

# EXHIBIT

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Public Counsel  
GR-2004-0209

## SURREBUTTAL TESTIMONY OF

TRAVIS ALLEN

FILED<sup>2</sup>

JUL 13 2004

Missouri Public  
Service Commission

Submitted on Behalf of  
the Office of the Public Counsel

MISSOURI GAS ENERGY

Case No. GR-2004-0209

June 14, 2004

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**

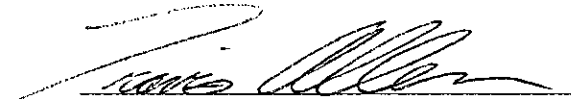
In the matter of Missouri Gas Energy's tariffs                     )  
to implement a general rate increase for natural                 )  
gas service.   )     Case No. GR-2004-0209

**AFFIDAVIT OF TRAVIS ALLEN**

STATE OF MISSOURI     )  
                                      )     ss  
COUNTY OF COLE     )


Travis Allen, of lawful age and being first duly sworn, deposes and states:

1. My name is Travis Allen. I am a Financial Analyst for the Office of the Public Counsel.
2. Attached hereto and made a part hereof for all purposes is my surrebuttal testimony consisting of pages 1 through 37.
3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

  
Travis Allen

Subscribed and sworn to me this 14<sup>th</sup> day of June 2004.

KATHLEEN HARRISON  
Notary Public - State of Missouri  
County of Cole  
My Commission Expires Jan. 31, 2006

  
Kathleen Harrison  
Notary Public

My commission expires January 31, 2006.

**SURREBUTTAL TESTIMONY**  
**OF**  
**TRAVIS ALLEN**  
**MISSOURI GAS ENERGY**  
**A DIVISION OF SOUTHERN UNION COMPANY**  
**CASE NO. GR-2004-0209**  
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**SURREBUTTAL TESTIMONY**

**OF**

**TRAVIS ALLEN**

**MISSOURI GAS ENERGY**

**A DIVISION OF SOUTHERN UNION COMPANY**

**CASE NO. GR-2004-0209**

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**INTRODUCTION**

**Q. Please state your name and business address.**

A. Travis Allen, 200 Madison St., P.O. Box 2230, Jefferson City Mo., 65102

**Q. Are you the same Travis Allen who filed direct and rebuttal testimony in this proceeding?**

A. Yes, I am.

**Q. What is the purpose of this testimony?**

A. I will respond to the rebuttal testimony of Missouri Gas Energy (MGE) witness John C. Dunn, Staff witness David Murray, make corrections to my direct testimony, and make corrections to my rebuttal testimony.

**Rebuttal of MGE Witness Dunn's Rebuttal:**

**Broad-Brush Comparison**

**Q. Does witness Dunn try to lump your analysis in with Staff witness Murray's analysis on pages 27-48 of his rebuttal testimony?**

**A. Yes, he does.**

**Q. Is such a broad-brush comparison of your analysis with witness Murray's analysis appropriate?**

**A. No, the vast majority of witness Dunn's criticisms simply do not apply to my analysis. Witness Dunn, in his rush to paint the analyses of witness Murray and myself with the same broad brush, simply ignored the facts of my analysis.**

**Q. Please explain.**

**A. On page 27 of his rebuttal testimony, witness Dunn writes;**

*"Your third major criticism was the fact that both the Staff and the Public Counsel witnesses used arbitrary, contrived and mechanistic DCF calculations. Please describe this criticism in greater detail."*

Witness Dunn then goes on describing his criticisms of witness Murray's analysis for the majority of the next 20 pages.

**Q. Why does witness Dunn neglect to speak about your analysis in the majority of these 20 pages?**

**A. Because his criticisms do not apply to my analysis. Witness Dunn seems to want to make inaccurate and broad generalizations instead of focusing on the facts of my analysis.**

**“Canned Testimony”**

1  
2 **Q. Does witness Dunn describe the direct testimony you filed in this case as a**  
3 **“canned” copy of previous Office of the Public Counsel (OPC) filings?**

4 A. Yes, he does on page 3 of his rebuttal testimony.

5 **Q. Is this an accurate portrayal of your direct testimony?**

6 A. No, it is not. The direct testimony that I filed in this case is most certainly **not** a  
7 “canned” copy of previous OPC filings. Obviously, some of the language in the  
8 testimony is the same as the OPC’s GR-2001-292 rate of return direct testimony  
9 filing, but that does not mean that my direct testimony is a “canned” copy of that  
10 filing.

11 **Q. Why?**

12 A. The analysis that I performed in making my recommendation was all my own  
13 work and as far as the similarity in some of the language goes, I reviewed the  
14 OPC’s GR-2001-292 direct testimony filing to see what I did and what I did not  
15 agree with. If I did not agree with something in the GR-2001-292 testimony or  
16 simply did not believe that it needed to be in my direct testimony filing, I took it  
17 out. If I did agree with it and liked the way it was presented, I left it in the direct  
18 testimony because there was no need to reinvent the wheel. Witness Dunn would  
19 have you believe that I simply took the old testimony and put my name on the  
20 cover with out reviewing it. Let me assure you, that was not the case.  
21 Consequently, my direct testimony filing is **not** a “canned” copy of OPC’s GR-  
22 2001-292 rate of return direct testimony filing.

1 **Q. Does company witness Morin admit to using “boilerplate” text in his**  
2 **testimony filings?**

3 A. Yes, the following is an excerpt from page 10 of witness Morin’s June 10, 2004  
4 deposition;

5 *Q. Do you have any material that you consider as a standard*  
6 *narrative that you use for testimony purposes?*

7  
8 *A. “Yes, sir. I have some boilerplate text that talks about the*  
9 *rudiments of rate of return regulation, describes the various*  
10 *methodologies that one uses. So the answer’s yes.”*

11  
12 **Inclusion of Panhandle’s Embedded Cost of Long-Term Debt**

13 **Q. On page 11 of his rebuttal testimony, witness Dunn claims that you included**  
14 **Panhandle Eastern Pipeline Company’s (PEPL’s) lower cost of debt in order**  
15 **to artificially deflate your cost of capital recommendation. Is this correct?**

16 A. No, it is not. I did not include PEPL’s embedded cost of long-term debt into my  
17 calculation of Southern Union’s embedded cost of long-term debt.

18 **Capital Structure**

19 **Q. Does witness Dunn state that the proper capital structure to be used in this**  
20 **proceeding is the stand-alone capital structure of Southern Union after**  
21 **removing short-term debt and the impact of its Panhandle Eastern**  
22 **subsidiary?**

23 A. Yes, he does on page 9 of his rebuttal testimony.

24 **Q. Do you agree with witness Dunn?**

25 A. No, I do not.

26 **Q. What capital structure do you think should be used in this proceeding?**

1 A. I believe that the proper capital structure to be used in this proceeding is Southern  
2 Union's consolidated capital structure (i.e. including short-term debt and the  
3 effects of the Panhandle acquisition). However, if the Commission does not  
4 believe that using the consolidated capital structure is appropriate, I believe that  
5 the hypothetical capital structure that I proposed on page 14 of my rebuttal  
6 testimony is a much better alternative than the capital structure proposed by  
7 witness Dunn