875	$24,480	$5,915	$126
1930	$67,808	$13,050	$3,219	$13,068	$3,264	$30
1931	$42,607	$8,142	$1,905	$8,222	$1,927	$15
1932	$12,431	$2,170	$473	$2,196	$477	$19
1933	$40,298	$7,210	$1,830	$7,280	$1,875	$100
1934	$38,129	$6,669	$1,669	$6,734	$1,673	$68
1935	$37,631	$6,519	$1,350	$6,549	$1,383	$38
1936	$46,920	$11,505	$2,660	$11,526	$2,668	$98
1937	$51,750	$13,601	$3,500	$13,635	$3,539	$68
1938	$36,102	$8,325	$2,125	$8,372	$2,145	$60
1939	$35,784	$7,367	$1,697	$7,389	$1,800	$75
1940	$31,050	$7,990	$1,861	$8,007	$1,872	$51
1941	$31,744	$8,316	$2,086	$8,336	$2,087	$72
1942	$26,135	$6,870	$1,779	$6,875	$1,788	$82
1943	$43,218	$11,475	$3,847	$11,480	$3,903	$395
1944	$46,621	$13,066	$4,800	$13,068	$4,812	$309
1945	$55,268	$17,325	$6,413	$17,575	$6,428	$225
1946	$79,158	$24,192	$10,013	$24,199	$10,051	$829
1947	$57,830	$17,735	$6,373	$17,872	$6,380	$747
1948	$67,238	$19,575	$7,313	$19,651	$7,329	$784
1949	$55,506	$14,549	$5,037	$14,577	$5,108	$379
1950	$65,881	$18,675	$6,176	$18,750	$6,201	$303
1951	$82,517	$22,750	$7,567	$22,860	$7,598	$668
1952	$97,936	$25,452	$8,428	$25,532	$8,480	$480
1953	$98,595	$25,374	$8,156	$25,395	$8,168	$459
1954	$125,834	$29,645	$8,484	$29,707	$8,488	$463
1955	$170,829	$41,445	$12,353	$41,631	$12,366	$553
1956	$183,434	$46,805	$13,461	$46,886	$13,524	$1,122
1957	$192,861	$47,658	$13,844	$48,509	$13,848	$925
1958	$195,083	$46,774	$13,789	$46,871	$13,816	$550
1959	$253,644	$64,221	$19,500	$64,372	$19,548	$1,804
1960	$246,202	$61,485	$19,344	$61,529	$19,385	$831
1961	$296,261	$79,058	$23,562	$79,422	$23,613	$2,455
1962	$250,433	$58,866	$18,952	$59,143	$18,968	$1,018
1963	$308,438	$71,846	$23,819	$71,971	$23,822	$296
1964	$344,033	$79,343	$25,594	$79,508	$25,595	$223
1965	$363,759	$84,479	$28,365	$84,600	$28,375	$250

Source: Center for Research in Security Prices, University of Chicago.

Firm Size and Return

Table 7-3 (continued)

Size-Decile Portfolios of the NYSE/AMEX/NASDAQ
Largest and Smallest Company by Size Group

from 1966 to 2005

Date (Sept 30)	Capitalization of Largest Company (in thousands)			Capitalization of Smallest Company (in thousands)		
	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10	Mid-Cap 3-5	Low-Cap 6-8	Micro-Cap 9-10
1966	$399,455	$99,578	$34,884	$99,935	$34,956	$361
1957	$459,170	$117,985	$42,267	$118,329	$42,313	$381
1968	$528,326	$149,261	$60,351	$150,128	$60,397	$592
1969	$517,452	$144,770	$54,273	$145,684	$54,280	$2,119
1970	$380,245	$94,025	$29,910	$94,047	$29,916	$822
1971	$542,517	$145,340	$45,571	$145,673	$45,589	$865
1972	$545,211	$139,647	$46,728	$139,710	$46,757	$1,031
1973	$424,584	$94,809	$29,601	$95,378	$29,606	$561
1974	$344,013	$75,272	$22,475	$75,853	$22,481	$444
1975	$465,763	$96,954	$28,140	$97,266	$28,144	$540
1976	$551,071	$116,184	$31,987	$116,212	$32,002	$564
1977	$573,084	$135,804	$39,192	$137,323	$39,254	$513
1978	$572,967	$159,778	$46,621	$160,524	$46,629	$830
1979	$661,336	$174,480	$49,088	$174,517	$49,172	$948
1980	$754,562	$194,012	$48,671	$194,241	$48,953	$549
1981	$954,665	$259,028	$71,276	$261,059	$71,289	$1,446
1982	$762,028	$205,590	$54,675	$206,536	$54,883	$1,060
1983	$1,200,680	$352,698	$103,443	$352,944	$103,530	$2,025
1984	$1,068,972	$314,650	$90,419	$315,214	$90,659	$2,093
1985	$1,432,342	$367,413	$93,810	$368,249	$94,000	$760
1986	$1,857,621	$444,827	$109,956	$445,648	$109,975	$706
1987	$2,059,143	$467,430	$112,035	$468,948	$112,125	$1,277
1988	$1,957,926	$420,257	$94,268	$421,340	$94,302	$696
1989	$2,147,608	$480,975	$100,285	$483,623	$100,384	$96
1990	$2,164,185	$472,003	$93,627	$474,065	$93,750	$132
1991	$2,129,863	$457,958	$87,586	$458,653	$87,733	$278
1992	$2,428,671	$500,346	$103,352	$501,050	$103,500	$510
1993	$2,711,068	$608,520	$137,945	$608,825	$137,987	$602
1994	$2,497,073	$601,552	$149,435	$602,552	$149,532	$598
1995	$2,793,761	$653,178	$158,011	$654,019	$158,063	$89
1996	$3,150,685	$763,377	$195,188	$763,812	$195,326	$1,043
1997	$3,511,132	$818,299	$230,472	$821,028	$230,554	$480
1998	$4,216,707	$934,264	$253,329	$936,727	$253,336	$1,671
1999	$4,251,741	$875,309	$218,336	$875,582	$218,368	$1,502
2000	$4,143,902	$840,000	$192,598	$840,730	$192,721	$1,462
2001	$5,252,063	$1,114,792	$269,275	$1,115,200	$270,391	$443
2002	$5,012,705	$1,143,845	$314,042	$1,144,452	$314,174	$501
2003	$4,794,027	$1,166,799	$330,608	$1,167,040	$330,797	$332
2004	$6,241,953	$1,607,854	$505,437	$1,607,931	$506,410	$1,393
2005	$7,187,244	$1,728,888	$586,393	$1,729,364	$587,243	$1,079

Source: Center for Research in Security Prices, University of Chicago.

Schedule FJH-26
Page 19 of 25

Schedule FJH-1
Page 18 of 23
(Update)

Chapter 7

Table 7-4

Size-Decile Portfolios of the NYSE/AMEX/NASDAQ, Summary Statistics of Annual Returns
1926–2005

Decile	Geometric Mean	Arithmetic Mean	Standard Deviation	Serial Correlation
1-Largest	9.5	11.3	19.17	0.09
2	10.9	13.2	21.86	0.03
3	11.3	13.8	23.66	–0.02
4	11.3	14.3	25.94	–0.02
5	11.6	14.9	26.78	–0.02
6	11.8	15.3	27.84	0.04
7	11.6	15.6	29.99	0.01
8	11.8	16.6	33.47	0.04
9	12.0	17.5	36.55	0.05
10-Smallest	14.0	21.6	45.44	0.15
Mid-Cap, 3-5	11.4	14.2	24.74	–0.02
Low-Cap, 6-8	11.7	15.7	29.52	0.03
Micro-Cap, 9-10	12.7	18.8	39.16	0.08
NYSE/AMEX/NASDAQ Total Value-Weighted Index	10.1	12.0	20.21	0.03

Source: Center for Research in Security Prices, University of Chicago.

Aspects of the Firm Size Effect

The firm size phenomenon is remarkable in several ways. First, the greater risk of small stocks does not, in the context of the capital asset pricing model (CAPM), fully account for their higher returns over the long term. In the CAPM only systematic, or beta risk, is rewarded; small company stocks have had returns in excess of those implied by their betas.

Second, the calendar annual return differences between small and large companies are serially correlated. This suggests that past annual returns may be of some value in predicting future annual returns. Such serial correlation, or autocorrelation, is practically unknown in the market for large stocks and in most other equity markets but is evident in the size premia.

Third, the firm size effect is seasonal. For example, small company stocks outperformed large company stocks in the month of January in a large majority of the years. Such predictability is surprising and suspicious in light of modern capital market theory. These three aspects of the firm size effect—long-term returns in excess of systematic risk, serial correlation, and seasonality—will be analyzed thoroughly in the following sections.

Firm Size and Return

Graph 7-1

Size-Decile Portfolios of the NYSE/AMEX/NASDAQ: Wealth Indices of Investments in Mid-, Low-, Micro- and Total Capitalization Stocks
1925–2005

Year-end 1925 = $1.00

Year-end   Source: Center for Research in Security Prices, University of Chicago.

Schedule FJH-26
Page 21 of 25

Schedule FJH-1
Page 20 of 23
(Update)

Chapter 7
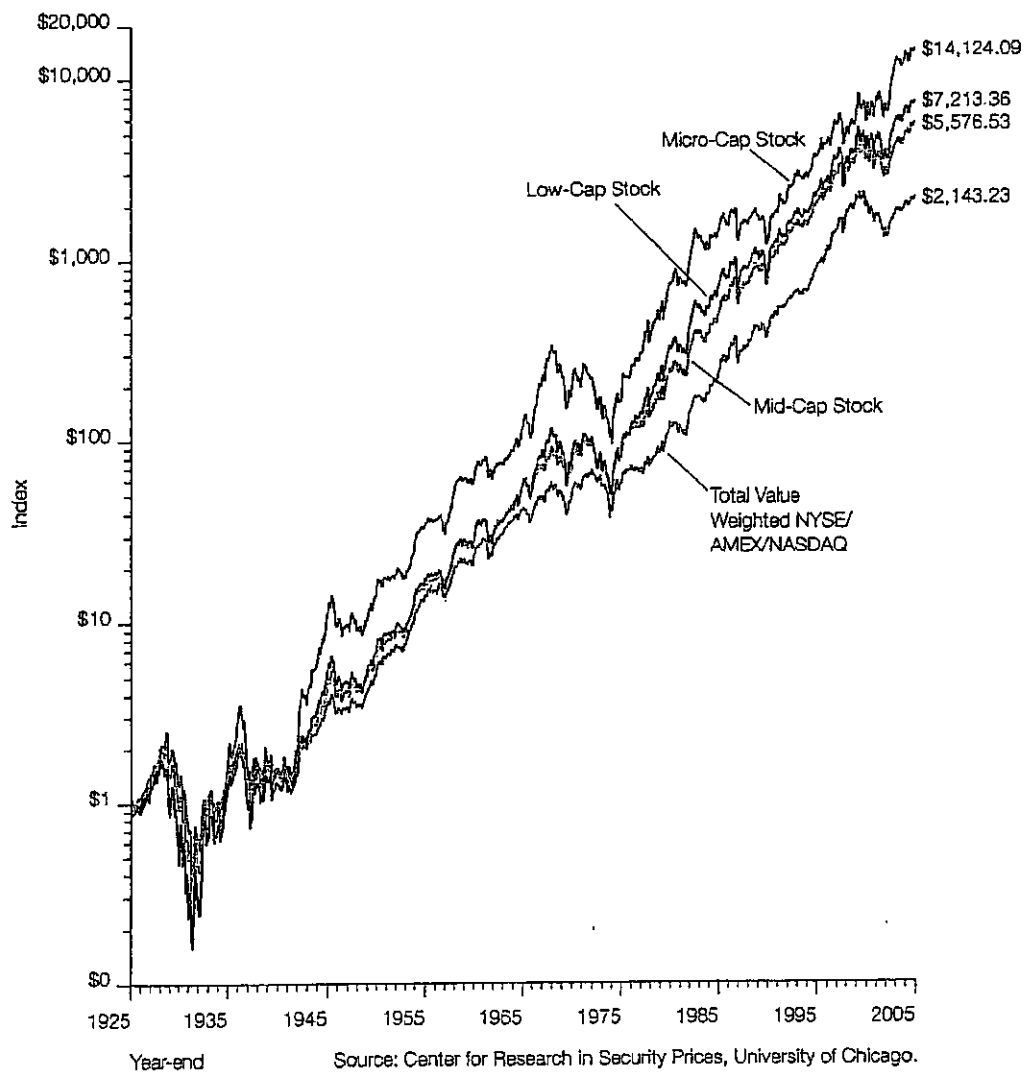
Long-Term Returns in Excess of Systematic Risk

The capital asset pricing model (CAPM) does not fully account for the higher returns of small company stocks. Table 7-5 shows the returns in excess of systematic risk over the past 80 years for each decile of the NYSE/AMEX/NASDAQ. Recall that the CAPM is expressed as follows:

$$k_s = r_f + (\beta_s \times ERP)$$

Table 7-5 uses the CAPM to estimate the return in excess of the riskless rate and compares this estimate to historical performance. According to the CAPM, the expected return on a security should consist of the riskless rate plus an additional return to compensate for the systematic risk of the security. The return in excess of the riskless rate is estimated in the context of the CAPM by multiplying the equity risk premium by β (beta). The equity risk premium is the return that compensates investors for taking on risk equal to the risk of the market as a whole (systematic risk).[2] Beta measures the extent to which a security or portfolio is exposed to systematic risk.[3] The beta of each decile indicates the degree to which the decile's return moves with that of the overall market.

A beta greater than one indicates that the security or portfolio has greater systematic risk than the market; according to the CAPM equation, investors are compensated for taking on this additional risk. Yet, Table 7-5 illustrates that the smaller deciles have had returns that are not fully explained by their higher betas. This return in excess of that predicted by CAPM increases as one moves from the largest companies in decile 1 to the smallest in decile 10. The excess return is especially pronounced for micro-cap stocks (deciles 9–10). This size-related phenomenon has prompted a revision to the CAPM, which includes a size premium. Chapter 4 presents this modified CAPM theory and its application in more detail.

This phenomenon can also be viewed graphically, as depicted in the Graph 7-2. The security market line is based on the pure CAPM without adjustment for the size premium. Based on the risk (or beta) of a security, the expected return lies on the security market line. However, the actual historic returns for the smaller deciles of the NYSE/AMEX/NASDAQ lie above the line, indicating that these deciles have had returns in excess of that which is appropriate for their systematic risk.

---

2 The equity risk premium is estimated by the 80-year arithmetic mean return on large company stocks, 12.30 percent, less the 80-year arithmetic mean income-return component of 20-year government bonds as the historical riskless rate, in this case 5.22 percent. (It is appropriate, however, to match the maturity, or duration, of the riskless asset with the investment horizon.) See Chapter 5 for more detail on equity risk premium estimation.
3 Historical betas were calculated using a simple regression of the monthly portfolio (decile) total returns in excess of the 30-day U.S. Treasury bill total returns versus the S&P 500 total returns in excess of the 30-day U.S. Treasury bill, January 1926–December 2005. See Chapter 6 for more detail on beta estimation.

Firm Size and Return

Table 7-5

Long-Term Returns in Excess of CAPM Estimation for Decile Portfolios of the NYSE/AMEX/NASDAQ
1926–2005

Decile	Beta*	Arithmetic Mean Return	Realized Return in Excess of Riskless Rate**	Estimated Return in Excess of Riskless Rate†	Size Premium (Return in Excess of CAPM)
1-Largest	0.91	11.29%	6.07%	6.45%	−0.37%
2	1.04	13.22%	8.00%	7.33%	0.57%
3	1.10	13.84%	8.62%	7.77%	0.85%
4	1.13	14.31%	9.09%	7.98%	1.10%
5	1.16	14.91%	9.69%	8.20%	1.49%
6	1.18	15.33%	10.11%	8.38%	1.73%
7	1.23	15.62%	10.40%	8.73%	1.67%
8	1.28	16.60%	11.38%	9.05%	2.33%
9	1.34	17.48%	12.26%	9.50%	2.76%
10-Smallest	1.41	21.59%	16.37%	10.01%	6.36%
Mid-Cap, 3-5	1.12	14.15%	8.94%	7.91%	1.02%
Low-Cap, 6-8	1.22	15.66%	10.44%	8.63%	1.81%
Micro-Cap, 9-10	1.36	18.77%	13.55%	9.61%	3.95

*Betas are estimated from monthly portfolio total returns in excess of the 30-day U.S. Treasury bill total return versus the S&P 500 total returns in excess of the 30-day U.S. Treasury bill, January 1926–December 2005.

**Historical riskless rate is measured by the 80-year arithmetic mean income return component of 20-year government bonds (5.22 percent).

†Calculated in the context of the CAPM by multiplying the equity risk premium by beta. The equity risk premium is estimated by the arithmetic mean total return of the S&P 500 (12.30 percent) minus the arithmetic mean income return component of 20-year government bonds (5.22 percent) from 1926–2005.

Graph 7-2
Security Market Line versus Size-Decile Portfolios of the NYSE/AMEX/NASDAQ
1926–2005

Source: Center for Research in Security Prices, University of Chicago (decile data).

Chapter 7
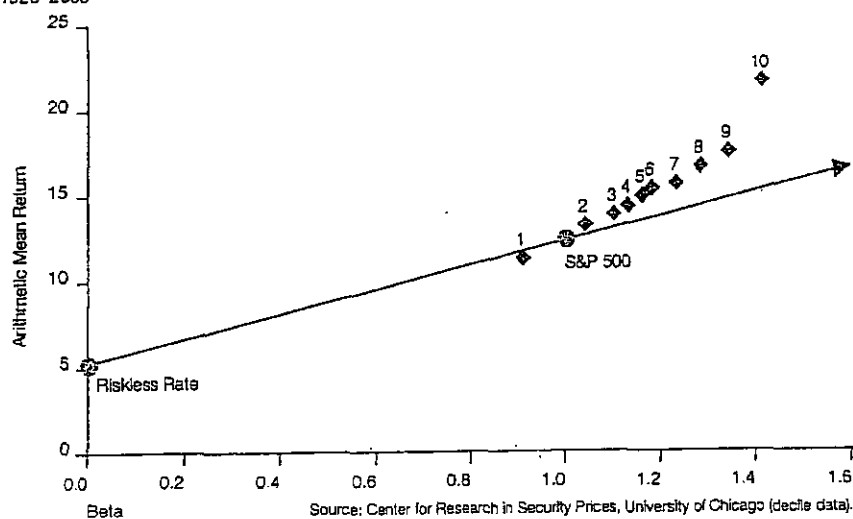
Further Analysis of the 10th Decile

The size premia presented thus far do a great deal to explain the return due solely to size in publicly traded companies. However, by splitting the 10th decile into two size groupings we can get a closer look at the smallest companies. This magnification of the smallest companies will demonstrate whether the company size to size premia relationship continues to hold true.

As previously discussed, the method for determining the size groupings for size premia analysis was to take the stocks traded on the NYSE and break them up into 10 deciles, after which stocks traded on the AMEX and NASDAQ were allocated into the same size groupings. This same methodology was used to split the 10th decile into two parts: 10a and 10b, with 10b being the smaller of the two. This is equivalent to breaking the stocks down into 20 size groupings, with portfolios 19 and 20 representing 10a and 10b.

Table 7-7 shows that the pattern continues; as companies get smaller their size premium increases. There is a noticeable increase in size premium from 10a to 10b, which can also be demonstrated visually in Graph 7-3. This can be useful in valuing companies that are extremely small. Table 7-6 presents the size, composition, and breakpoints of deciles 10a and 10b. First, the recent number of companies and total decile market capitalization are presented. Then the largest company and its market capitalization are presented.

Breaking the smallest decile down lowers the significance of the results compared to results for the 10th decile taken as a whole, however. The same holds true for comparing the 10th decile with the Micro-Cap aggregation of the 9th and 10th deciles. The more stocks included in a sample the more significance can be placed on the results. While this is not as much of a factor with the recent years of data, these size premia are constructed with data back to 1926. By breaking the 10th decile down into smaller components we have cut the number of stocks included in each grouping. The change over time of the number of stocks included in the 10th decile for the NYSE/AMEX/NASDAQ is presented in Table 7-8. With fewer stocks included in the analysis early on, there is a strong possibility that just a few stocks can dominate the returns for those early years.

While the number of companies included in the 10th decile for the early years of our analysis is low, it is not too low to still draw meaningful results even when broken down into subdivisions 10a and 10b. All things considered, size premia developed for deciles 10a and 10b are significant and can be used in cost of capital analysis. These size premia should greatly enhance the development of cost of capital analysis for very small companies.

Table 7-6

Size-Decile Portfolios 10a and 10b of the NYSE/AMEX/NASDAQ,
Largest Company and Its Market Capitalization
September 30, 2005

Decile	Recent Number of Companies	Recent Decile Market Capitalization (in thousands)	Market Capitalization of Largest Company (in thousands)	Company Name
10a	483	$108,194,821	$264,981	4Kids Entertaint Inc.
10b	1,279	$102,157,012	$169,195	Quaker Chemical Corp.

Note: These numbers may not aggregate to equal decile 10 figures.
Source: Center for Research in Security Prices, University of Chicago.

Firm Size and Return

Table 7-7

Long-Term Returns in Excess of CAPM Estimation for Decile Portfolios of the
NYSE/AMEX/NASDAQ, with 10th Decile Split
1926–2005

	Beta*	Arithmetic Mean Return	Realized Return in Excess of Riskless Rate**	Estimated Return in Excess of Riskless Rate†	Size Premium (Return in Excess of CAPM)
1-Largest	0.91	11.29%	6.07%	6.45%	−0.37%
2	1.04	13.22%	8.00%	7.33%	0.67%
3	1.10	13.84%	8.62%	7.77%	0.85%
4	1.13	14.31%	9.09%	7.98%	1.10%
5	1.16	14.91%	9.69%	8.20%	1.49%
6	1.18	15.33%	10.11%	8.38%	1.73%
7	1.23	15.62%	10.40%	8.73%	1.67%
8	1.28	16.60%	11.38%	9.05%	2.33%
9	1.34	17.48%	12.26%	9.50%	2.76%
10a	1.43	19.71%	14.49%	10.10%	4.39%
10b-Smallest	1.39	24.87%	19.65%	9.82%	9.83%
Mid-Cap, 3-5	1.12	14.15%	8.94%	7.91%	1.02%
Low-Cap, 6-8	1.22	15.66%	10.44%	8.63%	1.81%
Micro-Cap, 9-10	1.36	18.77%	13.55%	9.61%	3.95%

*Betas are estimated from monthly portfolio total returns in excess of the 30-day U.S. Treasury bill total return versus the S&P 500 total returns in excess of the 30-day U.S. Treasury bill, January 1926–December 2005 .

**Historical riskless rate is measured by the 80-year arithmetic mean income return component of 20-year government bonds (5.22 percent).

†Calculated in the context of the CAPM by multiplying the equity risk premium by beta The equity risk premium is estimated by the arithmetic mean total return of the S&P 500 (12.30 percent) minus the arithmetic mean income return component of 20-year government bonds (5.22 percent) from 1926–2005.

Graph 7-3

Security Market Line versus Size-Decile Portfolios of the NYSE/AMEX/NASDAQ, with 10th Decile Split
1926-2005

Source: Center for Research in Security Prices, University of Chicago (decile data).
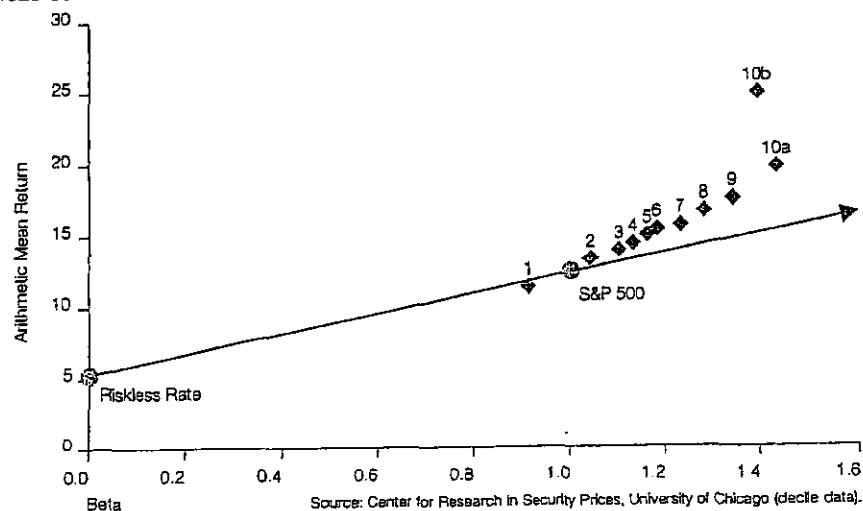
Table 7-8
Historical Number of Companies for NYSE/AMEX/NASDAQ Decile 10

Sept.	Number of Companies
1926	52*
1930	72
1940	78
1950	100
1960	109
1970	865
1980	685
1990	1,814
2000	1,927
2005	1,746

*The fewest number of companies was 49 in March, 1926

Source: Center for Research in Security Prices, University of Chicago.

Alternative Methods of Calculating the Size Premia

The size premia estimation method presented above makes several assumptions with respect to the market benchmark and the measurement of beta. The impact of these assumptions can best be examined by looking at some alternatives. In this section we will examine the impact on the size premia of using a different market benchmark for estimating the equity risk premia and beta. We will also examine the effect on the size premia study of using sum beta or an annual beta.[4]

Changing the Market Benchmark

In the original size premia study, the S&P 500 is used as the market benchmark in the calculation of the realized historical equity risk premium and of each size group's beta. The NYSE total value-weighted index is a common alternative market benchmark used to calculate beta. Table 7-9 uses this market benchmark in the calculation of beta. In order to isolate the size effect, we require an equity risk premium based on a large company stock benchmark. The NYSE deciles 1–2 large company index offers a mutually exclusive set of portfolios for the analysis of the smaller company groups: mid-cap deciles 3–5, low-cap deciles 6–8, and micro-cap deciles 9–10. The size premia analyses using these benchmarks are summarized in Table 7-9 and depicted graphically in Graph 7-4.

For the entire period analyzed, 1926–2005, the betas obtained using the NYSE total value-weighted index are higher than those obtained using the S&P 500. Since smaller companies had higher betas using the NYSE benchmark, one would expect the size premia to shrink. However, as was illustrated in Chapter 5, the equity risk premium calculated using the NYSE deciles 1–2 benchmark results in a value of 6.33, as opposed to 7.08 when using the S&P 500. The effect of the higher betas and lower equity risk premium cancel each other out, and the resulting size premia in Table 7-9 are slightly higher than those resulting from the original study.

4 Sum beta is the method of beta estimation described in Chapter 6 that was developed to better account for the lagged reaction of small stocks to market movements. The sum beta methodology was developed for the same reason that the size premia were developed; small company betas were too small to account for all of their excess returns.

Missouri Gas Energy
Indicated Common Equity Cost Rate through the use
of the Discounted Cash Flow Model for the Proxy Group of Four Gas Distribution Companies,
Proxy Group of Eight Value Line Gas Distribution Companies
and Southern Union Company

	1 Dividend Yield (1)	2 Dividend Growth Component (2)	3 Adjusted Dividend Yield (3)	4 Growth Rate (4)	5 Indicated DCF Return Rate (5)	6 Recommended DCF Return Rate (6)
Proxy Group of Four Gas Distribution Companies						
Cascade Natural Gas Corporation	3.72 %	0.11 %	3.83	6.00 %	9.83 %	9.83 %
NICOR Inc	4.27	0.07	4.34	3.50	7.84	--
Northwest Natural Gas Company	3.58	0.11	3.69	6.00	9.69	9.69
Piedmont Natural Gas Co., Inc	3.70	0.09	3.79	5.00	8.79	--
Average	3.82 %	0.10 %	3.91 %	5.13 %	9.04 %	9.76 %
DCF Results Adjusted for Financial Leverage					9.96 % (7)	10.89 % (7)
						10.85 % (8)
Average Excluding Cascade Natural (10)	3.85 %	0.09 %	3.94 %	4.83 %	8.77 %	9.69 %
DCF Results Adjusted for Financial Leverage					9.56 % (7)	10.72 % (7)
						10.50 % (8)
Proxy Group of Eight Value Line Gas Distribution Companies						
Cascade Natural Gas Corporation	3.72 %	0.11 %	3.83	6.00 %	9.83 %	9.83 %
The Laclede Group, Inc.	4.35	0.11	4.46	5.00	9.46	9.46
New Jersey Resources Corp.	2.91	0.07	2.98	4.75	7.73	--
NICOR Inc.	4.27	0.07	4.34	3.50	7.84	--
Northwest Natural Gas Company	3.58	0.11	3.69	6.00	9.69	9.69
Peoples Energy Corporation	5.23	0.13	5.36	4.90	10.26	10.26
Piedmont Natural Gas Co., Inc	3.70	0.09	3.79	5.00	8.79	--
WGL Holdings, Inc.	4.35	0.05	4.40	2.50	6.90	--
Average	4.01 %	0.09 %	4.11 %	4.71 %	8.81 %	9.81 %
DCF Results Adjusted for Financial Leverage					9.58 % (7)	10.85 % (7)
						10.82 % (9)
Average Excluding Cascade Natural and Peoples Energy (10)	3.86 %	0.08 %	3.94 %	4.46 %	8.40 %	9.58 %
DCF Results Adjusted for Financial Leverage					9.04 % (7)	10.53 % (7)
						10.40 % (9)
Southern Union Company	3.85 %	0.17 %	4.03 %	9.00 %	13.03 %	13.03 %
DCF Results Adjusted for Financial Leverage						15.18 % (7)

Notes: (1) From page 2 of this Schedule.

(2) This reflects a growth rate component equal to one-half the average projected five-year growth rate in EPS (from page 3 of this Schedule x Line No. 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for Cascade Natural Gas 3.72% x (1/2 x 6.00%) = 0.11%.

(3) Column 1 + Column 2.

(4) From page 3 of this Schedule.

(5) Column 3 + Column 4.

(6) Includes only those indicated common equity cost rates which are greater than 9.45% (the lowest rate awarded to a gas distribution utility between January 1, 2004 and December 31, 2005, from Schedule FJH-17 of the Exhibit accompanying Mr. Hanley's direct testimony) as fully explained in Mr. Hanley's direct testimony.

(7) Based upon the adjustment described in note 5 on pages 4 through 6 of Schedule FJH-26 of this Exhibit.

(8) Based upon the adjustment described in note 5 on pages 4 through 6 of Schedule FJH-26 of this Exhibit, using the market value and book value capital structure of Cascade Natural Gas Corp. and Northwest Natural Gas Co. at September 30, 2005 and December 2005, as shown on page 7 of Schedule FJH-26 of this Exhibit.

(9) Based upon the adjustment described in note 5 on pages 4 through 6 of Schedule FJH-26 of this Exhibit, using the average market value and average book value capital structure of Cascade Natural Gas Corp., The Laclede Group, Inc. and Northwest Natural Gas Co. at September 30, 2005 for Cascade and Laclede, and at December 2005 for Northwest Natural, as can be gleaned from the information shown on pages 8 and 9 of Schedule FJH-26 of this Exhibit.

(10) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade Natural in the proxy group of four LDCs, and Cascade Natural and Peoples Energy in the Proxy Group of eight Value Line LDCs are being shown.

<u>Missouri Gas Energy</u>
Derivation of Dividend Yield for Use in the
<u>Discounted Cash Flow Model</u>

		Dividend Yield		
	Spot (10/13/06) (1)	Average Based Upon Average High / Low Market Prices (2)		Average Dividend Yield (3)
		September 2006	August 2006	
Proxy Group of Four Gas Distribution Companies				
Cascade Natural Gas Corporation	3.72 %	3.71 %	3.72 %	3.72 %
NICOR Inc.	4.20 %	4.32 %	4.29 %	4.27
Northwest Natural Gas Company	3.51 %	3.55 %	3.67 %	3.58
Piedmont Natural Gas Co., Inc.	3.61 %	3.75 %	3.75 %	3.70
Average	3.76 %	3.83 %	3.86 %	3.82 %
Average Excluding Cascade Natural (4)	3.77 %	3.87 %	3.90 %	3.85 %
Proxy Group of Eight Value Line Gas Distribution Companies				
Cascade Natural Gas Corporation	3.72 %	3.71 %	3.72 %	3.72 %
The Laclede Group, Inc.	4.27 %	4.40 %	4.38 %	4.35
New Jersey Resources Corp.	2.89 %	2.91 %	2.92 %	2.91
NICOR Inc.	4.20 %	4.32 %	4.29 %	4.27
Northwest Natural Gas Company	3.51 %	3.55 %	3.67 %	3.58
Peoples Energy Corporation	5.26 %	5.30 %	5.13 %	5.23
Piedmont Natural Gas Co., Inc.	3.61 %	3.75 %	3.75 %	3.70
WGL Holdings, Inc.	4.21 %	4.36 %	4.49 %	4.35
Average	3.96 %	4.04 %	4.04 %	4.01 %
Average Excluding Cascade Natural and Peoples Energy (4)	3.93 %	4.05 %	4.09 %	4.02 %
Southern Union Company	3.78 %	3.88 %	3.92 %	3.86 %

Notes: (1) The spot dividend yield is the current annualized dividend per share divided by the spot market price on 10/13/06. The dividend yield was calculated by using finance.yahoo.com and interquote.com and DTN Trading Market's DTNIQ/Interquote.com

(2) The average 3-month dividend yield was computed by relating the indicated annualized dividend rate and market price on the last trading day of each of the two months ended September 2006.

(3) Equal weight has been given to the spot, August 2006 and September 2006 dividend yield.

(4) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade Natural in the Proxy Group of four LDCs, and Cascade Natural and Peoples Energy in the Proxy Group of eight Value Line LDCs are being shown.

Source of Information: Standard & Poor's Compustat Services, Inc., PC Plus/Research Insight Data Base
DTN Trading Markets' DTNIQ/Interquote.com
http://finance.yahoo.com

Missouri Gas Energy
Development of Projected Growth for Use in the Discounted Cash Flow Model

	1	2		3
	Value Line Projected 2009-'11 Growth Rate in EPS (1)	Thomson FN / First Call Projected Median Five-Year Growth Rate in EPS		Average Projected Five-Year Growth Rate in EPS (2)
			(# est.)	
Proxy Group of Four Gas Distribution Companies				
Cascade Natural Gas Corporation	9.00 %	3.00 %	[1]	6.00 %
NICOR Inc.	4.00	3.00	[3]	3.50
Northwest Natural Gas Company	7.00	5.00	[5]	6.00
Piedmont Natural Gas Co., Inc.	6.00	4.00	[2]	5.00
Average	6.50 %	3.75 %		5.13 %
Average Excluding Cascade Natural (4)	5.67 %	4.00 %		4.83 %
Proxy Group of Eight Value Line Gas Distribution Companies				
Cascade Natural Gas Corporation	9.00 %	3.00 %	[1]	6.00 %
The Laclede Group, Inc.	5.00	NA		5.00
New Jersey Resources Corp.	4.50	5.00	[4]	4.75
NICOR Inc.	4.00	3.00	[3]	3.50
Northwest Natural Gas Company	7.00	5.00	[5]	6.00
Peoples Energy Corporation	NMF	4.90	[1]	4.90
Piedmont Natural Gas Co., Inc.	6.00	4.00	[2]	5.00
WGL Holdings, Inc.	1.50	3.50	[4]	2.50
Average	5.29 %	4.06 %		4.71 %
Average Excluding Cascade Natural and Peoples Energy (4)	4.67 %	4.10 %		4.46 %
Southern Union Company	12.00 %	8.00 %	[4]	9.00 % (3)

Notes: (1) From pages 4 through 12 of this Schedule.

(2) Average of Columns 1 and 2.

(3) Weighted in approximation to individual and institutional holdings from Schedule FJH-11 of the Exhibit accompanying Mr. Hanley's direct testimony - namely 25% to Value Line (greater reliance by individuals) and ThomsonFN/First Call (greater reliance by institutions).

(4) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade Natural in the Proxy Group of four LDCs, and Cascade Natural and Peoples Energy in the Proxy Group of eight Value Line LDCs are being shown.

Source of Information: Value Line Investment Survey, (Standard Edition), September 15, 2006
ThomsonFN First Call Earnings, thomsonfn.com, updated October 14, 2006

CASCADE NAT'L GAS NYSE-CGC

| RECENT PRICE | 25.55 | P/E RATIO | 23.2 (Trailing: 23.0 Median: 18.0) | RELATIVE P/E RATIO | 1.36 | DIV'D YLD | 3.8% | VALUE LINE |

															Target Price Range 2009	2010	2011
TIMELINESS — Suspended 12/1/06																
SAFETY 3 New 7/27/90																
TECHNICAL — Suspended 7/21/06																
BETA .85 (1.00 = Market)																

2009-11 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	30	(+15%)	7%
Low	20	(-20%)	-2%

BUSINESS: Cascade Natural Gas Corporation distributes natural gas to roughly 237,000 customers in Washington and Oregon. In 2005, total throughput was 108.2 billion cu. ft. Core customers: residential, commercial, firm industrial, interruptible (71% of oper. margin, 24% of gas deliveries); non-core: industrial, transportation service (29%, 76%). Serves pulp & paper, plywood, chem. fertilizers, oil refining, and food process. inds. Main connecting pipeline: Northwest Pipeline Corp. '05 deprec. rate: 2.9%. Est'd plant age: 12 yrs. Has around 375 employees. Officers and directors own 1.8% of com. (12/05 proxy). President and Chief Executive Officer: David W. Stevens. Inc.: WA. Address: 222 Fairview Ave. North, Seattle, WA 98109. Tel.: 206-624-3900. Internet: www.cngc.com.

Cascade Natural Gas Corporation has agreed to be acquired by MDU Resources Group, a diversified energy firm with 2005 revenues of approximately $3.5 billion. Under the terms of the $475 million transaction, which represented a 23% premium over the company's stock price before the announcement, Cascade stockholders would receive $26.50 in cash for each CGC share. Pending Cascade shareholder approval and other conditions, the deal is slated for completion by mid-2007. Note that our presentation for the company will be on a stand-alone basis until that time.

The utility ought to fit nicely with MDU's two regulated units, Montana-Dakota Utilities and Great Plains Natural Gas, which serve roughly 250,000 customers in five upper Midwest states, combined. Moreover, it appears that MDU has the resources to enable Cascade to reach even greater heights. We estimate that the purchase would be neutral to MDU's earnings in 2007 and 2008, due to integration costs. But accretion to the bottom line looks plausible in 2009 and thereafter, based partly on our assumption that

cost savings come to the fore. Meanwhile, the company's share earnings have bounced back considerably in fiscal 2006 (ends September 30th). The residential and commercial segment is enjoying an expanded customer base, as well as increased consumption (reflecting colder weather). What's more, management continues to succeed at keeping expenses under control. As such, it now appears that share net will jump about 34%, to $1.10, in fiscal 2006. Further expansion in operating margins ought to enable the bottom line to advance around 9%, to $1.20 a share, next year. (Cascade is awaiting the outcome of a rate-hike request, intended to generate additional annual revenues of $11.7 million, from the Washington Utilities and Transportation Commission.)

The Timeliness rank is suspended, since developments related to the pending merger, rather than earnings, are driving the shares' performance. The price tag seems reasonable, but the deal would have been sweeter if it had contained an option to convert CGC shares into MDU stock.
Frederick L. Harris, III September 15, 2006

Company's Financial Strength	B+
Stock's Price Stability	80
Price Growth Persistence	50
Earnings Predictability	70

LACLEDE GROUP NYSE-LG

RECENT PRICE	32.13	P/E RATIO	15.5 (Trailing: 14.2 Median: 15.0)
RELATIVE P/E RATIO	0.91	DIV'D YLD	4.5%

TIMELINESS	4	Raised 9/8/06
SAFETY	2	Raised 6/20/03
TECHNICAL	3	Lowered 9/15/06
BETA	.55	(1.00 = Market)

2009-11 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	40	(+25%)	10%
Low	30	(-5%)	3%

Insider Decisions

	D	N	D	J	F	M	A	M	J
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	1	0	0	1	0
to Sell	0	0	0	0	1	0	0	1	0

Institutional Decisions

	4Q2005	1Q2006	2Q2006
to Buy	50	57	50
to Sell	37	30	47
Hld's(000)	8521	9470	10115

Target Price Range 2009 | 2010 | 2011

% TOT. RETURN 8/06

	THIS STOCK	VL ARITH. INDEX
1 yr.	5.4	7.1
3 yr.	38.5	49.4
5 yr.	74.8	70.4

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	© VALUE LINE PUB., INC.	09-11
30.21	28.10	26.83	32.33	33.43	24.79	31.03	34.33	31.04	26.04	29.99	53.08	39.84	54.95	59.59	75.43	81.50	96.60	Revenues per sh	116.65
2.13	2.37	2.32	2.61	2.65	2.55	3.29	3.32	3.02	2.56	2.68	3.00	2.56	3.15	2.79	2.98	3.70	3.85	"Cash Flow" per sh	4.70
1.05	1.28	1.17	1.61	1.42	1.27	1.87	1.84	1.58	1.47	1.37	1.51	1.18	1.82	1.62	1.90	2.15	2.15	Earnings per sh	2.50
1.18	1.20	1.20	1.22	1.22	1.24	1.25	1.30	1.32	1.34	1.34	1.34	1.34	1.34	1.35	1.37	1.40	1.43	Div'ds Decl'd per sh	1.50
1.57	2.46	2.87	2.52	2.50	2.53	2.55	2.44	2.68	2.58	2.77	2.51	2.80	2.57	2.45	2.84	3.15	1.40	Cap'l Spending per sh	4.40
11.75	11.63	11.79	12.19	12.44	13.05	13.72	14.26	14.57	14.96	15.26	15.07	15.65	16.98	17.31	18.70	20.55		Book Value per sh	25.00
15.59	15.59	15.59	15.59	15.57	17.42	17.56	17.56	17.63	18.68	18.65	18.66	18.95	19.11	20.95	21.17	21.50	21.50	Common Shs Outst'g	24.00
14.5	12.5	15.8	13.5	16.4	15.5	11.9	12.5	15.5	15.8	14.9	14.5	20.9	13.6	15.7	16.2			Avg Ann'l P/E Ratio	14.6
1.08	.80	.96	.80	1.08	1.04	.75	.72	.81	.90	.97	.74	1.09	.78	.83	.86			Relative P/E Ratio	.95
7.5%	7.5%	6.6%	5.6%	5.3%	6.3%	5.6%	5.6%	5.4%	5.8%	6.6%	5.7%	5.7%	5.4%	4.7%	4.4%			Avg Ann'l Div'd Yield	4.3%

CAPITAL STRUCTURE as of 6/30/06
Total Debt $518.8 mill. Due in 5 Yrs $175.0 mill.
LT Debt $395.4 mill. LT Interest $25.0 mill.
(Total interest coverage: 3.0x)

Leases, Uncapitalized Annual rentals $1.7 mill.
Pension Assets-9/05 $272.8 mill.
Oblig. $327.2 mill.
Pfd Stock $.8 mill. Pfd Div'd $.05 mill.
Common Stock 21,357,009 shs.
as of 7/28/06

MARKET CAP: $675 million (Small Cap)

CURRENT POSITION	2004	2005	6/30/06
(SMILL)			
Cash Assets	13.9	6.0	31.9
Other	323.7	418.1	319.1
Current Assets	337.6	424.1	351.0
Accts Payable	68.4	138.4	118.2
Debt Due	96.5	110.7	121.4
Other	97.7	116.5	181.1
Current Liab.	262.6	365.6	304.5
Fix. Chg. Cov.	279%	293%	290%

ANNUAL RATES	Past	Past	Est'd '03-'05
of change (per sh)	10 Yrs.	5 Yrs.	to '09-'11
Revenues	7.5%	17.0%	10.5%
"Cash Flow"	1.0%	1.5%	8.0%
Earnings	2.5%	4.5%	5.0%
Dividends	1.0%	.5%	2.0%
Book Value	3.0%	2.5%	7.5%

Fiscal Year Ends	QUARTERLY REVENUES ($ mill.)A				Full Fiscal Year
	Dec.31	Mar.31	Jun.30	Sep.30	
2003	280.1	422.2	186.6	161.4	1050.3
2004	332.8	475.0	245.1	197.6	1250.3
2005	442.5	576.5	311.3	266.7	1597.0
2006	539.2	708.8	330.5	281.5	2010
2007	635	655	440	390	2120

Fiscal Year Ends	EARNINGS PER SHARE A B F				Full Fiscal Year
	Dec.31	Mar.31	Jun.30	Sep.30	
2003	.80	1.14	.11	d.21	1.82
2004	.57	1.12	.19	d.28	1.82
2005	.79	1.05	.29	d.24	1.90
2006	1.23	1.05	.13	d.28	2.15
2007	1.15	1.05	.25	d.30	2.15

Cal- endar	QUARTERLY DIVIDENDS PAID C a				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2002	.335	.335	.335	.335	1.34
2003	.335	.335	.335	.335	1.34
2004	.335	.34	.34	.34	1.35
2005	.34	.345	.345	.345	1.39
2006	.345	.355	.355	.355	

544.8	602.8	547.2	491.6	566.1	1002.1	755.2	1050.3	1250.3	1597.0	2010	2120	Revenues ($mill) A	2800
32.8	32.5	27.9	26.9	26.0	30.5	22.4	34.6	35.1	40.1	46.0	46.0	Net Profit ($mill)	60.0
35.9%	36.1%	35.6%	35.5%	35.2%	32.7%	35.4%	35.0%	34.8%	34.1%	34.0%	34.0%	Income Tax Rate	35.0%
6.0%	5.4%	5.1%	5.5%	4.6%	3.0%	3.0%	3.3%	2.9%	2.5%	2.3%	2.2%	Net Profit Margin	2.1%
42.5%	38.0%	40.9%	41.6%	45.2%	49.5%	47.5%	50.4%	51.6%	48.1%	49.0%	49.0%	Long-Term Debt Ratio	46.0%
57.1%	61.6%	58.6%	57.6%	54.5%	50.2%	52.3%	49.4%	48.3%	51.6%	51.0%	51.0%	Common Equity Ratio	52.0%
422.2	406.3	438.0	488.6	519.2	574.1	546.6	605.0	737.4	707.9	838	870	Total Capital ($mill)	1200
452.2	467.6	490.6	519.4	575.4	602.5	594.4	621.2	646.9	679.5	775	815	Net Plant ($mill)	1050
8.4%	9.7%	8.1%	7.1%	5.7%	6.9%	6.0%	7.4%	6.5%	7.7%	7.0%	7.0%	Return on Total Cap'l	6.5%
13.5%	12.9%	10.8%	9.5%	9.1%	10.5%	7.8%	11.5%	10.1%	10.9%	11.0%	10.5%	Return on Shr. Equity	8.5%
13.6%	12.9%	10.8%	9.5%	9.1%	10.5%	7.8%	11.6%	10.1%	10.9%	11.0%	10.5%	Return on Com Equity	8.5%
4.5%	3.9%	1.8%	1.0%	.2%	1.8%	NMF	3.1%	2.7%	1.1%	4.0%	3.5%	Retained to Com Eq	4.0%
67%	70%	83%	90%	98%	83%	113%	74%	73%	72%	65%	67%	All Div'ds to Net Prof	60%

BUSINESS: Laclede Group, Inc., is a holding company for Laclede Gas, which distributes natural gas in eastern Missouri, including the city of St. Louis, St. Louis County, and parts of 8 other counties. Has more than 630,000 customers. Purchased SM&P for $43 million (1/02). Therms sold and transported in fiscal 2005: 1.12 mill. Revenue mix for regulated operations: residential, 50%; commercial and industrial, 23%; transportation, 2%; other, 15%. Has around 3,815 employees. Officers and directors own approximately 6.0% of common shares (1/06 Proxy). Chairman, Chief Executive Officer, and President Douglas H. Yaeger. Incorporated: Missouri. Address: 720 Olive Street, St. Louis, Missouri 63101. Telephone: 314-342-0500. Internet: www.thelacledegroup.com.

Laclede Group is on track to register healthy results in fiscal 2006 (ends September 30th). Laclede Energy Resources, the non-utility gas marketing segment, is still benefiting from supply/demand imbalances resulting from last year's Gulf Coast hurricanes, plus a surge in volumes (reflecting higher interstate pipeline wholesale transactions). Furthermore, SM&P Utility Resources, the unregulated unit specializing in locating and marking services for underground facilities, is being aided by new business signups in existing markets. And we note that this subsidiary recently bought Reliant Services, which provides similar services. Given that both businesses have customers in the same geographic areas, synergies ought to generate decent cost savings going forward.

But the core natural gas unit has underperformed of late. This can be attributed partly to higher operation and maintenance expenses, as well as an increased provision for uncollectible accounts. A decline in volumes within the service territory has further eroded earnings. On the bright side, there have been benefits from a general rate hike effective since last October, and income from entities located outside the system has been rising.

On a consolidated basis, share net ought to grow about 13%, to $2.15, in fiscal 2006. Laclede's bottom line may flatten out next year because of the difficult comparison.

We believe that unexciting results are in store for the company over the 2009-2011 timeframe. The market in which the natural gas division operates has sluggish customer growth because it is in a mature stage. Moreover, it appears that major acquisitions are not likely to take place anytime soon. Consequently, annual share-net gains may only be in the mid-single-digit range, with some volatility, over the 3- to 5-year horizon.

The stock's good yield aside, total-return potential is not appealing. That is because these shares are already trading within our 2009-2011 Target Price Range, and we are assuming that future dividend increases will be moderate. Also, the Timeliness rank is 4 (Below Average).

Frederick L. Harris, III September 15, 2006

(A) Fiscal year ends Sept. 30th.
(B) Based on average shares outstanding thru. '97, then diluted. Excludes nonrecurring loss: Q2 '06, 7¢. Next earnings report due late Oct.
(C) Dividends historically paid in early January, April, July, and October. ■ Dividend reinvestment plan available.
(D) Incl. deferred charges. In '05: $203.8 mill., $3.63/sh.
(E) In millions. Adjusted for stock split.
(F) Qtly. egs. may not sum due to change in shares outstanding.

Company's Financial Strength	B+
Stock's Price Stability	95
Price Growth Persistence	55
Earnings Predictability	65

NEW JERSEY RES. NYSE-NJR

RECENT PRICE	49.55	
P/E RATIO	20.6 (Trailing: 16.2 / Median: 15.8)	
RELATIVE P/E RATIO	1.21	
DIV'D YLD	2.9%	

TIMELINESS	4	Raised 2/7/06	High 20.3 19.9 28.0 26.8 27.4 29.8 32.5 33.6 39.5 44.8 48.3 51.4
SAFETY	1	Raised 8/15/06	Low 14.3 17.8 18.8 21.0 22.4 24.1 24.3 24.3 30.0 36.5 40.7 41.5
TECHNICAL	2	Raised 8/25/06	
BETA .60 (1.00 = Market)			

2009-11 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	60	(+20%)	8%
Low	50	(Nil)	3%

Target Price Range 2009 | 2010 | 2011

Insider Decisions

	D	N	D	J	F	M	A	M	J
to Buy	0	0	0	0	0	0	0	0	0
Options	1	4	0	0	5	0	0	2	0
to Sell	1	4	0	0	4	0	0	2	0

Institutional Decisions

	4Q2005	1Q2006	2Q2006
to Buy	64	71	73
to Sell	60	52	80
Hld'000	13453	14778	16255

Percent shares traded 7.5 / 5 / 2.5

% TOT. RETURN 8/06

	THIS STOCK	VL ARITH. INDEX
1 yr.	8.2	7.1
3 yr.	61.6	43.4
5 yr.	95.0	70.4

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	© VALUE LINE PUB, INC. 09-11	
16.01	15.99	16.88	14.02	19.22	17.03	20.22	25.97	26.59	33.93	44.13	76.82	65.17	93.43	91.33	114.29	117.45	120.60	Revenues per sh A	129.00
1.54	1.58	1.95	2.14	2.31	2.13	2.22	2.45	2.50	2.79	2.99	3.18	3.21	3.58	3.75	3.52	4.00	4.20	"Cash Flow" per sh	4.70
.65	.55	1.09	1.15	1.26	1.29	1.37	1.48	1.55	1.66	1.79	1.95	2.09	2.38	2.55	2.65	2.80	2.90	Earnings per sh B	3.30
.96	1.00	1.01	1.01	1.01	1.01	1.03	1.07	1.09	1.12	1.15	1.17	1.20	1.24	1.30	1.36	1.45	1.50	Div'ds Decl'd per sh C■	1.70
4.37	2.91	1.99	2.31	2.10	1.77	1.78	1.72	1.60	1.81	1.85	1.66	1.53	1.71	2.17	1.92	1.80	1.85	Cap'l Spending per sh	2.10
8.85	8.57	9.44	9.81	9.84	9.70	10.10	10.35	10.83	11.35	12.43	13.20	13.05	15.38	16.87	15.80	17.45	18.80	Book Value per sh	23.15
20.26	20.95	24.43	25.23	25.95	26.66	27.13	26.82	26.72	26.61	26.39	26.66	27.67	27.23	27.74	27.55	28.10	28.20	Common Shs Outst'g D	28.50
24.0	22.3	12.4	15.1	13.0	11.7	13.6	13.5	15.3	15.2	14.7	14.2	14.7	14.0	15.3	15.8	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	17.0
1.78	1.42	.75	.89	.85	.78	.85	.78	.80	.87	.96	.73	.80	.80	.81	.90			Relative P/E Ratio	1.15
6.2%	8.1%	7.5%	5.8%	6.2%	6.7%	5.6%	5.3%	4.6%	4.5%	4.4%	4.2%	3.9%	3.7%	3.3%	3.1%			Avg Ann'l Div'd Yield	3.0%

CAPITAL STRUCTURE as of 6/30/06
Total Debt $490.8 mill. Due in 5 Yrs $250.0 mill.
LT Debt $333.8 mill. LT Interest $22.0 mill.
Incl. $6.9 mill. capitalized leases.
(LT interest earned: 5.5x; total interest coverage: 4.8x)
Pension Assets-8/05 $82.6 mill.
Oblig. $99.9 mill.
Pfd Stock None

Common Stock 28,060,314 shs.
as of 8/8/06
MARKET CAP: $1.4 billion (Mid Cap)

	548.5	696.5	710.3	904.3	1164.6	2048.4	1830.8	2544.4	2533.6	3148.3	3300	3400	Revenues ($mill) A	3700
	38.7	44.5	43.3	44.9	47.9	52.3	56.8	65.4	71.6	74.4	80.0	82.0	Net Profit ($mill)	95.0
	32.6%	33.3%	30.4%	36.2%	57.8%	38.0%	38.7%	39.4%	39.1%	39.1%	39.0%	39.0%	Income Tax Rate	40.0%
	7.1%	6.0%	6.1%	5.0%	4.1%	2.6%	3.1%	2.6%	2.8%	2.4%	2.4%	2.4%	Net Profit Margin	2.5%
	50.7%	48.3%	51.2%	48.7%	47.0%	50.1%	50.6%	38.1%	40.3%	42.0%	42.0%	41.0%	Long-Term Debt Ratio	37.0%
	45.8%	47.1%	45.6%	51.2%	52.9%	49.9%	49.4%	61.9%	59.7%	58.0%	58.0%	59.0%	Common Equity Ratio	63.0%
	598.2	590.6	633.2	590.4	620.1	706.2	732.4	676.8	783.8	755.3	845	890	Total Capital ($mill)	1053
	655.2	699.4	680.0	705.4	730.6	743.9	755.4	852.6	880.4	905.1	935	970	Net Plant ($mill)	1128
	8.1%	8.9%	8.1%	9.0%	9.0%	8.5%	8.7%	10.7%	10.1%	11.2%	10.5%	10.5%	Return on Total Cap'l	10.5%
	13.1%	13.9%	13.9%	14.5%	14.6%	14.8%	15.7%	15.6%	15.3%	17.0%	16.0%	15.5%	Return on Shr. Equity	14.5%
	13.5%	14.3%	14.4%	14.8%	14.6%	14.9%	15.7%	15.6%	15.3%	17.0%	16.0%	15.5%	Return on Com Equity	14.5%
	3.4%	4.0%	4.4%	5.0%	5.4%	5.1%	6.9%	7.7%	7.8%	8.5%	8.0%	7.5%	Retained to Com Eq	7.0%
	76%	73%	71%	67%	63%	59%	56%	51%	49%	50%	52%	52%	All Div'ds to Net Prof	52%

CURRENT POSITION

	2004	2005	6/30/06
Cash Assets	5.0	25.0	4.7
Other	681.0	927.8	808.7
Current Assets	686.0	952.8	813.4
Accts Payable	42.9	54.7	38.0
Debt Due	257.4	177.4	157.0
Other	357.4	744.2	510.4
Current Liab.	657.7	976.3	705.4
Fix. Chg. Cov.	826%	660%	700%

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '03-'05 to '09-'11
Revenues	18.5%	23.5%	4.5%
"Cash Flow"	5.5%	6.0%	4.0%
Earnings	7.5%	8.5%	4.5%
Dividends	2.5%	3.0%	4.5%
Book Value	5.0%	7.0%	6.5%

QUARTERLY REVENUES ($ mill.) A

Fiscal Year Ends	Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2003	668.9	1152.7	369.7	353.1	2544.4
2004	643.0	1037.7	438.5	414.4	2533.6
2005	854.0	1055.1	544.3	684.9	3148.3
2006	1164.6	1054.4	536.1	534.9	3300
2007	1085	1150	610	555	3400

EARNINGS PER SHARE A B

Fiscal Year Ends	Dec.31	Mar.31	Jun.30	Sep.30	Full Fiscal Year
2003	.65	1.50	.16	d.13	2.38
2004	.67	1.82	.06	d.20	2.55
2005	.91	1.84	.07	d.17	2.65
2006	1.23	2.14	d.14	d.43	2.80
2007	1.13	1.94	.10	d.17	2.90

QUARTERLY DIVIDENDS PAID C■

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2002	.30	.30	.30	.30	1.20
2003	.31	.31	.31	.31	1.24
2004	.325	.325	.325	.325	1.30
2005	.34	.34	.34	.34	1.36
2006	.36	.36	.36		

BUSINESS: New Jersey Resources Corp. is the holding company for New Jersey Natural Gas Co., a natural gas utility (about 463,000 customers at 9/30/05) in Monmouth, Ocean, and parts of other N.J. counties. Fiscal 2005 volume: 124.7 bil. cu. ft. (50% firm, 8% interruptible industrial and electric utility, 42% off-system and capacity release). New Jersey Natural Energy subsid. provides unregulated retail and wholesale natural gas and related energy services to customers in 17 states. 2005 deprec. rate: 2.8%. Est'd plant age: 8 years. Has 851 utility employees, 16,300 stockhldrs. Off. & dir. own about 3% of common stock (12/05 Proxy). Chairman and CEO: Laurence M. Downes. Inc.: N.J. Address: 1415 Wyckoff Road, Wall, NJ 07719. Tel.: 732-938-1000. Internet: www.njliving.com.

New Jersey Resources results over the first nine months of fiscal 2006 (year ends September 30th) have been solid. Earnings over this timeframe increased about 14.5%, to $3.23 a share, with most of the gains being driven by an improved performance at the company's energy services subsidiary. In fact, the segment posted an earnings advance of about 90% this year due to growth in its portfolio of storage and transportation contracts. Since the unit covers many markets in the eastern half of the United States and Canada, it is able to capture additional value when prices fluctuate between regions. All told, the business now represents over 20% of corporate earnings. The third quarter was a weak one at the company's main subsidiary, New Jersey Natural Gas (NJNG). It posted earnings of $1.7 million, well below the $3.9 million in the year-earlier period. The decrease was primarily the result of conservation by customers. The utility currently has a weather normalization plan in place to protect against temperatures that are warmer than normal, though, it is unable to protect against lower usage. There-

fore, in December, NJNG proposed a plan with the New Jersey Board of Public utilities to implement a conservation usage adjustment (CUA) plan to replace the normalization policy, which would provide protection against both temperature and usage changes. Management remains optimistic that the program will be approved and be in place by next winter's heating season. However, should regulatory approval not be granted, the company is exploring alternatives that includes filing for a rate increase. Meanwhile, the utility added about 7,870 new customers through the third quarter, and will likely grow at a rate above the industry average for the next few years thanks to the strong demographics of the region NJNG serves. About a third of new customers are conversions from other fuel sources.
Though untimely, this stock offers decent total return potential. This is largely due to expanding profits from its nonutility operations. Other pluses include the likelihood of a more consistent earnings stream through the CUA proposal, and steady dividend increases.
Evan I. Blatter   September 15, 2006

(A) Fiscal year ends Sept. 30th.
(B) Diluted earnings. Next earnings report due late Oct.
(C) Dividends historically paid in early January, April, July, and October. ■ Dividend reinvestment plan available.
(D) In millions, adjusted for split.

Company's Financial Strength	A
Stock's Price Stability	100
Price Growth Persistence	85
Earnings Predictability	100

To subscribe call 1-800-833-0046

NICOR, INC. NYSE-GAS

| RECENT PRICE | 43.05 | P/E RATIO | 17.2 (Trailing: 18.6 / Median: 14.6) | RELATIVE P/E RATIO | 1.01 | DIV'D YLD | 4.3% | VALUE LINE |

TIMELINESS	3	Raised 1/7/05
SAFETY	3	Lowered 6/17/05
TECHNICAL	3	Raised 3/5/06
BETA	1.20	(1.00 = Market)

2009-11 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	55	(+30%)	10%
Low	35	(-20%)	N/B

Insider Decisions

	D	N	D	J	F	M	A	M	J
to Buy	1	0	0	1	0	0	1	0	0
Options	0	0	0	0	0	2	0	0	0
to Sell	0	0	0	0	0	2	0	0	0

Institutional Decisions

	4Q05	1Q06	2Q06
to Buy	117	112	98
to Sell	97	94	110
Hld's(000)	30998	32581	32450

% TOT. RETURN 8/06

	THIS STOCK	VL ARITH. INDEX
1 yr.	10.4	7.1
3 yr.	49.1	49.4
5 yr.	44.5	70.4

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	© VALUE LINE PUB., INC. 09-11
26.52	26.45	28.90	31.02	31.23	29.42	37.39	41.33	30.84	34.45	50.52	57.30	43.11	50.45	62.12	76.00	71.35	72.30	Revenues per sh	71.25
3.86	3.92	4.14	3.80	4.11	4.19	4.37	5.29	5.21	5.59	6.15	6.41	6.03	5.37	6.00	6.19	6.45	6.50	"Cash Flow" per sh	6.60
1.93	1.55	1.92	1.97	2.07	1.96	2.42	2.55	2.31	2.57	2.94	3.01	2.88	1.84	2.22	2.27	2.45	2.50	Earnings per sh A	2.80
1.06	1.12	1.18	1.22	1.25	1.28	1.32	1.49	1.48	1.54	1.66	1.66	1.76	1.84	1.86	1.86	1.86	1.92	Div'ds Decl'd per sh B	2.02
3.00	3.65	3.12	2.62	3.34	3.12	2.42	2.34	2.57	3.28	3.48	4.18	4.37	4.12	4.32	4.57	4.50	4.50	Cap'l Spending per sh	4.50
11.67	12.23	12.76	13.05	13.26	13.67	14.74	15.43	15.97	16.50	15.56	16.39	16.55	17.13	16.99	18.36	18.50	18.40	Book Value per sh	21.60
57.93	57.30	54.77	53.56	51.54	50.30	49.49	48.22	47.51	46.89	45.49	44.40	44.01	44.04	44.10	44.18	44.50	44.50	Common Shs Outst'g C	44.80
10.7	11.5	11.6	14.1	12.5	13.1	12.5	14.2	17.6	14.6	11.9	12.8	13.1	15.8	15.9	17.3	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	16.0
.79	.73	.70	.83	.82	.88	.78	.82	.92	.83	.77	.66	.72	.90	.84	.91			Relative P/E Ratio	1.05
5.1%	5.2%	5.3%	4.4%	4.8%	5.0%	4.4%	3.9%	3.6%	4.1%	4.7%	4.6%	4.9%	5.6%	5.3%	4.7%			Avg Ann'l Div'd Yield	4.5%

CAPITAL STRUCTURE as of 6/30/06

Total Debt $520.2 mill. Due in 5 Yrs $215.0 mill.
LT Debt $470.2 mill. LT Interest $20.0 mill.
(Total interest coverage: 4.0x)

Pension Assets-12/05 $424.0 mill. Oblig. $284.4 mill.

Pfd Stock 5.5 mill. Pfd Div'd 5.03 mill.
(11,681 shares of 4.48% mandatorily redeemable preferred stock)
Common Stock 44,536,603 shares
as of 4/28/06

MARKET CAP: $1.9 billion (Mid Cap)

CURRENT POSITION	2004	2005	6/30/06
(MILL.)			
Cash Assets	83.2	126.9	226.6
Other	937.7	1218.6	477.4
Current Assets	1020.9	1345.7	704.0
Accts Payable	502.9	656.2	433.9
Debt Due	490.2	636.0	50.0
Other	178.3	328.7	511.4
Current Liab.	1171.4	1622.9	995.3
Fix. Chg. Cov.	428%	367%	NMF

ANNUAL RATES	Past	Past	Est'd '03-'05
of change (per sh)	10 Yrs.	5 Yrs.	to '09-'11
Revenues	8.0%	11.5%	1.0%
"Cash Flow"	4.0%	0.5%	2.5%
Earnings	1.0%	-3.5%	4.0%
Dividends	4.0%	3.5%	1.5%
Book Value	1.0%	1.5%	3.0%

Cal- endar	QUARTERLY REVENUES ($ mill.)				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2003	1171.3	452.8	294.8	743.8	2662.7
2004	1115.7	428.5	299.9	894.6	2739.7
2005	1179.9	484.4	336.0	1357.5	3357.8
2006	1319.4	451.3	320	1174.3	3265
2007	1250	500	350	1125	3225

Cal- endar	EARNINGS PER SHARE A				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2003	1.11	.21	.01	.78	2.11
2004	.96	.44	d.26	1.08	2.22
2005	.98	.35	d.06	1.02	2.27
2006	.94	.41	d.05	1.15	2.45
2007	1.00	.40	d.05	1.15	2.50

Cal- endar	QUARTERLY DIVIDENDS PAID B ■				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2002	.46	.46	.46	.46	1.84
2003	.46	.465	.465	.465	1.86
2004	.465	.465	.465	.465	1.86
2005	.465	.465	.465	.465	1.86
2006	.465	.465	.465		

1850.7	1952.6	1465.1	1615.2	2298.1	2544.1	1897.4	2682.7	2739.7	3357.8	3265	3225	Revenues ($mill)	3200
121.2	124.3	111.1	121.9	136.4	136.3	128.0	93.1	98.1	101.1	110	110	Net Profit ($mill)	125
35.5%	35.0%	34.4%	34.7%	34.8%	33.5%	31.0%	35.2%	31.8%	28.3%	27.0%	30.0%	Income Tax Rate	32.0%
6.5%	6.2%	7.6%	7.5%	5.9%	5.4%	6.7%	3.5%	3.6%	3.0%	3.4%	3.4%	Net Profit Margin	3.9%
41.3%	42.3%	42.1%	35.5%	32.7%	37.8%	35.1%	39.6%	39.8%	37.4%	35.0%	35.0%	Long-Term Debt Ratio	32.0%
58.1%	57.2%	57.4%	64.0%	66.7%	61.7%	64.5%	60.3%	60.1%	62.5%	64.0%	65.0%	Common Equity Ratio	68.0%
1255.1	1300.6	1322.6	1230.1	1061.2	1180.1	1128.9	1251.5	1246.0	1297.7	1310	1235	Total Capital ($mill)	1430
1771.9	1735.8	1731.8	1735.2	1729.6	1768.6	1796.8	2484.2	2549.8	2659.1	2730	2850	Net Plant ($mill)	3150
11.1%	11.1%	9.9%	10.5%	13.7%	12.3%	12.2%	8.3%	8.8%	9.4%	10.0%	9.5%	Return on Total Cap'l	10.0%
16.4%	16.6%	14.5%	15.4%	19.1%	18.6%	17.5%	12.3%	13.1%	12.5%	13.0%	12.5%	Return on Shr. Equity	13.0%
16.6%	16.7%	14.6%	15.4%	19.2%	18.7%	17.5%	12.3%	13.1%	12.5%	13.0%	12.5%	Return on Com Equity	13.0%
7.5%	7.5%	5.4%	6.2%	8.5%	7.9%	6.5%	1.5%	2.1%	2.3%	3.0%	3.0%	Retained to Com Eq	3.5%
54%	55%	63%	60%	56%	58%	63%	93%	84%	81%	75%	77%	All Div'ds to Net Prof	71%

BUSINESS: Nicor Inc. is a holding company with gas distribution as its primary business. Serves over 2.1 million customers in northern and western Illinois. 2005 gas delivered: 470.6 Bcf, incl. 219.4 Bcf from transportation. 2005 gas sales (251.2 bcf): residential, 80%; commercial, 18%; industrial, 3%. Principal supplying pipelines: Natural Gas Pipeline, Horizon Pipeline, and TGPC. Current operations include Tropical Shipping subsidiary and several energy related ventures. Divested inland barging, 7/86; contract drilling, 8/86; oil and gas E&P, 6/93. Has about 3,700 employees. Off./dir. own about 2.8% of common stock. (3/06 proxy). Chairman and CEO: Russ Strobel. Inc.: IL. Address: 1844 Ferry Road, Naperville, IL 60563. Telephone: 630-305-9500. Internet: www.nicor.com.

Nicor's core gas distribution segment has posted mixed results. In the first six months of the year, this unit posted a modest decline in operating profits from a year ago. Excluding the cost recovery of $3.8 million related to a mercury repair and inspection program, operating earnings declined by 1%, to $70.8 million. In the period. An increase in base rates, approved by the Illinois Commerce Commission last fall, helped to boost revenues, but was partially offset by unseasonably warm weather, which reduced the demand for gas deliveries. This decrease in demand lowered net profits by roughly $7.5 million compared to management's forecast. In light of the weather-related losses, the gas distribution segment will probably weigh on the bottom line in the full year. Even so, this is considered a temporary issue, and an eventual return to normal weather conditions should benefit earnings. Too, operating and maintenance expenses have been running below management's expectations, with room for further cost reductions, barring an unforeseen spike in natural gas prices.

The company's other business seg-
ments should bolster the bottom line. Nicor's Tropical Shipping unit is generating higher revenues, due to an increase in rates. But some of those gains are likely to be mitigated, in part, by incremental payroll and transportation costs. Separately, the energy ventures segment should post better results in the second half of this year, as deferred revenue, related to its utility bill management products, are recognized.

Nicor may be able to raise its dividend following a recent legal settlement. In July, the company reached a settlement with the SEC regarding the investigation over its accounting for natural gas costs between 2000 and 2002. Under the terms of the settlement, Nicor will be subject to a $10 million fine, without admitting or denying any wrongdoing. With the legal issues in the rearview mirror, there ought to be a greater amount of cash available to shareholders. As of June 30th, there was nearly $227 million in cash on the balance sheet.

These shares may interest income-oriented accounts.

Charles W. Noh   *September 15, 2006*

(A) Based on primary earnings thru '96, then diluted. Excl. nonrecurring gains/(loss): '89, 7¢; '97, 6¢; '98, 11¢; '99, 5¢; '00, (51.95); '01, 16¢; '03, (27¢); '04, (52¢); '05, 80¢; '06, (17¢). Excl. items from discontinued ops.: '93, 4¢; '96, 30¢. Quarterly earnings may not sum to total due to rounding. Next earnings report due early Nov. (B) Dividends historically paid early February, May, August, November. ■ Dividend reinvestment plan available. (C) In millions, adjusted for stock split.

Company's Financial Strength	A
Stock's Price Stability	55
Price Growth Persistence	35
Earnings Predictability	80

N.W. NAT'L GAS NYSE-NWN

RECENT PRICE	38.19	P/E RATIO	16.7	(Trailing: 17.5 Median: 15.0)	RELATIVE P/E RATIO	0.98	DIV'D YLD	3.6%

TIMELINESS	3	Raised 8/25/06
SAFETY	1	Raised 3/18/05
TECHNICAL	2	Raised 9/15/06
BETA .75 (1.00 = Market)		

2009-11 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	45	(+20%)	8%
Low	40	(+5%)	5%

Insider Decisions

	O	N	D	J	F	M	A	M	J
to Buy	0	D	0	0	1	1	0	0	0
Options	0	0	1	0	0	0	0	0	D
to Sell	0	D	1	0	0	0	0	1	D

Institutional Decisions

	4Q2005	1Q2006	2Q2006
to Buy	59	62	77
to Sell	54	59	59
Hld's(000)	12922	13095	14328

% TOT. RETURN 8/06	THIS STOCK	VL ARITH. INDEX
1 yr.	8.1	7.1
3 yr.	51.4	49.4
5 yr.	67.4	70.4

Target Price Range 2009 | 2010 | 2011

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	© VALUE LINE PUB., INC.	09-11
17.02	16.74	14.10	18.15	18.30	16.02	16.28	15.82	16.77	16.17	21.09	25.78	25.07	23.57	25.69	33.01	38.65	42.25	Revenues per sh	51.80
3.22	2.57	3.25	3.74	3.50	3.41	3.55	3.72	3.24	3.72	3.58	3.55	3.65	3.85	3.92	4.34	4.50	4.75	"Cash Flow" per sh	5.10
1.52	.57	.74	1.74	1.63	1.51	1.97	1.78	1.02	1.70	1.79	1.88	1.62	1.76	1.86	2.11	2.22	2.40	Earnings per sh A	2.85
1.10	1.13	1.15	1.17	1.17	1.18	1.20	1.21	1.22	1.23	1.24	1.25	1.26	1.27	1.30	1.32	1.38	1.42	Div'ds Decl'd per sh B=	1.70
3.85	3.58	3.73	3.61	4.23	3.02	3.70	5.07	4.02	4.76	3.46	3.23	3.11	4.90	5.52	3.48	3.78	3.60	Cap'l Spending per sh	3.60
12.61	12.23	12.41	13.08	13.63	14.55	15.37	16.02	16.59	17.12	17.93	18.56	18.68	19.52	20.64	21.28	22.10	22.95	Book Value per sh	25.55
17.41	17.55	19.46	19.77	20.13	22.24	22.56	22.86	24.85	25.06	25.23	25.23	25.59	25.94	27.55	27.58	27.75	27.80	Common Shs Outst'g C	28.00
10.2	28.1	27.0	12.9	13.0	12.9	11.7	14.4	26.7	14.5	12.4	12.9	17.2	15.8	16.7	17.0	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	15.0
.76	1.79	1.64	.76	.85	.86	.73	.83	1.39	.83	.81	.86	.94	.90	.88	.91			Relative P/E Ratio	.95
6.7%	5.9%	5.7%	5.2%	5.5%	6.7%	5.2%	4.8%	4.5%	5.0%	5.6%	5.1%	4.5%	4.6%	4.2%	3.7%			Avg Ann'l Div'd Yield	4.3%

CAPITAL STRUCTURE as of 6/30/06

Total Debt $577.3 mill. Due in 5 Yrs $204.2 mill.
LT Debt $492.0 mill. LT Interest $31.0 mill.

(Total interest coverage: 3.4x)

Pension Assets-12/05 $218.6 mill.
Oblig. $257.9 mill.
Pfd Stock None

Common Stock 27,548,346 shs.
as of 7/31/06
MARKET CAP $1.1 billion (Mid Cap)

350.3	361.8	418.7	455.6	532.1	650.3	641.4	611.3	707.6	910.5	1025	1050	Revenues ($mill)	1450
46.8	43.1	27.3	44.9	47.8	50.2	43.8	45.0	50.5	58.1	62.0	66.5	Net Profit ($mill)	80.0
35.5%	32.9%	31.0%	35.4%	35.9%	35.4%	34.9%	33.7%	34.4%	36.0%	36.0%	36.0%	Income Tax Rate	36.0%
12.3%	11.9%	6.6%	9.9%	9.0%	7.7%	6.8%	7.5%	7.1%	6.4%	5.7%	5.7%	Net Profit Margin	5.5%
41.4%	46.0%	45.0%	46.0%	45.1%	43.0%	47.6%	49.7%	46.0%	47.0%	47.0%	47.0%	Long-Term Debt Ratio	47%
52.6%	49.0%	50.6%	49.9%	50.9%	53.2%	51.5%	50.3%	54.0%	53.0%	53.0%	53.0%	Common Equity Ratio	53%
557.4	748.0	815.6	881.5	887.8	880.5	937.3	1006.8	1052.5	1103.4	1200	1200	Total Capital ($mill)	1350
745.3	827.5	894.7	895.3	934.0	965.0	995.6	1205.9	1318.4	1373.4	1375	1400	Net Plant ($mill)	1500
6.9%	7.4%	5.0%	6.8%	6.7%	6.9%	5.9%	5.7%	5.9%	6.5%	7.0%	7.0%	Return on Total Cap'l	7.0%
12.1%	10.7%	6.1%	9.7%	9.8%	10.0%	8.9%	9.1%	8.9%	9.9%	10.5%	10.5%	Return on Shr. Equity	10.5%
12.7%	11.0%	6.0%	9.9%	10.0%	10.2%	8.5%	9.0%	8.9%	9.9%	10.0%	10.5%	Return on Com Equity	10.5%
5.0%	3.6%	NMF	2.8%	3.1%	3.5%	1.9%	2.6%	2.7%	3.7%	3.7%	3.7%	Retained to Com Eq	3.6%
63%	70%	118%	74%	70%	70%	79%	72%	69%	63%	63%	62%	All Div'ds to Net Prof	60%

CURRENT POSITION ($Mill.)

	2004	2005	6/30/06
Cash Assets	5.2	7.1	6.6
Other	231.9	316.5	191.5
Current Assets	237.1	323.7	198.1
Accts Payable	102.5	135.3	76.8
Debt Due	117.5	134.7	85.3
Other	47.3	56.6	53.0
Current Liab.	267.3	326.6	215.1
Fix. Chg. Cov.	315%	340%	NMF

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '03-'05 to '09-'11
Revenues	4.5%	8.0%	11.0%
"Cash Flow"	1.5%	2.5%	6.5%
Earnings	1.5%	5.0%	7.0%
Dividends	1.0%	1.0%	4.0%
Book Value	4.0%	3.5%	3.5%

QUARTERLY REVENUES ($ mill.)

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2003	206.5	117.5	69.5	217.8	611.3
2004	254.5	109.7	81.4	262.0	707.6
2005	308.7	153.7	106.7	341.4	910.5
2006	390.4	171.0	130	333.6	1025
2007	375	185	140	350	1050

EARNINGS PER SHARE A

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2003	1.01	.17	d.25	.83	1.76
2004	1.24	d.03	d.30	.95	1.86
2005	1.44	.04	d.31	.94	2.11
2006	1.48	.07	d.30	.97	2.22
2007	1.55	.05	d.30	1.10	2.40

QUARTERLY DIVIDENDS PAID B=

Calendar	Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2002	.315	.315	.315	.315	1.26
2003	.315	.315	.315	.325	1.27
2004	.325	.325	.325	.325	1.30
2005	.325	.325	.325	.345	1.32
2006	.345	.345	.345		

BUSINESS: Northwest Natural Gas Co. distributes natural gas at retail to 90 communities, 624,000 customers, in Oregon (90% of costs) and in southwest Washington state. Principal cities served: Portland and Eugene, OR; Vancouver, WA. Service area population: 2.4 mill. (77% in OR). Company buys gas supply from Canadian and U.S. producers; has transportation rights on Northwest Pipeline system to bring gas to market. Owns local underground storage. Rev. breakdown: residential, 53%; commercial, 27%; industrial, gas transportation, and other, 20%. Employs 1,305. Bar-clays owns 6.2% of shares; insiders, 1% (4/06 proxy). CEO: Mark S. Dodson. Inc.: OR. Address: 220 NW 2nd Ave., Portland, OR 97209. Tel.: 503-226-4211. Internet: www.nwnatural.com.

Northwest Natural's second-quarter earnings turned out a bit better than expected, despite weather that was 16% warmer than average and 12% warmer than last year's. The company's share of commodity cost savings added about $0.03 a share in the June period, and profits from interstate gas storage contributed an additional $0.02. Operations and maintenance expenses were up 3% but would have risen 2% without increased bad debt costs, due to higher gas prices.

We anticipate roughly normal earnings growth over the balance of the year. Northwest Natural increased its customer count by 3.3% in the 12 months ended in June, and the new accounts should boost earnings through 2006 and 2007. While the national economy is definitely slowing, Portland seems to be doing better than the nation as a whole, with little decline in new home construction. (Northwest's share of new home heating fuel is over 90%.) But the company plans to lay off 50 to 100 employees in the second half of the year, and severance costs will probably add up to around $0.04 a share in the fourth quarter.

Earnings in 2007 will likely benefit from new efficiency and cost-cutting efforts. Northwest has begun to implement a companywide plan to reduce costs by consolidating some operations, standardizing functions, and outsourcing some operations, such as new construction. The plan will take a few years to implement completely and will probably result in a workforce reduction of 200 to 250 employees, some by normal attrition.

Northwest's earnings will probably grow faster than its industry's, thanks to above-average customer growth. The area to the southeast of Portland will soon be zoned for higher density, permitting profitable installation of gas mains and significant customer growth. And the company serves less than 60% of its market at present, allowing it to pick up new customers as old oil tanks need replacing. These neutrally ranked shares have below-average total return potential at their recent quotation. Although we like Northwest's prospects, we think investors will have an opportunity to invest at a better price.

Sigourney B. Romaine September 15, 2006

(A) Diluted earnings per share. Excludes non-recurring gain: '98, $0.15; '00, $0.11. Next earnings report due early November.
(B) Dividends historically paid in mid-February, mid-May, mid-August, and mid-November.
= Div'd reinvestment plan available.
(C) In millions, adjusted for stock split.

Company's Financial Strength	A
Stock's Price Stability	100
Price Growth Persistence	55
Earnings Predictability	75

PEOPLES ENERGY NYSE-PGL

| RECENT PRICE | 41.41 | P/E RATIO | 31.9 | (Trailing: 23.9 Median: 14.0) | RELATIVE P/E RATIO | 1.88 | DIV'D YLD | 5.3% | VALUE LINE |

| | | | | | | | | | | | | | | | | | | | | Target Price Range 2009 | 2010 | 2011 |

TIMELINESS — 6 Susp. 7/21/06
SAFETY — 2 Lowered 3/17/06
TECHNICAL — 5 Susp. 7/21/06
BETA .85 (1.00 = Market)

2009-11 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	40	(-5%)	4%
Low	30	(-30%)	-2%

Insider Decisions

	O	N	D	J	F	M	A	M	J
to Buy	0	1	0	0	0	0	0	0	0
Options	0	0	0	0	0	0	0	0	0
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	4Q2005	1Q2006	2Q2006
to Buy	92	78	83
to Sell	82	94	88
Hld's(000)	21830	24457	25874

% TOT. RETURN 8/06

	THIS STOCK	VL ARITH. INDEX
1 yr.	6.1	7.1
3 yr.	22.0	49.4
5 yr.	38.9	70.4

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	© VALUE LINE PUB., INC.	09-11
35.63	33.69	31.54	36.09	36.70	29.60	34.29	36.34	32.28	33.55	40.15	64.13	41.61	58.26	59.90	68.13	76.90	78.75	Revenues per sh A	83.35
3.74	3.73	3.57	3.85	3.92	3.58	4.93	4.92	4.44	4.74	5.58	5.84	5.59	5.88	5.32	5.31	4.35	4.50	"Cash Flow" per sh	5.10
2.07	2.05	2.06	2.11	2.13	1.78	2.96	2.81	2.25	2.39	2.71	3.16	2.80	2.88	2.18	2.26	1.25	1.50	Earnings per sh A B	2.00
1.65	1.71	1.76	1.78	1.80	1.80	1.82	1.87	1.97	2.00	2.04	2.07	2.12	2.16	2.18	2.18	2.18	Div'ds Decl'd per sh C■	2.18
3.15	3.10	3.40	3.77	2.50	2.75	2.45	2.55	4.05	6.45	7.02	7.52	5.55	5.10	5.02	4.27	8.95	6.90	Cap'l Spending per sh	7.15
16.51	16.95	17.72	18.02	18.39	18.38	19.49	20.43	21.03	21.66	22.02	22.76	22.74	23.11	23.06	20.97	18.60	18.40	Book Value per sh D	16.65
32.76	32.76	34.77	34.66	34.67	34.91	34.56	35.00	35.26	35.49	35.30	35.40	35.46	38.69	37.73	38.15	38.00	40.00	Common Shs Outst'g E	42.00
11.2	11.6	13.1	15.0	13.3	14.7	10.7	12.7	16.2	15.5	12.1	12.3	13.3	13.4	19.1	18.9	Bold figures are Value Line estimates	Avg Ann'l P/E Ratio	17.0
.83	.75	.79	.89	.87	.98	.67	.73	.84	.88	.79	.63	.73	.76	1.01	1.01			Relative P/E Ratio	1.15
7.1%	7.0%	6.5%	5.6%	6.3%	6.9%	5.7%	5.2%	5.2%	5.3%	6.1%	5.2%	5.5%	5.5%	5.2%	5.1%			Avg Ann'l Div'd Yield	6.4%

CAPITAL STRUCTURE as of 6/30/06
Total Debt $1065.0 mill. Due in 5 Yrs $546.4 mill.
LT Debt $863.6 mill.   LT Interest $60.0 mill.
(Total interest coverage: 1.8x)

Pension Assets-8/05 $520.4 mill.
    Oblig. $641.7 mill.

Pfd Stock None

Common Stock 38,471,441 shs.
as of 7/31/06
MARKET CAP: $1.5 billion (Mid Cap)

CURRENT POSITION	2004	2005	6/30/06
($MILL.)			
Cash Assets	21.1	43.5	157.0
Other	531.3	855.1	715.1
Current Assets	552.4	898.6	872.1
Accts Payable	144.7	236.2	198.5
Debt Due	55.6	8.1	171.4
Other	335.8	657.4	526.9
Current Liab.	536.1	901.7	895.8
Fix. Chg. Cov.	304%	332%	176%

ANNUAL RATES	Past 10 Yrs.	Past 5 Yrs.	Est'd '03-'05 to '09-'11
of change (per sh)			
Revenues	6.0%	12.0%	5.0%
"Cash Flow"	3.5%	2.0%	NMF
Earnings	2.0%	--	NMF
Dividends	2.0%	2.0%	Nil
Book Value	2.0%	0.5%	NMF

Fiscal Year Ends	QUARTERLY REVENUES ($ mill.) A				Full Fiscal Year
	Dec.31	Mar.31	Jun.30	Sep.30	
2003	549.2	903.8	398.1	287.3	2138.4
2004	604.9	927.0	401.1	327.2	2260.2
2005	737.4	1026.9	455.9	379.4	2599.6
2006	1052.4	1180.0	400.4	367.2	3000
2007	1100	1225	425	400	3150

Fiscal Year Ends	EARNINGS PER SHARE A B				Full Fiscal Year
	Dec.31	Mar.31	Jun.30	Sep.30	
2003	.67	1.77	.22	.04	F 2.68
2004	.85	1.46	.15	d.27	F 2.18
2005	.77	1.37	.18	d.06	2.26
2006	.93	1.12	d.32	d.48	1.25
2007	.95	1.15	d.20	d.40	1.50

Calendar	QUARTERLY DIVIDENDS PAID C■				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2002	.51	.52	.52	.52	2.07
2003	.53	.53	.53	.53	2.12
2004	.54	.54	.54	.54	2.16
2005	.54	.545	.545	.545	2.18
2006	.545	.545	.545		

1198.7	1274.4	1138.1	1194.4	1417.5	2270.2	1482.5	2138.4	2260.2	2599.6	3000	3150	Revenues ($mill) A	3500
103.4	98.4	79.4	84.8	96.1	111.7	99.3	103.9	81.6	86.2	50.0	60.0	Net Profit ($mill)	85.0
37.5%	36.4%	36.2%	35.9%	34.1%	35.4%	34.2%	36.3%	31.7%	34.2%	35.0%	35.0%	Income Tax Rate	35.0%
8.6%	7.7%	7.0%	7.1%	6.8%	4.9%	6.7%	4.9%	3.6%	3.3%	1.6%	1.9%	Net Profit Margin	2.4%
43.6%	42.4%	41.1%	40.4%	35.1%	44.4%	40.7%	46.7%	50.8%	52.8%	53.9%	54.8%	Long-Term Debt Ratio	56.2%
56.4%	57.5%	58.9%	59.6%	64.9%	55.6%	59.3%	53.3%	49.2%	47.2%	46.1%	45.2%	Common Equity Ratio	43.8%
1208.3	1243.5	1258.0	1290.5	1196.7	1449.8	1360.3	1592.3	1767.5	1695.7	1650	1625	Total Capital ($mill)	1585
1331.1	1402.2	1446.7	1518.8	1645.3	1753.9	1773.9	1838.2	1904.2	1947.3	2150	2300	Net Plant ($mill)	2550
10.3%	9.5%	7.6%	8.0%	9.5%	9.3%	8.4%	8.1%	6.0%	6.5%	4.5%	5.5%	Return on Total Cap'l	7.0%
15.2%	13.7%	10.7%	11.0%	12.4%	13.9%	12.3%	12.3%	9.4%	10.8%	6.5%	8.0%	Return on Shr. Equity	12.0%
15.2%	13.7%	10.7%	11.0%	12.4%	13.9%	12.3%	12.3%	9.4%	10.8%	6.5%	8.0%	Return on Com Equity	12.0%
5.9%	4.7%	1.7%	2.1%	3.4%	5.0%	3.3%	3.4%	2%	.5%	NMF	NMF	Retained to Com Eq	NMF
61%	66%	84%	81%	73%	64%	73%	73%	97%	95%	170%	145%	All Div'ds to Net Prof	100%

BUSINESS: Peoples Energy Corporation distributes natural gas via its utility subsidiaries, Peoples Gas Light & Coke Co. (approx. 814,000 customers at 9/30/05) and North Shore Gas Co. (155,000), in Chicago and northeastern Illinois. Fiscal 2005 gas distribution revenues: $1.7 billion: residential, 77%; commercial, 13%; industrial, 2%; other, 8%. Main supplier is Natural Gas Pipeline Co. of America. Purchased gas costs and revenue taxes accounted for 77% of gas revenues in fiscal '05. Depreciation rate: 3.5% Est'd plant age: 11 years. Has 2,182 employees. Officers and Directors own 1.5% of common (1/05 Proxy). Chrmn. and CEO: Thomas Patrick. Inc.: IL. Address: 130 E. Randolph Dr., Chicago, IL 60601. Telephone: 312-240-4000. Internet: www.peoplesenergy.com.

Shares of Peoples Energy have increased by almost 12% since our last report, following the July announcement of a definitive merger agreement with WPS Resources. The deal was unanimously approved by the boards of directors of both companies. Each common share of Peoples Energy would be converted into .825 shares of WPS Resources stock. Using the recent closing price of WPS Resources, this would result in an approximate value of $41.32 per share for Peoples Energy stock. The acquisition, which will most likely occur in the first calendar quarter of 2007, is conditional upon shareholder and regulatory approvals. Upon completion, PGL shareholders would own about 42.4% of the new company.

The combined company will have about $9.2 billion in assets. It will operate natural gas and electric utilities in Wisconsin, Illinois, Michigan and Minnesota. The new company will likely pay a quarterly dividend of approximately $0.66 per share, the same payout Peoples Energy shareholders currently receive (factoring in the exchange ratio). WPS Resources CEO Larry Weyers will take the helm of the combined company. The board of directors will comprise nine members selected by WPS Resources and seven members selected by Peoples Energy.

Meanwhile, Peoples reported subpar results for the three-month period ended June 30th. Revenues declined by 12%, compared to the prior year. Warmer weather resulted in lower deliveries for the Gas distribution segment. Higher maintenance costs and depreciation expense also hindered the bottom line. The share loss was $0.32 for the second quarter. In addition, the company has lowered its share-net guidance for fiscal year 2006. We now expect share earnings of $1.25 for this period, a decline of roughly 45% from the prior year.

With a dividend yield of 5.3%, this stock may appeal to income-oriented accounts. The current quotation of PGL already reflects the price WPS Resources will likely pay for the company. Moreover, should the deal fall through, Peoples Energy shares could decline significantly. On PGL's own, appreciation potential to late decade is subpar.

Michael F. Napoli   *September 15, 2006*

(A) Fiscal year ends Sept. 30th.
(B) Diluted earnings per share. Excludes non-recurring gains/(losses): '05, (90.21) Next earnings report due late October.
(C) Dividends historically paid mid-January, April, July, October.
(D) Includes deferred charges. At 6/30/06: $46.1 mill., $1.19/sh.
(E) In millions. (F) Earnings don't sum due to change in shares outstanding.
(G) Suspended due to pending acquisition by WPS Resources.

Company's Financial Strength	B++
Stock's Price Stability	95
Price Growth Persistence	35
Earnings Predictability	80

PIEDMONT NAT'L. NYSE-PNY

RECENT PRICE	P/E RATIO		RELATIVE P/E RATIO	DIV'D YLD	
25.29	18.9	(Trailing: 18.2 / Median: 17.5)	1.11	3.9%	VALUE LINE

TIMELINESS	4	Raised 12/23/05
SAFETY	2	New 7/22/90
TECHNICAL	2	Raised 9/8/06
BETA	.80	(1.00 = Market)

2009-11 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	40	(+60%)	15%
Low	30	(+20%)	8%

Insider Decisions

	O	N	D	J	F	M	A	M	J
to Buy	10	24	11	10	9	9	9	9	9
Options	0	0	0	0	0	0	0	0	0
to Sell	0	0	2	0	1	1	1	0	1

Institutional Decisions

	4Q2005	1Q2006	2Q2006
to Buy	75	86	85
to Sell	77	71	81
Hld's(000)	30419	31060	32935

% TOT. RETURN 8/06

	THIS STOCK	VL ARITH. INDEX
1 yr.	10.4	7.1
3 yr.	51.6	49.4
5 yr.	97.3	70.4

Target Price Range 2009 2010 2011

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	© VALUE LINE PUB., INC.	09-11
9.42	8.32	8.91	10.57	10.82	8.76	11.59	12.84	12.45	10.57	13.01	17.06	12.57	18.14	19.85	22.96	25.00	28.20	Revenues per sh A	33.10
.97	.78	1.07	1.14	1.13	1.25	1.49	1.62	1.72	1.70	1.77	1.81	1.81	2.04	2.31	2.43	2.50	2.65	"Cash Flow" per sh	3.20
.61	.44	.70	.73	.59	.73	.84	.93	.93	.93	1.01	1.01	.95	1.11	1.27	1.32	1.30	1.40	Earnings per sh B	1.75
.42	.44	.46	.48	.51	.54	.57	.61	.64	.68	.72	.76	.80	.82	.85	.91	.96	1.00	Div'ds Decl'd per sh C■	1.17
1.62	1.37	1.41	1.58	1.95	1.72	1.64	1.52	1.48	1.56	1.55	1.29	1.21	1.16	1.65	2.50	2.65	2.40	Cap'l Spending per sh	2.20
4.58	4.83	5.13	5.45	5.68	8.16	6.53	6.95	7.45	7.86	8.26	8.63	8.91	9.36	11.15	11.53	10.85	11.35	Book Value per sh D	12.75
42.67	49.45	51.59	52.30	53.15	57.67	59.10	60.39	61.46	62.59	63.63	64.93	66.18	67.31	76.67	76.70	75.00	74.50	Common Shs Outst'g E	72.50
11.3	16.3	12.3	15.4	15.7	13.6	13.8	13.6	16.3	17.7	14.3	16.7	16.4	16.7	16.6	17.5	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	19.0
.84	1.04	.75	.91	1.03	.92	.87	.78	.85	1.01	.93	.86	1.01	.95	.88	.95			Relative P/E Ratio	1.25
6.0%	6.0%	5.3%	4.3%	4.8%	5.4%	4.9%	4.8%	4.0%	4.1%	5.0%	4.5%	4.6%	4.4%	4.1%	3.8%			Avg Ann'l Div'd Yield	2.5%

CAPITAL STRUCTURE as of 4/30/06

Total Debt $912.0 mill. Due in 5 Yrs $325.0 mill.
LT Debt $625.0 mill. LT Interest $40.0 mill.
(LT interest earned: 4.5x; total interest coverage: 4.5x)

Pension Assets-10/05 $199.2 mill.
Oblig. $236.6 mill.

Pfd Stock None

Common Stock 75,277,520 shs.
as of 6/2/06

MARKET CAP: $1.9 billion (Mid Cap)

CURRENT POSITION	2004	2005	4/30/06
(MILL.)			
Cash Assets	5.7	7.1	20.3
Other	329.6	497.8	431.7
Current Assets	335.2	504.9	452.0
Accts Payable	99.6	182.8	73.7
Debt Due	109.5	193.5	287.0
Other	97.1	152.3	123.0
Current Liab.	306.2	528.6	483.7
Fix. Chg. Cov.	378%	400%	380%

ANNUAL RATES	Past 10 Yrs.	Past 5 Yrs.	Est'd '03-'05 to '09-'11
of change (per sh)			
Revenues	7.5%	11.0%	8.5%
"Cash Flow"	7.0%	5.5%	6.0%
Earnings	5.5%	5.0%	6.0%
Dividends	5.5%	6.0%	5.5%
Book Value	6.5%	6.5%	3.0%

Fiscal Year Ends	QUARTERLY REVENUES ($ mill.) A				Full Fiscal Year
	Jan.31	Apr.30	Jul.31	Oct.31	
2003	493.5	407.8	140.1	179.4	1220.8
2004	618.8	482.4	214.7	213.8	1529.7
2005	680.6	508.0	232.9	339.6	1761.1
2006	921.4	483.2	237.9	307.5	1950
2007	875	585	315	345	2100

Fiscal Year Ends	EARNINGS PER SHARE A B F				Full Fiscal Year
	Jan.31	Apr.30	Jul.31	Oct.31	
2003	.87	.47	d.15	d.08	1.11
2004	1.03	.54	d.11	d.21	1.27
2005	.93	.52	d.08	d.07	1.32
2006	.84	.57	d.16	d.05	1.30
2007	.98	.57	d.06	d.09	1.40

Cal- endar	QUARTERLY DIVIDENDS PAID C■				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2002	.193	.20	.20	.20	.79
2003	.20	.208	.208	.208	.82
2004	.208	.215	.215	.215	.85
2005	.215	.23	.23	.23	.91
2006	.23	.24	.24		

585.1	775.5	765.3	658.5	830.4	1107.9	832.0	1220.8	1529.7	1761.1	1950	2100	Revenues ($mill) A	2400
48.6	55.2	60.3	58.2	64.0	65.5	62.2	74.4	95.2	101.3	100	105	Net Profit ($mill)	130
38.9%	39.1%	39.2%	39.7%	34.7%	34.6%	33.1%	34.8%	35.1%	33.7%	35.0%	35.6%	Income Tax Rate	36.0%
7.1%	7.1%	7.9%	8.5%	7.7%	5.9%	7.5%	6.1%	6.2%	5.8%	5.1%	5.1%	Net Profit Margin	5.3%
50.3%	47.6%	44.7%	46.2%	46.1%	47.6%	43.9%	42.2%	43.6%	41.4%	43.5%	42.5%	Long-Term Debt Ratio	42.0%
49.7%	52.4%	55.3%	53.8%	53.9%	52.4%	56.1%	57.8%	56.4%	58.6%	56.5%	57.5%	Common Equity Ratio	58.0%
777.1	800.8	828.3	914.7	978.4	1069.4	1051.6	1090.2	1514.9	1509.2	1440	1470	Total Capital ($mill)	1600
852.0	941.7	990.6	1047.8	1072.0	1114.7	1158.5	1812.3	1849.8	1939.1	2040	2170	Net Plant ($mill)	2400
8.2%	8.5%	9.2%	8.1%	8.3%	7.9%	7.8%	8.5%	7.8%	8.2%	8.5%	8.5%	Return on Total Cap'l	8.0%
12.6%	13.1%	13.2%	11.8%	12.1%	11.7%	10.6%	11.8%	11.1%	11.5%	12.0%	12.5%	Return on Shr. Equity	13.0%
12.6%	13.1%	13.2%	11.8%	12.1%	11.7%	10.6%	11.8%	11.1%	11.5%	12.0%	12.5%	Return on Com Equity	13.0%
3.9%	4.6%	4.7%	3.3%	3.6%	3.0%	1.7%	3.1%	3.7%	3.6%	3.5%	4.0%	Retained to Com Eq	4.5%
69%	65%	65%	72%	71%	75%	83%	74%	66%	68%	72%	70%	All Div'ds to Net Prof	67%

BUSINESS: Piedmont Natural Gas Company is primarily a regulated natural gas distributor, serving over 990,000 customers in North Carolina, South Carolina, and Tennessee. 2005 revenue mix: residential (39%), commercial (24%), industrial (13%), other (24%). Principal supplier: Transco and Tennessee Pipeline. Gas costs: 71.6% of revenues. '05 deprec. rate: 3.3%. Estimated plant age: 8.7 years. Non-regulated operations: sale of gas-powered heating equipment; natural gas brokering; propane sales. Has about 2,125 employees. Officers & directors own less than 1% of common stock (1/06 proxy). CEO & President: Thomas E. Skains. Inc.: NC. Addr.: 1915 Rexford Road, P.O. Box 33068 Charlotte, NC 28233. Telephone: 704-364-3120. Internet: www.piedmontng.com.

Piedmont Natural Gas posted a larger share loss than we had anticipated. The fiscal third quarter (ended July 31st) was impacted by reduced margins due to rate design changes, and costs associated with the company's corporate restructuring program. In July, Piedmont and North Carolina's Attorney General office reached a settlement on its customer utilization tracker rate mechanism, which decouples the collection of utility margin from customer volume. This plan is favorable for both customers, who will benefit by the more efficient use of natural gas, and Piedmont shareholders, who will not suffer the negative consequences of conservation by customers. As part of the agreement, the company will fund up to $1.5 million annually over the next few years toward customer conservation programs, in addition to the $500,000 it had already committed to spend. Furthermore, Piedmont's initial restructuring involved offering early retirement to management-level employees and will eventually include other positions as part of an effort to streamline business processes and improve corporate efficiencies. The company should realize about $5 million to $6 million in annual cost savings beginning in 2007.

The company's nonutility operations will likely represent a greater percentage of future profits. Over the first six months of 2006, these activities contributed earnings of $25.5 million, which is nearly 20% above the year-ago period. Even though regulated operations make up most of Piedmont's total income, unregulated operations such as Cardinal Pipeline, Pine Needle, and SouthStar Energy provide an added boost to the company's bottom line. We expect Piedmont to continue to pursue strategic investments to diversify its earnings stream over the next few years.

Though untimely, this stock is suitable for conservative income-oriented investors. Piedmont offers a respectable dividend yield at 3.9% and has an Above Average Safety rank (2). Moreover, the company should benefit as it diversifies its supply portfolio away from the Gulf Coast region through agreements with Midwestern Gas Transmission Company and Hardy Storage Company.

Evan I. Blatter   September 15, 2006

(A) Fiscal year ends October 31st.
(B) Diluted earnings. Excl. extraordinary item: '00, 8¢. Excl. nonrecurring charge: '97, 2¢. Next earnings report due mid-Dec.
(C) Dividends historically paid mid-January, April, July, October.
■ Div'd reinvest. plan available; 5% discount.
(D) Includes deferred charges. At 10/31/05:
$4.0 million, 5¢/share.
(E) In millions, adjusted for stock splits.
(F) Quarters may not add to total due to change in shares outstanding.

Company's Financial Strength	B++
Stock's Price Stability	100
Price Growth Persistence	75
Earnings Predictability	80

WGL HOLDINGS NYSE-WGL

RECENT PRICE	30.77	P/E RATIO	14.4	(Trailing: 17.1, Median: 15.0)	RELATIVE P/E RATIO	0.85	DIV'D YLD	4.5%	VALUE LINE

TIMELINESS 4 Raised 8/4/06
SAFETY 1 Raised 4/28/0
TECHNICAL 3 Raised 5/26/06
BETA .80 (1.00 = Market)

2009-11 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	35	(+15%)	7%
Low	30	(-5%)	4%

Insider Decisions

	O	N	D	J	F	M	A	M	J
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	0	0	0	0	0
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	4Q2005	1Q2006	2Q2006
to Buy	88	70	73
to Sell	67	77	75
Hld'000	27359	27311	29760

Percent shares traded 9 6 3

% TOT. RETURN 8/06

	THIS STOCK	VL ARITH. INDEX
1 yr.	-1.2	7.1
3 yr.	32.0	49.4
5 yr.	44.8	70.4

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	© VALUE LINE PUB., INC.	09-11
18.75	17.50	18.37	21.55	21.69	19.30	22.19	24.16	23.74	20.92	22.19	23.80	32.63	42.45	42.93	44.94	51.89	55.40	Revenues per sh A	61.50
2.17	2.04	2.17	2.25	2.43	2.51	2.93	3.02	2.79	2.74	3.20	3.24	2.53	4.00	3.67	3.97	3.75	3.90	"Cash Flow" per sh	4.50
1.26	1.14	1.27	1.31	1.42	1.45	1.85	1.85	1.54	1.47	1.79	1.83	1.14	2.30	1.98	2.11	1.85	1.95	Earnings per sh B	2.35
1.01	1.05	1.07	1.09	1.11	1.12	1.14	1.17	1.20	1.22	1.24	1.26	1.27	1.28	1.30	1.32	1.35	1.37	Div'ds Decl'd per sh C■	1.41
2.38	2.05	2.17	2.43	2.84	2.63	2.85	3.20	3.62	3.42	2.57	2.66	3.34	2.65	2.33	2.32	2.40	3.30	Cap'l Spending per sh	4.00
10.17	8.63	10.56	11.04	11.51	11.95	12.79	13.48	13.86	14.72	15.31	16.24	15.78	16.25	16.95	17.80	17.85	18.60	Book Value per sh D	21.15
39.23	39.89	40.52	41.50	42.19	42.93	43.70	43.70	43.84	46.47	46.47	48.54	48.56	48.53	48.67	48.65	48.70	48.70	Common Shs Outst'g E	48.89
11.7	12.8	13.6	15.5	14.0	12.7	11.5	12.7	17.2	17.3	14.8	14.7	23.1	11.1	14.2	14.7	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	14.0
.87	.82	.82	.92	.92	.85	.72	.73	.89	.99	.95	.75	1.26	.63	.75	.78			Relative P/E Ratio	.90
6.9%	7.2%	6.2%	5.3%	5.6%	6.1%	5.4%	5.0%	4.5%	4.8%	4.9%	4.6%	4.8%	5.0%	4.6%	4.2%			Avg Ann'l Div'd Yield	4.3%

CAPITAL STRUCTURE as of 6/30/06
Total Debt $725.8 mill. Due in 5 Yrs $520.0 mill.
LT Debt $581.8 mill. LT Interest $40.0 mill.
(LT Interest earned: 4.5x; total interest coverage: 4.2x)

Pension Assets-9/05 $691.7 mill.
Oblig. $691.2 mill.

Preferred Stock $28.2 mill. Pfd Div'd $1.3 mill.

Common Stock 48,773,729 shs.
as of 7/31/06

MARKET CAP: $1.5 billion (Mid Cap)

CURRENT POSITION	2004	2005	6/30/06
($MILL.)			
Cash Assets	6.6	4.8	88.1
Other	426.3	476.2	454.3
Current Assets	432.9	481.0	542.4
Accts Payable	179.0	204.9	172.4
Debt Due	158.3	91.0	145.0
Other	77.6	116.5	147.8
Current Liab.	412.9	411.4	465.2
Fix. Chg. Cov.	449%	460%	450%

ANNUAL RATES	Past 11 Yrs.	Past 5 Yrs.	Est'd '03-'05 to '09-'11
of change (per sh)			
Revenues	7.5%	14.5%	6.0%
"Cash Flow"	5.0%	6.5%	2.0%
Earnings	4.5%	6.0%	1.5%
Dividends	1.5%	1.5%	2.0%
Book Value	4.0%	3.0%	3.5%

Fiscal Year Ends	QUARTERLY REVENUES ($ mill.) A				Full Fiscal Year
	Dec.31	Mar.31	Jun.30	Sep.30	
2003	550.0	851.1	373.2	279.9	2054.2
2004	585.3	882.2	356.9	265.2	2089.6
2005	623.4	929.8	349.0	264.1	2186.3
2006	908.3	1070.4	346.9	261.4	2629
2007	950	1019	380	350	2700

Fiscal Year Ends	EARNINGS PER SHARE A B				Full Fiscal Year
	Dec.31	Mar.31	Jun.30	Sep.30	
2003	1.10	1.51	d.05	d.35	2.30
2004	.61	1.62	d.08	d.37	1.98
2005	.38	1.63	d.17	d.23	2.11
2006	.91	1.16	d.01	d.21	1.85
2007	.95	1.40	d.15	d.25	1.95

Cal- endar	QUARTERLY DIVIDENDS PAID C■				Full Year
	Mar.31	Jun.30	Sep.30	Dec.31	
2002	.315	.318	.318	.318	1.27
2002	.319	.32	.32	.32	1.28
2003	.32	.325	.325	.325	1.30
2004	.325	.333	.333	.333	1.32
2005	.333	.338	.338		

1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	© VALUE LINE PUB., INC.	09-11
969.8	1055.8	1040.6	972.1	1031.1	1446.5	1584.8	2064.2	2069.6	2166.3	2629	2700	Revenues ($mill) A	3000
81.6	82.0	68.6	63.8	84.5	89.9	55.7	112.3	98.0	104.8	90.0	95.0	Net Profit ($mill)	115
37.7%	35.9%	35.5%	36.0%	36.1%	39.5%	34.0%	36.0%	38.2%	37.4%	32.0%	38.0%	Income Tax Rate	38.0%
8.4%	7.8%	6.6%	7.1%	8.2%	6.2%	3.5%	5.4%	4.7%	4.8%	3.5%	3.5%	Net Profit Margin	3.8%
37.8%	41.1%	40.3%	41.5%	43.1%	41.7%	45.7%	43.8%	40.9%	39.5%	39.0%	39.0%	Long-Term Debt Ratio	33.0%
59.4%	55.2%	57.1%	58.1%	54.8%	56.3%	52.4%	54.3%	57.2%	58.5%	59.0%	59.0%	Common Equity Ratio	59.0%
941.1	1049.0	1054.8	1218.5	1299.2	1400.8	1462.5	1454.9	1443.6	1476.1	1515	1575	Total Capital ($mill)	1780
1130.6	1217.1	1319.5	1402.7	1460.3	1519.7	1606.8	1674.9	1915.6	1969.7	2120	2270	Net Plant ($mill)	2550
10.1%	9.3%	8.0%	7.1%	7.9%	7.9%	5.3%	9.1%	8.2%	8.5%	6.0%	6.0%	Return on Total Cap'l	6.5%
13.9%	13.3%	10.8%	9.7%	11.4%	11.0%	7.0%	13.7%	11.5%	11.7%	10.0%	10.0%	Return on Shr. Equity	10.5%
14.4%	13.7%	11.1%	9.9%	11.7%	11.2%	7.2%	14.0%	11.7%	12.0%	10.0%	10.0%	Return on Com Equity	11.0%
1.6%	5.1%	2.5%	1.8%	3.7%	3.8%	NMF	6.2%	4.1%	4.6%	2.5%	3.0%	Retained to Com Eq	4.0%
62%	63%	78%	82%	69%	67%	112%	56%	65%	62%	74%	72%	All Div'ds to Net Prof	64%

BUSINESS: WGL Holdings, Inc. is the parent of Washington Gas Light, a natural gas distributor in Washington, D.C. and adjacent areas of VA. and MD. to residen'l and comm'l users (1,032,198 meters). Hampshire Gas, a federally regulated sub., operates an underground gas-storage facility in WV. Non-regulated subs.: Wash. Gas Energy Svcs. sells and delivers natural gas and pro- vides energy related products in the D.C. metro area; Wash. Gas Energy Sys. designs/installs comm'l heating, ventilating, and air cond. systems. American Century Inv. own 8.3% of common stock: Off.Air. less than 1% (1/06 proxy). Chrmn. & CEO: J.H. DeGraffen-reidt Inc.: D.C. and VA. Addr.: 1100 H St., N.W., Washington, D.C. 20080. Tel.: 202-624-6410. Internet: www.wglholdings.com.

WGL Holdings posted solid results in the seasonally weak fiscal third quarter (ended June 30th). It reported a share net loss of $0.01, which excluded the results from the recently sold American Combustion Industries subsidiary, significantly ahead of last year's figure. The results were driven by lower operation and maintenance expense, utility customer growth, and improved performance at the retail energy-marketing business. In fact, income from this segment nearly doubled from the year-ago period, to $6.1 million, thanks to higher gross margins from the sale of natural gas and electricity. This should help push nonutility earnings to about $0.21 a share this year, with additional improvements likely in 2007.

WGL expects to file a pair of rate increases. One will soon be with the Virginia State Corporation Commission, and another with the Maryland Public Service Commission next spring. The primary need for the Maryland rate increase is to recover costs associated with the Prince George's County rehabilitation program. The project is scheduled to be completed in 2008 at a $144 million price tag. If this

project is fully recovered through a rate increase, which is probable, WGL should realize a $0.16-a-share boost to earnings. The company is slated to spend about $855 million on capital improvement projects out to 2010. WGL expects to begin construction on its LNG storage facility in late 2008 pending regulatory approval, two years later than previously anticipated due to zoning and other legal challenges, and scheduled to be completed by the 2011-2012 winter. However, until approval is granted WGL will explore other opportunities to meet its peak day requirements to serve its customers. These shares are best suited for conservative investors. The dividend yield stands at 4.5%, above the industry average, while the stock's Safety rank is 1 (Highest). Long term, we look for Washington Gas to add about 25,000-30,000 new utility customers annually, thanks to the new home construction expected in its service areas over the next 20 years. The stock, which is not well ranked for performance is dependable for income. But its price range only inches up over time.
Evan I. Blatter   September 15, 2006

(A) Fiscal years end Sept. 30th.
(B) Based on diluted shares. Excludes nonrecurring losses: '01, (13¢); '02, (34¢); discontinued operations: '06, (34¢).
(C) Dividends historically paid early February, May, August, and November. ■ Dividend reinvestment plan available.
(D) Includes deferred charges and intangibles. '05: $150.0 million, $3.08/sh.
(E) In millions, adjusted for stock split.

Company's Financial Strength	A
Stock's Price Stability	100
Price Growth Persistence	70
Earnings Predictability	60

SOUTHERN UNION NYSE-SUG

| RECENT PRICE | 27.44 | P/E RATIO | 14.2 | (Trailing: 16.2 Median: 21.3) | RELATIVE P/E RATIO | 0.84 | DIV'D YLD | 1.5% |

TIMELINESS 1 Raised 9/1/06
SAFETY 3 New 3/24/00
TECHNICAL 2 Raised 8/25/06
BETA 1.05 (1.00 = Market)

2009-11 PROJECTIONS
	Price	Gain	Ann'l Total Return
High	50	(+80%)	18%
Low	35	(+30%)	8%

BUSINESS: Southern Union Co. owns and operates assets in the regulated and unregulated natural gas industry and is primarily engaged in the transportation, storage, and distribution of natural gas. Serves about 952,000 residential, commercial, and industrial customers through its Missouri Gas (495,636), PG Energy (158,219), and New England Gas Company (295,176). Acq. Sid Richardson Energy Services 3/06; Panhandle Energy 6/03. Sold Rhode Island operations 2/06; PG Energy 1/06. Owns 50% interest in CCE Holdings. Has 2,858 employees. Off. & dir. own 10.9% of stock (3/06 proxy). Chairman, Pres. & CEO: George L. Lindemann. Inc.: Delaware. Addr.: 417 Lackawanna Avenue, Scranton, PA 18503. Tel.: 570-614-5000. Internet: www.southernunionco.com.

Southern Union continues its transformation from primarily a utility company into a higher-growth/return natural gas company. Recently acquired midstream assets contributed earnings before interest and taxes (EBIT) of $18 million during the June period. To finance the midstream transaction Southern Union used a $1.9 billion bridge loan. The company will use the proceeds from the recent sale of its Pennsylvania and Rhode Island distribution assets to pay down the loan. As a result of the loan, Southern's interest expense more than doubled year over year to $63 million in the second quarter. But the company has entered into various hedging strategies, which should help protect overall earnings and cash flow through 2007.

The transportation and storage segment still has much room for growth. During the June quarter, the company completed the second phase of the Trunkline LNG expansion, which is expected to contribute $15 million to $20 million in annual EBIT. Southern has several additional growth projects in the works, which should support the annual double-digit earnings gains we are forecasting out to late decade. This includes the Trunkline Field Zone Expansion, which includes adding 510 million cubic feet per day to capacity to its system in Texas and Louisiana. The company expects to file the project with the Federal Energy Regulatory Commission by the end of the third quarter and, if approval is granted, the project is scheduled to be in service by late 2007. The project is expected to cost about $150 million to $160 million, and contribute $30 million to $35 million toward EBIT upon completion.

The company's distribution segment posted disappointing results, driven by warmer-than-normal temperatures. This was one of the reasons Southern filed for a rate increase that included a weather normalization plan at its Missouri Gas Energy unit. The company is optimistic that some rate relief will be granted, with new rates hopefully in place by January, 2007. This stock is top-ranked for Timeliness. Also, total return potential is above average, due to a solid earnings outlook and the likelihood of dividend increases.

Evan I. Blatter   September 15, 2006

<u>Missouri Gas Energy</u>
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
<u>Using an Adjusted Total Market Approach</u>

Line No.		Proxy Group of Four Gas Distribution Companies	Proxy Group of Eight Value Line Gas Distribution Companies	Southern Union Company
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	5.87 %	5.87 %	5.87 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A Rated Public Utility Bonds	0.52 (2)	0.52 (2)	0.52 (2)
3.	Adjusted Prospective Yield on A Rated Public Utility Bonds	6.39 %	6.39 %	6.39 %
4.	Adjustment to Reflect Bond Rating Difference	0.08 (3)	0.00 (4)	0.32 (5)
5.	Adjusted Prospective Bond Yield	6.47 %	6.39 %	6.71 %
6.	Equity Risk Premium (6)	5.03	4.91	5.24
7.	Risk Premium Derived Common Equity Cost Rate	11.50 %	11.30 %	11.95 %
8.	Risk Premium Derived Common Equity Cost Rate Excluding Cascade Natural and Peoples Energy (7)	11.49 %	11.33 %	

Notes: (1) Derived in Note (4) on page 5 of this Schedule.

(2) The average yield spread of A rated public utility bonds over Aaa rated corporate bonds of 0.52% from page 3 of this Schedule.

(3) One-third the average spread between Moody's A and Baa rated public utility bond yields of 24 basis points to reflect the proxy group's average Moody's bond rating of A3 as shown on page 2 of this Schedule. ((1/3 X 0.24% = 0.08%. (from page 3 of this Schedule)).

(4) No adjustment necessary as the average Moody's bond rating for the proxy group is A2.

(5) One and one-third the average the average spread between A and Baa rated public utility bond yields of 30 basis points ((1 1/3 X 0.24% = 0.32%. (from page 3 of this schedule)).

(6) From page 5 of this schedule

(7) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade Natural in the proxy group of four LDCs, and Cascade and Peoples Energy in the proxy group of eight Value Line LDCs are being shown. The average Moody's bond rating for both proxy groups would be A2, if Cascade Natural for the group of four and Cascade Natural and Peoples Energy for the group of eight are excluded. Therefore, no adjustment, as indicated in Note 4 above, would be necessary for either group.

Missouri Gas Energy
Comparison of Bond Ratings and Business profile
for the Proxy Group of Four Gas Distribution Companies, the proxy group of
Eight Value Line Gas Distribution Companies and Southern Union Company

	September 2006 Moody's Bond Rating		September 2006 Standard & Poor's Bond Rating		Standard & Poor's Business Profile (2)
	Bond Rating	Numerical Weighting (1)	Bond Rating	Numerical Weighting (1)	
Proxy Group of Four Gas Distribution Companies					
Cascade Natural Gas Corporation	Baa1	8.0	BBB+	8.0	2.0
NICOR Inc. (3)	A1	5.0	AA	3.0	2.0
Northwest Natural Gas Company	A2	6.0	AA-	4.0	1.0
Piedmont Natural Gas Co., Inc.	A3	7.0	A	6.0	2.0
Average	A2 / A3	6.5	A+	5.3	1.8
Average Excluding Cascade Natural	A2	6.0	AA-	4.3	1.7
Proxy Group of Eight Value Line Gas Distribution Companies					
Cascade Natural Gas Corporation	Baa1	8.0	BBB+	8.0	2.0
The Laclede Group, Inc. (4)	A3	7.0	A	6.0	3.0
New Jersey Resources Corp (5)	Aa3	4.0	AA-	4.0	2.0
NICOR Inc (3)	A1	5.0	AA	3.0	2.0
Northwest Natural Gas Company	A2	6.0	AA-	4.0	1.0
Peoples Energy Corporation (6)	A1	5.0	A-	7.0	3.0
Piedmont Natural Gas Co , Inc	A3	7.0	A	6.0	2.0
WGL Holdings, Inc (7)	A2	6.0	AA-	4.0	2.0
Average	A2	6.0	A+	5.3	2.1
Average Excluding Cascade Natural and Peoples Energy (8)	A2	5.8	AA- / A+	4.5	2.0
Southern Union Company (9)	Baa3	10.0	BBB	9.0	NA

Notes: (1) From page 3 of this schedule.

(2) From Standard & Poor's Issuer Ranking: U S Utility And Power Companies, Strongest to Weakest, October 13, 2006.

(3) Ratings and business profile are those of NICOR Gas Company

(4) Ratings and business profile are those of Laclede Gas Co

(5) Ratings and business profile are those of New Jersey Natural Gas

(6) Ratings and business profile are a composite of those of North Shore Gas Company and Peoples Gas Light & Coke Company.

(7) Ratings and business profile are those of Washington Gas Light Company

(8) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade Natural in the proxy group of four LDCs, and Cascade Natural and Peoples Energy in the proxy group of eight Value Line LDCs are being shown.

(9) Ratings and business profile are a composite of those of Southern Union Company, Panhandle Eastern Pipe Line Company and Transwestern Pipeline Company

Source of Information: Moody's Investors Service
Standard & Poor's Global Utilities Rating Service

Moody's
Comparison of Interest Rate Trends
for the Two Months Ending August 2006 (1)

Years	Corporate Bonds Aaa Rated	Public Utility Bonds			Spread - Corporate v. Public Utility Bonds			Spread - Public Utility Bonds	
		Aa Rated	A Rated	Baa Rated	Aa (Pub. Util.) over Aaa (Corp.)	A (Pub. Util.) over Aaa (Corp.)	Baa (Pub. Util.) over Aaa (Corp.)	A over Aa	Baa over A
July-06	5.85	6.13	6.37	6.61 %	0.28 %	0.52 %	0.76 %	0.24 %	0.24 %
August-06	5.68	5.97	6.20	6.43	0.29 %	0.52 %	0.75 %	0.23 %	0.23 %
Average Spread (2)					0.29 %	0.52 %	0.76 %	0.24 %	0.24 %

Notes: (1) All yields are distributed yields.
(2) Equal weight has been given to the July and August 2006 spread.

Source of Information: Mergent Bond Record Monthly Update, September 2006, Vol. 73, No. 9

<u>Missouri Gas Energy</u>
Judgment of Equity Risk Premium
for the Proxy Group of Four Gas Distribution Companies, the Proxy Group of
<u>Eight Value Line Gas Distribution Companies and Southern Union Company</u>

Line No.			Proxy Group of Four Gas Distribution Companies	Proxy Group of Eight Value Line Gas Distribution Companies	Southern Union Company
1.		Calculated equity risk premium based on the total market using the beta approach (1)	5.65 %	5.40 %	6.59 %
2.		Mean equity risk premium based on a study using the holding period returns of public utilities with:			
	a.	A rated bonds (2)	4.41	4.41	
	b.	Baa rated bonds (2)			3.89
3.		Average equity risk premium	5.03 %	4.91 %	5.24 %
4		Average equity risk premium Excluding Cascade Natural and Peoples Energy (3)	5.10 %	4.94 %	

Notes: (1) From page 5 of this Schedule.
(2) From page 7 of this Schedule.
(3) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade Natural in the proxy group of four LDCs, and Cascade Natural and Peoples Energy in the proxy group of eight Value Line LDCs are being shown.

<u>Missouri Gas Energy</u>
Derivation of Equity Risk Premium Based on the Total Market Approach
for the Proxy Group of Four Gas Distribution Companies, the Proxy Group of
<u>Eight Value Line Gas Distribution Companies and Southern Union Company</u>

Line No.		Proxy Group of Four Gas Distribution Companies	Proxy Group of Eight Value Line Gas Distribution Companies	Southern Union Company
1.	Arithmetic mean total return rate on the Standard & Poor's 500 Composite Index - 1926-2005 (1)	12.30 %	12.30 %	12.30 %
2.	Arithmetic mean yield on Aaa and Aa Corporate Bond 1926-2005 (2)	(6.10)	(6.10)	(6.10)
3.	Historical Equity Risk Premium	6.20 %	6.20 %	6.20 %
4.	Forecasted 3-5 year Total Annual Market Return (3)	12.22 %	12.22 %	12.22 %
5.	Prospective Yield an Aaa Rated Corporate Bonds (4)	(5.87)	(5.87)	(5.87)
6.	Forecasted Equity Risk Premium	6.35 %	6.35 %	6.35 %
7.	Average of Historical and Forecasted Equity Risk Premium (5)	6.28 %	6.28 %	6.28 %
8.	Adjusted Value Line Beta (6)	0.90	0.86	1.05
9	Beta Adjusted Equity Risk Premium	5.65 %	5.40 %	6.59 %
10	Beta Adjusted Equity Risk Premium Excluding Cascade and Peoples Energy (7)	5.78 %	5.46 %	

Notes: (1) From Stocks, Bonds, Bills and Inflation - 2006 Yearbook Valuation Edition, Ibbotson Associates, Inc., Chicago, IL, 2006.

(2) From Moody's Industrial Manual and Mergent Bond Record Monthly Update.

(3) From page 4 of Schedule FJH-29 of this Exhibit.

(4) Average forecast based upon six quarterly estimates of Aaa rated corporate bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated October 1, 2006 (see page 6 of this schedule). The estimates are detailed below.

Fourth Quarter 2006	5.70 %
First Quarter 2007	5.80
Second Quarter 2007	5.90
Third Quarter 2007	5.90
Fourth Quarter 2007	5.90
First Quarter 2008	6.00
Average	5.87 %

(5) Average of the Historical Equity Risk Premium of 6.20% from Line No. 3 and the Forecasted Equity Risk Premium of 6.35% from Line No. 6 ((6.20% + 6.35%) / 2 = 6.28%).

(6) From page 8 of this schedule.

(7) Cascade Natural Gas Corporation Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade Natural in the proxy group of four LDCs, and Cascade Natural and Peoples Energy in the proxy group of eight Value Line LDCs are being shown.
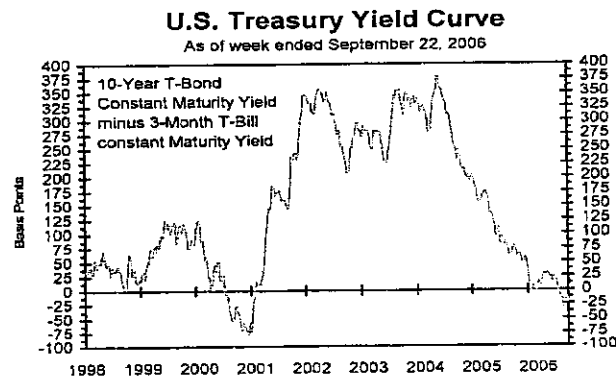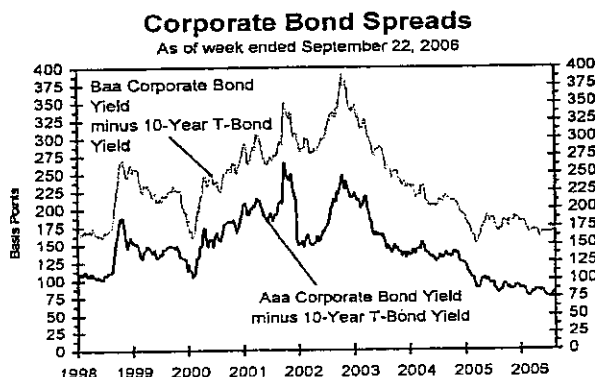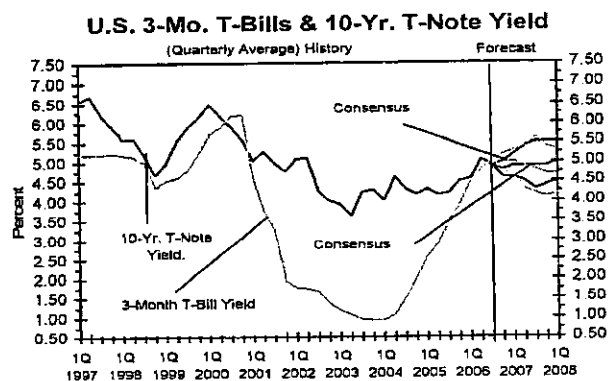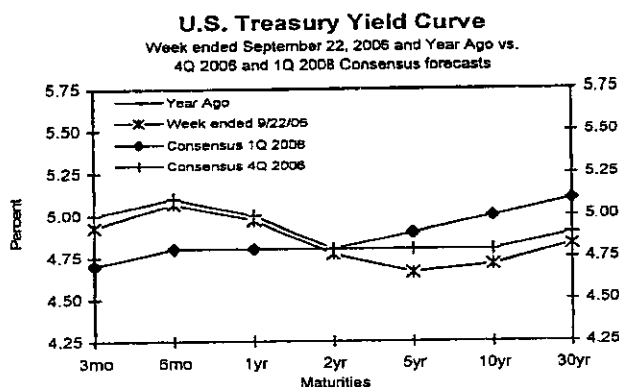
2 ■ BLUE CHIP FINANCIAL FORECASTS ■ OCTOBER 1, 2006

Consensus Forecasts Of U.S. Interest Rates And Key Assumptions [1]

	----------History----------							Latest Q*	Consensus Forecasts-Quarterly Avg.					
	------Average For Week Ending------				----Average For Month----				4Q	1Q	2Q	3Q	4Q	1Q
Interest Rates	Sep. 22	Sep. 15	Sep. 8	Sep. 1	Aug.	Jul.	Jun.	3Q 2006	2006	2007	2007	2007	2007	2008
Federal Funds Rate	5.24	5.23	5.25	5.25	5.25	5.24	4.99	5.24	5.3	5.2	5.1	5.0	4.9	4.9
Prime Rate	8.25	8.25	8.25	8.25	8.25	8.25	8.02	8.25	8.3	8.2	8.1	8.0	7.9	7.9
LIBOR, 3-mo.	5.37	5.39	5.39	5.40	5.42	5.49	5.40	5.43	5.4	5.3	5.2	5.1	5.0	5.0
Commercial Paper, 1-mo.	5.20	5.20	5.21	5.20	5.22	5.24	5.12	5.22	5.3	5.3	5.2	5.0	5.0	4.9
Treasury bill, 3-mo.	4.93	4.93	4.97	5.06	5.09	5.08	4.92	5.04	5.0	5.0	4.9	4.8	4.7	4.7
Treasury bill, 6-mo.	5.07	5.11	5.12	5.14	5.17	5.27	5.17	5.18	5.1	5.1	5.0	4.9	4.8	4.8
Treasury bill, 1 yr.	4.97	5.02	5.02	5.03	5.08	5.22	5.16	5.10	5.0	5.0	4.9	4.9	4.8	4.8
Treasury note, 2 yr.	4.77	4.83	4.81	4.83	4.90	5.12	5.12	4.94	4.8	4.9	4.9	4.8	4.8	4.8
Treasury note, 5 yr.	4.66	4.73	4.73	4.73	4.82	5.04	5.07	4.86	4.8	4.8	4.9	4.8	4.8	4.9
Treasury note, 10 yr.	4.71	4.79	4.79	4.76	4.88	5.09	5.11	4.91	4.8	4.9	4.9	4.9	4.9	5.0
Treasury note, 30 yr.	4.83	4.92	4.94	4.91	5.00	5.13	5.15	5.01	4.9	5.0	5.0	5.0	5.1	5.1
Corporate Aaa bond	5.49	5.58	5.59	5.57	5.68	5.85	5.89	5.69	5.7	5.8	5.9	5.9	5.9	6.0
Corporate Baa bond	6.40	6.49	6.52	6.50	6.59	6.76	6.78	6.61	6.6	6.7	6.8	6.8	6.8	6.9
State & Local bonds	4.21	4.30	4.34	4.30	4.39	4.61	4.60	4.43	4.4	4.5	4.6	4.6	4.7	4.7
Home mortgage rate	6.40	6.43	6.47	6.44	6.52	6.76	6.68	6.57	6.4	6.5	6.5	6.5	6.6	6.6

	----------History----------								Consensus Forecasts-Quarterly Avg.					
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	3Q*	4Q	1Q	2Q	3Q	4Q	1Q
Key Assumptions	2004	2004	2005	2005	2005	2005	2006	2006	2006	2007	2007	2007	2007	2008
Major Currency Index	81.9	81.3	83.5	84.7	85.8	84.9	82.2	81.7	81.0	80.2	79.6	79.6	79.6	79.5
Real GDP	2.6	3.4	3.3	4.2	1.8	5.6	2.6	2.3	2.5	2.6	2.6	2.9	3.0	3.1
GDP Price Index	3.2	3.5	2.4	3.3	3.3	3.3	3.3	2.7	2.3	2.6	2.4	2.3	2.2	2.3
Consumer Price Index	3.6	2.3	3.8	5.5	3.3	2.2	4.9	3.3	1.9	2.7	2.5	2.4	2.3	2.3

[1]Individual panel members' forecasts are on pages 4 through 9. Historical data for interest rates except LIBOR is from Federal Reserve Release (FRSR) H.15. LIBOR quotes available from *The Wall Street Journal*. Definitions reported here are same as those in FRSR H.15. Treasury yields are reported on a constant maturity basis. Historical data for the U.S. Federal Reserve Board's Major Currency Index is from FRSR H.10 and G.5. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS). *Interest rate data for 3Q 2006 based on historical data through the week ended September 22. .Data for 3Q 2006 Major Currency Index also is based on data through week ended September 22. Figures for 3Q 2006 Real GDP, GDP Chained Price Index and Consumer Price Index are consensus forecasts based on a special question asked of the panel members this month.*

U.S. Treasury Yield Curve
Week ended September 22, 2006 and Year Ago vs.
4Q 2006 and 1Q 2008 Consensus forecasts

U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield

Corporate Bond Spreads
As of week ended September 22, 2006

U.S. Treasury Yield Curve
As of week ended September 22, 2006

Missouri Gas Energy
Derivation of Mean Equity Risk Premium Based on a Study
Using Holding Period Returns of Public Utilities

Line No.		Over A Rated Public Utility Bonds	Over Baa Rated Public Utility Bonds
		AUS Consultants - Utility Services Study (1)	AUS Consultants - Utility Services Study (1)
		1	1
Time Period		1928-2005	1928-2005
1.	Arithmetic Mean Holding Period Returns (2): Standard & Poor's Public Utility Index	11.02 %	11.02 %
2.	Arithmetic Mean yield on:		
	a. A-rated Public Utility Bonds	(6.61)	
	b. Baa-rated Public Utility Bonds		(7.13)
3.	Equity Risk Premium	4.41 %	3.89 %

Notes: (1) S&P Public Utility Index and Moody's Public Utility Bond Average Annual Yields, 1928-2005 (AUS Consultants - Utility Services, 2005).

(2) Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.

<u>Missouri Gas Energy</u>
Value Line Adjusted Betas
for the Proxy Group of Four Gas Distribution Companies, the Proxy Group of
<u>Eight Value Line Gas Distribution Companies and Southern Union Company</u>

	Value Line Adjusted Beta
Proxy Group of Four Gas Distribution Companies	
Cascade Natural Gas Corporation	0.85
NICOR Inc.	1.20
Northwest Natural Gas Company	0.75
Piedmont Natural Gas Co., Inc.	0.80
Average	0.90
Average Excluding Cascade Natural (1)	0.92
Proxy Group of Eight Value Line Gas Distribution Companies	
Cascade Natural Gas Corporation	0.85
The Laclede Group, Inc.	0.85
New Jersey Resources Corp.	0.80
NICOR Inc.	1.20
Northwest Natural Gas Company	0.75
Peoples Energy Corporation	0.85
Piedmont Natural Gas Co., Inc.	0.80
WGL Holdings, Inc.	0.80
Average	0.86
Average Excluding Cascade Natural and Peoples Energy (1)	0.87
<u>Southern Union Company</u>	1.05

Notes: (1) Cascade Natural Gas Corporation and Peoples Energy Corporation
are currently in the process of being acquired by MDU Resources and WPS
Resources, respectively. For informational purposes, the averages excluding
Cascade Natural in the proxy group of four LDCs, and Cascade Natural and
Peoples Energy in the proxy group of eight Value Line LDCs are being shown.

Source of Information: <u>Value Line Investment Survey, (Standard Edition)</u>
                                          September 15, 2006

<u>Missouri Gas Energy</u>
Indicated Common Equity Cost Rate Through Use of the
Capital Asset Pricing Model for the Proxy Group of Four Gas Distribution Companies,
the Proxy Group of Eight Value Line Gas Distribution Companies
<u>and Southern Union Company</u>

Line No.		Proxy Group of Four Gas Distribution Companies	Proxy Group of Eight Value Line Gas Distribution Companies	Southern Union Company
1.	Capital Asset Pricing Model Derived Company Equity Cost Rate (1)	<u>11.46</u> %	<u>11.19</u> %	<u>12.53</u> %
2.	Capital Asset Pricing Model Derived Company Equity Cost Rate (2)	<u>11.64</u> %	<u>11.44</u> %	<u>12.44</u> %
3.	Conclusion	<u>11.55</u> %	<u>11.32</u> %	<u>12.49</u> %
4.	Conclusion Excluding Cascade Natural and Peoples Energy (3)	<u>11.65</u> %	<u>11.34</u> %	

Notes: (1) Developed on page 2 of this Schedule.

(2) Developed on page 3 of this Schedule.

(3) Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade in the Proxy Group of 4 LDCs, and Cascade and Peoples in the Proxy Group of Eight Value Line LDCs are being shown.

Missouri Gas Energy
Indicated Common Equity Cost Rate Through Use
of the Capital Asset Pricing Model

	Value Line Adjusted Beta	Company-Specific Risk Premium Based on Market Premium of 7.15% (1)	CAPM Result Including Risk-Free Rate of 5.02% (2)	Recommended CAPM Result (3)

Traditional Capital Asset Pricing Model (4)

Proxy Group of Four Gas Distribution Companies				
Cascade Natural Gas Corporation	0.85	6.08 %	11.10 %	11.10 %
NICOR Inc	1.20	8.58	13.60	13.60
Northwest Natural Gas Company	0.75	5.36	10.38	10.38
Piedmont Natural Gas Co., Inc.	0.80	5.72	10.74	10.74
Average	0.90	6.44 %	11.46 %	11.46 %
Average Excluding Cascade Natural (5)	0.92	6.55 %	11.57 %	11.57 %

Proxy Group of Eight Value Line Gas Distribution Companies				
Cascade Natural Gas Corporation	0.85	6.08 %	11.10 %	11.10 %
The Laclede Group, Inc	0.85	6.08	11.10	11.10
New Jersey Resources Corp.	0.80	5.72	10.74	10.74
NICOR Inc.	1.20	8.58	13.60	13.60
Northwest Natural Gas Company	0.75	5.36	10.38	10.38
Peoples Energy Corporation	0.85	6.08	11.10	11.10
Piedmont Natural Gas Co., Inc.	0.80	5.72	10.74	10.74
WGL Holdings, Inc.	0.80	5.72	10.74	10.74
Average	0.86	6.17 %	11.19 %	11.19 %
Average Excluding Cascade Natural and Peoples Energy Corporation (5)	0.87	6.20 %	11.22 %	11.22 %
Southern Union Company	1.05	7.51 %	12.53 %	12.53 %

See page 4 for notes

<u>Missouri Gas Energy</u>
Indicated Common Equity Cost Rate Through Use
<u>of the Capital Asset Pricing Model</u>

	Value Line Adjusted Beta	Company-Specific Risk Premium Based on Market Premium of 7.15% (1)	CAPM Result Including Risk-Free Rate of 5.02% (2)	Recommended CAPM Result (3)
		<u>Empirical Capital Asset Pricing Model (6)</u>		
Proxy Group of Four Gas Distribution Companies				
Cascade Natural Gas Corporation	0.85	6.35 %	11.37 %	11.37 %
NICOR Inc.	1.20	8.22	13.24	13.24
Northwest Natural Gas Company	0.75	5.81	10.83	10.83
Piedmont Natural Gas Co., Inc	0.80	6.08	11.10	11.10
Average	0.90	6.62 %	11.64 %	11.64 %
Average Excluding Cascade Natural (5)	0.92	6.70 %	11.72 %	11.72 %
Proxy Group of Eight Value Line Gas Distribution Companies				
Cascade Natural Gas Corporation	0.85	6.35 %	11.37 %	11.37 %
The Laclede Group, Inc.	0.85	6.35	11.37	11.37
New Jersey Resources Corp	0.80	6.08	11.10	11.10
NICOR Inc	1.20	8.22	13.24	13.24
Northwest Natural Gas Company	0.75	5.81	10.83	10.83
Peoples Energy Corporation	0.85	6.35	11.37	11.37
Piedmont Natural Gas Co., Inc	0.80	6.08	11.10	11.10
WGL Holdings, Inc	0.80	6.08	11.10	11.10
Average	0.86	6.42 %	11.44 %	11.44 %
Average Excluding Cascade Natural and Peoples Energy Corporation (5)	0.87	6.44 %	11.46 %	11.46 %
Southern Union Company	1.05	7.42 %	12.44 %	12.44 %

See page 4 for notes.

Missouri Gas Energy
Development of the Market-Required Rate of Return on Common Equity Using the
Capital Asset Pricing Model for the Proxy Group of Four Gas Distribution Companies,
the Proxy Group of Eight Value Line Gas Distribution Companies and Southern Union Company
Adjusted to Reflect a Forecasted Risk-Free Rate and Market Return

Notes:

(1)   From the two previous month-end (August '06 – September '06), as well as a recently available (October 13, 2006), Value Line Summary & Index, a forecasted 3-5 year total annual market return of 12.22% can be derived by averaging the August 2006, September 2006, and spot forecasted total 3-5 year total appreciation, converting it into an annual market appreciation and adding the Value Line average forecasted annual dividend yield.

The 3-5 year average total market appreciation of 49%, produces a four-year average annual return of 10.48% ((($1.49^{0.25}$) - 1)*100). When the average annual forecasted dividend yield of 1.74% is added, a total average market return of 12.22% (1.74% + 10.48%) is derived.

August 2006, September 2006 and spot forecasted total market return of 12.22% minus the risk-free rate of 5.02% (developed in Note 2) is 7.20% (12.22% - 5.02%). The Ibbotson Associates calculated market premium of 7.10% for the period 1926 2005 results from a total market return of 12.30% less the average income return on long-term U.S. Government Securities of 5.20% (12.30% 5.20% = 7.10%). This is then averaged with the 7.20% Value Line market premium resulting in a 7.15% market premium. The 7.15% market premium is then multiplied by the beta in column 1 of pages 2 and 3 of this schedule.

(2)   Average forecast based upon six quarterly estimates of 20-year Treasury Note yields per the consensus of nearly 50 economists reported in the Blue Chip Financial Forecasts dated October 1, 2006 (see page 6 of Schedule FJH-28 of this exhibit). The estimates are detailed below:

	30-Year Treasury Note Yield
Fourth Quarter 2006	4.90%
First Quarter 2007	5.00
Second Quarter 2007	5.00
Third Quarter 2007	5.00
Fourth Quarter 2007	5.10
First Quarter 2008	5.10
Average	5.02%

(3)   Includes only those indicated common equity cost rates which are greater than 9.45% for reasons fully explained in Mr. Hanley's direct testimony.

(4)   The traditional Capital Asset Pricing Model (CAPM) is applied using the following formula:

$R_s = R_F + \beta (R_M - R_F)$

Where R_s = Return rate of common stock
R_F = Risk Free Rate
β = Value Line Adjusted Beta
R_M = Return on the market as a whole

(5)   Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. For informational purposes, the averages excluding Cascade in the proxy group of four gas distribution companies, and Cascade Natural and Peoples Energy in the proxy group of eight Value Line gas distribution companies are being shown.

(6)   The empirical CAPM is applied using the following formula:

$R_s = R_F + .25 (R_M - R_F) + .75 \beta (R_M - R_F)$

Where R_s = Return rate of common stock
R_F = Risk-Free Rate
β = Value Line Adjusted Beta
R_M = Return on the market as a whole

Source of Information: Value Line Summary & Index (Standard Edition)
Blue Chip Financial Forecasts, October 1, 2006
Value Line Investment Survey, September 15, 2006
Stocks, Bonds, Bills and Inflation – Valuation Edition -2006 Yearbook Market
Results for 1926-2005 Ibbotson Associates, Inc., Chicago, IL

Missouri Gas Energy
Comparable Earnings Analysis
for a Proxy Group of Thirty-Eight Non-Utility Companies Comparable to
the Proxy Group of Four Gas Distribution Companies (1)

Proxy Group of Thirty-Eight Non-Utility Companies Comparable to the Proxy Group of Four Gas Distribution Companies (1)	Adj. Beta	Unadj. Beta	Standard Error of the Regression	5-Year Projected Rate of Return on Net Worth, Equity or Partners' Capital (2)	
				Percent	Student's T-Test
Albemarle Corp	0.90	0.80	3.1129	13.50 %	(0.23)
Alberto Culver	0.70	0.53	2.9772	14.00	(0.17)
Alexander & Baldwin	0.90	0.78	3.1119	13.00	(0.29)
Ashland Inc.	0.85	0.70	3.0119	6.00	(1.15)
BOK Financial	0.80	0.64	3.0444	12.00	(0.42)
Baldor Electric	0.85	0.77	2.9975	18.50	0.38
Banta Corp.	0.75	0.59	2.8763	13.00	(0.29)
Capitol Fed. Fin'l	0.70	0.51	2.9480	7.50	(0.97)
Cincinnati Financial	0.85	0.75	3.0515	8.00	(0.91)
City National Corp	0.90	0.79	3.2484	16.50	0.14
ConocoPhillips	0.90	0.78	3.0735	8.00	(0.91)
Dentsply Int'l	0.70	0.54	3.2618	15.50	0.01
Dun & Bradstreet	0.80	0.63	3.0607	45.50 (3)	3.70
Ecolab Inc.	0.90	0.81	2.9292	24.50	1.12
First Midwest Bancorp	0.90	0.80	2.9316	20.50	0.63
Graco Inc.	0.85	0.77	3.2291	34.00 (3)	2.29
Hancock Holding	0.70	0.54	3.0665	14.50	(0.11)
Harte-Hanks	0.85	0.70	3.1520	17.00	0.20
Hillenbrand Inds	0.80	0.63	3.3283	18.00	0.32
Hospitality Properties	0.85	0.73	3.0360	8.50	(0.85)
Iron Mountain	0.90	0.79	3.3620	10.50	(0.60)
Markel Corp	0.80	0.67	2.9135	14.50	(0.11)
McClatchy Co.	0.75	0.61	2.9836	6.50	(1.09)
McGraw-Hill	0.80	0.63	3.0963	19.50	0.50
Media General 'A'	0.90	0.81	3.1158	7.50	(0.97)
Meredith Corp.	0.90	0.77	2.9132	20.00	0.57
New York Times	0.90	0.81	3.0126	15.00	(0.05)
Occidental Petroleum	0.90	0.78	3.3428	15.00	(0.05)
People's Bank	0.85	0.70	3.1720	13.00	(0.29)
Pfizer Inc	0.85	0.70	3.1781	22.50	0.87
Plum Creek Timber	0.75	0.58	2.9367	15.50	0.01
RLI Corp.	0.75	0.55	3.1141	12.50	(0.36)
Toro Co	0.85	0.75	3.2727	33.00 (3)	2.16
Trizec Properties	0.80	0.67	3.3071	8.00	(0.91)
Union Pacific	0.90	0.79	3.1224	9.50	(0.72)
Washington Federal	0.85	0.74	3.0069	15.00	(0.05)
Webster Fin'l	0.90	0.78	3.0201	9.00	(0.79)
Weis Markets	0.70	0.54	3.2441	10.50	(0.60)
Average for the Non-Utility Group	0.83	0.70	3.0938		

Average for the Proxy Group of Four Gas Distribution Companies	0.80	0.65 (4)	3.1280 (5)

Mean (3)	13.50 %

Conclusion (6)	14.36 %

See pages 7 and 8 for notes

Missouri Gas Energy
Comparable Earnings Analysis
for a Proxy Group of Twenty-Three Non-Utility Companies Comparable to
the Proxy Group of Eight Value Line Gas Distribution Companies (7)

Proxy Group of Twenty-Three Non-Utility Companies Comparable to the Proxy Group of Eight Value Line Gas Distribution Companies (7)	Adj. Beta	Unadj. Beta	Standard Error of the Regression	5-Year Projected Rate of Return on Net Worth, Equity or Partners' Capital (2)	
				Percent	Student's T-Test
Alberto Culver	0.70	0.53	2.9772	14.00 %	(0.11)
Apartment Investment	0.65	0.46	2.7732	8.50	(0.76)
Ashland Inc.	0.85	0.70	3.0119	6.00	(1.05)
BRE Properties	0.70	0.50	2.6424	9.00	(0.70)
Banta Corp.	0.75	0.59	2.8763	13.00	(0.23)
Buckeye Partners L.P.	0.70	0.47	2.7302	19.00	0.48
Capitol Fed. Fin'l	0.70	0.51	2.9480	7.50	(0.87)
Crescent Real Est.	0.80	0.68	2.8368	15.00	0.01
Duke Realty Corp.	0.70	0.53	2.5998	9.00	(0.70)
Exxon Mobil Corp.	0.80	0.65	2.5674	20.50	0.65
Federal Rlty. Inv. Trust	0.70	0.48	2.7163	17.00	0.24
Hudson City Bancorp	0.75	0.57	2.7926	10.00	(0.58)
Kimberly-Clark	0.65	0.46	2.9350	32.00	2.00
Liberty Corp.	0.75	0.60	2.6765	NA (8)	NA
Liberty Property	0.70	0.49	2.5717	12.00	(0.35)
Markel Corp.	0.80	0.67	2.9135	14.50	(0.05)
McClatchy Co.	0.75	0.61	2.9836	6.50	(0.99)
Moody's Corp.	0.80	0.64	2.8144	43.50 (9)	3.35
Old Nat'l Bancorp	0.70	0.49	2.6033	15.50	0.06
Plum Creek Timber	0.75	0.58	2.9367	15.50	0.06
Simon Property Group	0.70	0.48	2.7083	14.00	(0.11)
Washington Federal	0.85	0.74	3.0069	15.00	0.01
Washington R.E.I.T.	0.70	0.54	2.7710	12.00	(0.35)
Average for the Non-Utility Group	0.74	0.56	2.7997		

Average for the Proxy Group of Eight Value Line Gas Distribution Companies	0.78	0.61 (10)	2.7792 (11)		

Mean (8)   13.60 %

Conclusion (6)   14.35 %

See pages 7 and 8 for notes.

Missouri Gas Energy
Comparable Earnings Analysis
for a Proxy Group of Ninety-Eight Non-Utility Companies Comparable to
Southern Union Company (12)

Proxy Group of Ninety-Eight Non-Utility Companies Comparable Southern Union Company (12)	Adj. Beta	Unadj. Beta	Standard Error of the Regression	5-Year Projected Rate of Return on Net Worth, Equity or Partners' Capital (2)	
				Percent	Student's T-Test
21st Century Ins. Group	0.90	0.78	4.0866	9.50 %	(1.07)
ADVO Inc.	0.90	0.79	3.8183	21.00	0.89
Abbott Labs.	0.80	0.68	3.8832	23.00	1.23
Advance Auto Parts	0.90	0.82	4.2012	20.00	0.72
Aflac Inc.	0.95	0.86	3.9019	17.50	0.29
Albany Int'l 'A'	1.05	1.06	4.2858	15.00	(0.13)
Allstate Corp.	0.95	0.85	3.8067	11.00	(0.81)
Amerada Hess	0.90	0.80	4.0188	9.50	(1.07)
Ameron Int'l	0.85	0.76	4.4690	12.50	(0.56)
Anadarko Petroleum	0.90	0.83	4.4300	11.00	(0.81)
Arch Chemicals	0.90	0.81	4.4104	11.50	(0.73)
AutoZone Inc.	0.85	0.70	4.4014	38.50 (15)	3.86
Autoliv Inc.	1.10	1.10	3.8933	15.00	(0.13)
Ball Corp.	0.90	0.79	3.9067	19.50	0.63
Bandag Inc.	0.95	0.85	3.9212	9.00	(1.15)
Bank of Hawaii	0.95	0.86	3.9299	19.00	0.55
Berkley (W.R.)	0.80	0.67	4.1772	14.00	(0.30)
Biomet	0.90	0.77	4.3919	22.00	1.06
Black & Decker	1.05	1.06	4.2481	19.00	0.55
Boeing	1.05	1.05	4.0907	21.50	0.97
Borders Group	0.95	0.87	4.5155	12.50	(0.56)
Briggs & Stratton	1.10	1.09	3.8532	17.00	0.21
Brink's (The) Co.	1.05	1.07	4.2341	12.50	(0.56)
Brown & Brown	0.90	0.78	4.1737	16.00	0.04
Burlington Coat	1.05	1.02	4.2140	NA (16)	NA
Burlington Resources	0.80	0.69	4.3635	NA (16)	NA
C.H. Robinson	0.85	0.76	4.2837	19.00	0.55
CSX Corp.	1.05	1.04	4.1493	11.00	(0.81)
Cabot Corp.	1.00	0.95	4.3746	12.50	(0.56)
Casey's Gen'l Stores	0.85	0.74	4.3342	11.50	(0.73)
Chesapeake Corp.	0.95	0.88	4.2930	7.50	(1.41)
Chicago Mercantile	1.00	0.99	4.4902	19.50	0.63
ChoicePoint Inc.	0.90	0.81	3.9443	11.00	(0.81)
Commercial Metals	0.95	0.86	4.1715	14.50	(0.22)
Cooper Tire & Rubber	1.00	0.99	4.4032	14.00	(0.30)
Countrywide Financial	1.00	0.98	4.0648	13.50	(0.39)
Cytec Inds.	1.00	0.97	4.1299	18.50	0.46
Datascope Corp.	0.95	0.85	4.3746	11.00	(0.81)
Dionex Corp.	0.85	0.70	3.9844	21.00	0.89
Downey Fin'l	0.90	0.81	4.1632	14.00	(0.30)
Eagle Materials	0.90	0.80	4.1023	23.00	1.23
Encore Acquisition	1.00	0.99	4.4182	11.50	(0.73)
Federal Signal	0.95	0.87	4.0623	13.50	(0.39)
Florida Rock	1.00	0.94	3.9042	16.00	0.04
Gallagher (Arthur J.)	0.95	0.86	4.1442	20.00	0.72
Gardner Denver	0.85	0.73	4.2431	11.50	(0.73)
Gaylord Entertainm.	0.95	0.90	4.2247	5.00	(1.83)
Glatfelter	0.85	0.76	4.2850	11.50	(0.73)
GlobalSantaFe Corp.	1.00	0.99	4.4410	10.50	(0.90)
Haemonetics Corp.	0.85	0.71	4.4929	14.00	(0.30)
Harrah's Entertain.	0.95	0.87	4.4861	13.00	(0.47)
Int'l Business Mach.	1.05	1.06	3.8409	28.50 (15)	2.16
Jack in the Box	0.90	0.78	4.4569	15.50	(0.05)
Jacobs Engineering	0.95	0.92	3.9469	15.00	(0.13)
Kellwood Co.	0.90	0.78	4.3632	9.50	(1.07)
Kelly Services 'A'	0.95	0.87	4.2955	11.00	(0.81)
Kohl's Corp.	1.05	1.04	4.1867	16.50	0.12
Lauder (Estee)	0.90	0.81	4.0447	35.00 (15)	3.27
Lincoln Elec Hldgs.	0.85	0.73	4.0259	15.00	(0.13)
Marcus Corp.	0.85	0.75	4.4413	9.50	(1.07)
Masco Corp.	1.10	1.09	4.2366	20.50	0.80
McDonald's Corp.	1.05	1.00	3.9567	18.00	0.38

Missouri Gas Energy
Comparable Earnings Analysis
for a Proxy Group of Ninety-Eight Non-Utility Companies Comparable to
Southern Union Company (12)

Proxy Group of Ninety-Eight Non-Utility Companies Comparable Southern Union Company (12)	Adj. Beta	Unadj. Beta	Standard Error of the Regression	5-Year Projected Rate of Return on Net Worth, Equity or Partners' Capital (2)	
				Percent	Student's T-Test
Merck & Co.	0.80	0.68	4.4432	26.00	1.74
Miller (Herman)	0.95	0.92	4.1296	29.00 (15)	2.25
Murphy Oil Corp.	0.85	0.76	3.9883	9.50	(1.07)
New York Community	0.95	0.85	4.1363	12.00	(0.64)
Newell Rubbermaid	0.85	0.76	4.1959	21.00	0.89
Nordson Corp.	1.05	1.02	3.9829	13.00	(0.47)
Norfolk Southern	1.05	1.04	4.2922	13.00	(0.47)
Outback Steakhouse	0.90	0.83	4.1896	14.50	(0.22)
PMI Group	1.05	1.06	3.9777	11.00	(0.81)
Pactiv Corp.	0.90	0.81	3.8556	18.00	0.38
Payless ShoeSource	0.85	0.74	4.0567	10.50	(0.90)
Pixar	1.05	1.02	4.1578	NA (16)	NA
Polaris Inds.	1.00	0.93	3.8154	30.00	2.42
Progressive (Ohio)	1.05	1.05	4.3361	14.00	(0.30)
Quanex Corp.	1.00	0.93	4.0393	15.00	(0.13)
RPM Int'l	0.85	0.76	4.4246	15.50	(0.05)
Reinsurance Group	0.90	0.82	4.1328	12.00	(0.64)
Rohm and Haas	1.05	1.07	4.4998	15.50	(0.05)
Ruby Tuesday	0.85	0.75	4.5025	19.50	0.63
SAFECO Corp.	0.95	0.89	4.4267	11.50	(0.73)
Schulman (A.)	0.85	0.71	4.1966	7.00	(1.49)
Sigma-Aldrich	0.85	0.71	3.9318	18.50	0.46
Sovereign Bancorp	1.10	1.11	3.9183	15.00	(0.13)
St. Jude Medical	0.85	0.73	4.2191	15.50	(0.05)
Stanley Works	1.00	0.97	3.9338	16.00	0.04
Steelcase Inc 'A'	0.85	0.76	4.5001	14.00	(0.30)
Superior Inds. Int'l	1.00	0.98	3.8279	9.00	(1.15)
Sybron Dental	0.90	0.82	4.4078	NA (16)	NA
Tecumseh Products 'A'	0.80	0.68	3.8146	9.50	(1.07)
Trinity Inds.	0.95	0.89	4.2319	12.50	(0.56)
Tupperware Brands	0.85	0.74	4.3901	24.00	1.40
United Stationers	1.10	1.11	4.1798	13.00	(0.47)
Varian Medical Sys.	0.80	0.67	4.1332	23.50	1.31
Waste Management	0.90	0.82	4.2063	20.00	0.72
Wausau Paper	1.00	1.00	4.0989	21.00	0.89
Weight Watchers	0.95	0.90	3.8996	NMF (16)	NMF
Average for the Non-Utility Group	0.94	0.87	4.1720		

| Southern Union Company | 0.95 | 0.89 (13) | 4.1728 (14) | | |

| Mean (15) | | | | 15.02 % | |

| Conclusion (6) | | | | 14.11 % | |

See pages 7 and 8 for notes.

Missouri Gas Energy
Comparable Earnings Analysis
for a Proxy Group of Thirty-Eight Non-Utility Companies Comparable to
the Proxy Group of Three Gas Distribution Companies (17)

Proxy Group of Thirty-Eight Non-Utility Companies Comparable to the Proxy Group of Three Gas Distribution Companies (17)	Adj. Beta	Unadj Beta	Standard Error of the Regression	5-Year Projected Rate of Return on Net Worth, Equity or Partners' Capital (2) Percent	Student's T-Test
3M Company	0.90	0.80	2.7583	26.00 %	1.12
Albemarle Corp.	0.90	0.80	3.1129	13.50	(0.26)
Alberto Culver	0.70	0.53	2.9772	14.00	(0.21)
Alexander & Baldwin	0.90	0.78	3.1119	13.00	(0.32)
Ashland Inc.	0.85	0.70	3.0119	6.00	(1.09)
BOK Financial	0.80	0.64	3.0444	12.00	(0.43)
Baldor Electric	0.85	0.77	2.9975	18.50	0.29
Banta Corp.	0.75	0.59	2.8763	13.00	(0.32)
Capitol Fed. Fin'l	0.70	0.51	2.9480	7.50	(0.93)
Cincinnati Financial	0.85	0.75	3.0515	8.00	(0.87)
ConocoPhillips	0.90	0.78	3.0735	8.00	(0.87)
Crescent Real Est.	0.80	0.68	2.8368	15.00	(0.10)
Dun & Bradstreet	0.80	0.63	3.0607	45.50 (18)	3.28
Ecolab Inc.	0.90	0.81	2.9292	24.50	0.96
First Midwest Bancorp	0.90	0.80	2.9316	20.50	0.51
Genuine Parts	0.90	0.81	2.7652	17.00	0.13
Graco Inc.	0.85	0.77	3.2291	34.00 (18)	2.01
Hancock Holding	0.70	0.54	3.0665	14.50	(0.15)
Harte-Hanks	0.85	0.70	3.1520	17.00	0.13
Hospitality Properties	0.85	0.73	3.0360	8.50	(0.82)
Hudson City Bancorp	0.75	0.57	2.7926	10.00	(0.65)
Markel Corp.	0.80	0.67	2.9135	14.50	(0.15)
McClatchy Co.	0.75	0.61	2.9836	6.50	(1.04)
McGraw-Hill	0.80	0.63	3.0963	19.50	0.40
Media General 'A'	0.90	0.81	3.1158	7.50	(0.93)
Meredith Corp.	0.90	0.77	2.9132	20.00	0.46
Moody's Corp.	0.80	0.64	2.8144	43.50	3.06
New York Times	0.90	0.81	3.0126	15.00	(0.10)
People's Bank	0.85	0.70	3.1720	13.00	(0.32)
Pfizer Inc.	0.85	0.70	3.1781	22.50	0.74
Plum Creek Timber	0.75	0.58	2.9367	15.50	(0.04)
RLI Corp.	0.75	0.55	3.1141	12.50	(0.37)
Union Pacific	0.90	0.79	3.1224	9.50	(0.71)
Unitrin Inc.	0.90	0.83	2.9039	11.00	(0.54)
Washington Federal	0.85	0.74	3.0069	15.00	(0.10)
Washington R.E.I.T.	0.70	0.54	2.7710	12.00	(0.43)
Webster Fin'l	0.90	0.78	3.0201	9.00	(0.76)
Weis Markets	0.70	0.54	3.2441	10.50	(0.60)
Average for the Non-Utility Group	0.83	0.69	3.0022		

Average for the Proxy Group of Three Gas Distribution Companies	0.82	0.67 (18)	2.9838 (18)		

Mean (3)   14.54 %

Conclusion (6)   14.15 %

See pages 7 and 8 for notes.

<u>Missouri Gas Energy</u>
Comparable Earnings Analysis
for a Proxy Group of Nineteen Non-Utility Companies Comparable to
<u>the Proxy Group of Six Value Line Gas Distribution Companies (17)</u>

Proxy Group of Nineteeen Non-Utility Companies Comparable to the Proxy Group of Six Value Line Gas Distribution Companies (17)	Adj. Beta	Unadj. Beta	Standard Error of the Regression	5-Year Projected Rate of Return on Net Worth, Equity or Partners' Capital (2)	
				Percent	Student's T-Test
BRE Properties	0.70	0.50	2.6424	9.00 %	(0.71)
Banta Corp.	0.75	0.59	2.8763	13.00	(0.24)
Buckeye Partners L.P.	0.70	0.47	2.7302	19.00	0.48
Chevron Corp.	0.80	0.67	2.5141	17.00	0.24
Commerce Bancshs.	0.80	0.67	2.4462	13.00	(0.24)
Crescent Real Est.	0.80	0.68	2.8368	15.00	0.00
Duke Realty Corp.	0.70	0.53	2.5998	9.00	(0.71)
Equity Office P'ptys	0.70	0.48	2.5112	6.00	(1.07)
Equity Residential	0.70	0.53	2.4832	5.00	(1.19)
Exxon Mobil Corp.	0.80	0.65	2.5674	20.50	0.66
Federal Rlty. Inv. Trust	0.70	0.48	2.7163	17.00	0.24
Hudson City Bancorp	0.75	0.57	2.7926	10.00	(0.59)
Liberty Corp.	0.75	0.60	2.6765	NA (8)	NA
Liberty Property	0.70	0.49	2.5717	12.00	(0.36)
Moody's Corp.	0.80	0.64	2.8144	43.50 (18)	3.41
Old Nat'l Bancorp	0.70	0.49	2.6033	15.50	0.06
Simon Property Group	0.70	0.48	2.7083	14.00	(0.12)
United Parcel Serv.	0.80	0.68	2.4342	19.00	0.48
Washington R.E.I.T.	0.70	0.54	2.7710	12.00	(0.36)
Average for the Non-Utility Group	0.74	0.57	2.6472		

Average for the Proxy Group of Six Value Line Gas
Distribution Companies

	0.78	0.61 (18)	2.6675 (18)

Mean (8)   13.29 %

Conclusion (6)   14.71 %

See pages 7 and 8 for notes.

Missouri Gas Energy
Comparable Earnings Analysis

Notes:

(1) The criteria for selection of the proxy group of thirty-eight non-utility companies was that the non-utility companies be domestic and have a meaningful projected 2008 – 2010 rate of return on net worth or partners' capital as reported in Value Line Investment Survey (Standard Edition). The proxy group of thirty-eight non-utility companies was selected based upon the proxy group of four gas distribution companies' unadjusted beta range of 0.49 – 0.81 and standard error of the regression range of 2.8532 – 3.4028. These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression as detailed in Mr. Hanley's direct testimony. Plus or minus two standard deviations captures 95.5% of the distribution of unadjusted betas and standard errors of the regression.

(2) 2008-2010.

(3) The Student's T-statistic associated with this projected return exceeds 1.960 at the 95% level of confidence. Therefore, it has been excluded, as an outlier, to arrive at a proper mean projected return as fully explained in Mr. Hanley's direct testimony.

(4) The standard deviation of the proxy group of four gas distribution companies' unadjusted beta is 0.0823.

(5) The standard deviation of the proxy group of four gas distribution companies' standard error of the regression is 0.1374. The standard deviation of the standard error of the regression is calculated as follows:

Standard Deviation of the Standard Error of the Regression =

$$\frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

Where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

Thus, $0.1374 = \frac{3.1280}{\sqrt{518}} = \frac{3.1280}{22.7596}$

(6) Average of 5-year projected rates of return excluding those above 20% and below 9.45% for reasons fully explained in Mr. Hanley's direct testimony.

(7) The criteria for selection of the proxy group of twenty-three non-utility companies was that the non-utility companies be domestic and have a meaningful projected 2008 – 2010 rate of return on net worth or partners' capital as reported in Value Line Investment Survey (Standard Edition). The proxy group of twenty-three non-utility companies was selected based upon the proxy group of eight Value Line gas distribution companies' unadjusted beta range of 0.46 – 0.76 and standard error of the regression range of 2.5350 – 3.0234. These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression as detailed in Mr. Hanley's direct testimony. Plus or minus two standard deviations captures 95.5% of the distribution of unadjusted betas and standard errors of the regression

(8) On February 2, 2006, Liberty Corporation was officially acquired by privately held Raycom Media, Inc. Therefore, the company is not being traded anymore, and consequently, not included in the Student's T-statistic.

(9) The Student's T-statistic associated with this projected return exceeds 2.080 at the 95% level of confidence with twenty-one (21 = 22 observations – 1) degrees of freedom. Therefore, it has been excluded, as an outlier, to arrive at a proper mean projected return as fully explained in Mr. Hanley's direct testimony.

Missouri Gas Energy
Comparable Earnings Analysis

(10)   The standard deviation of the proxy group of eight Value Line gas distribution companies' unadjusted beta is 0.0732.

(11)   The standard deviation of the proxy group of eight Value Line gas distribution companies' standard error of the regression is 0.1221= (2.7792 / 22.7596).

(12)   The criteria for selection of the proxy group of ninety-eight non-utility companies was that the non-utility companies be domestic and have a meaningful projected 2008 – 2010 rate of return on net worth or partners' capital as reported in Value Line Investment Survey (Standard Edition). The proxy group of ninety-eight non-utility companies was selected based upon Southern Union Company's unadjusted beta range of 0.67 – 1.11 and standard error of the regression range of 3.8062 – 4.5394. These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression as detailed in Mr. Hanley's direct testimony. Plus or minus two standard deviations captures 95.5% of the distribution of unadjusted betas and standard errors of the regression.

(13)   The standard deviation of Southern Union Company's unadjusted beta is 0.1098.

(14)   The standard deviation of Southern Union Company's standard error of the regression is 0.1833= (4.1728 / 22.7596).

(15)   The following companies are not being traded anymore, and therefore, they are not included in the Student's T-statistic: Burlington Coat Factory was acquired by Bain Capital Partners on April 13, 2006; Burlington Resources was acquired by ConocoPhillips on March 31, 2006; Pixar was acquired by Disney on May 6, 2006; Sybron Dental was acquired by Danaher Corporation on May 19, 2006. Weight Watchers is not included in the Student's T-statistic because the company's 5-Year Projected Rate of Return on Equity is NMF.

(16)   The Student's T-statistic associated with this projected return exceeds 1.96 at the 95% level of confidence with twenty-two (92 = 93 observations – 1) degrees of freedom. Therefore, it has been excluded, as an outlier, to arrive at a proper mean projected return as fully explained in Mr. Hanley direct testimony.

(17)   Cascade Natural Gas Corporation and Peoples Energy Corporation are currently in the process of being acquired by MDU Resources and WPS Resources, respectively. If the Cascade were excluded from the group of 4, and Cascade and Peoples were excluded from the group of 8, the results would be as follow: The proxy group of thirty-eight non-utility companies was selected based upon the proxy group of three gas distribution companies' unadjusted beta range of 0.51 – 0.83 and standard error of the regression range of 2.7216 – 3.2460. The proxy group of nineteen non-utility companies was selected based upon the proxy group of six Value Line gas distribution companies' unadjusted beta range of 0.47 – 0.75 and standard error of the regression range of 2.4331 – 2.9019. These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression as detailed in Mr. Hanley's direct testimony. Plus or minus two standard deviations captures 95.5% of the distribution of unadjusted betas and standard errors of the regression.

(18)   For the proxy group of three LDCs the Student's T-statistic associated with this projected return exceeds 1.960 at the 95% level of confidence. Therefore, it has been excluded, as an outlier, to arrive at a proper mean projected return as fully explained in Mr. Hanley's direct testimony. For the proxy group of six Value Line LDCs the Student's T-statistic associated with this projected return exceeds 2.101 at the 95% level of confidence with seventeen (17 = 18 observations – 1) degrees of freedom. Therefore, it has been excluded, as an outlier, to arrive at a proper mean projected return as fully explained in the accompanying direct testimony. The standard deviations of the proxy group of three LDCs and six Value Line LDCs' unadjusted beta are 0.0785 and 0.0702, respectively. The standard deviations of the proxy groups of three LDCs and six Value Line LDCs' standard error of the regression are 0.1311 and 0.1172, respectively.

Source of Information: Value Line, Inc., Proprietary database, September 15, 2006
Value Line Investment Survey (Standard Edition)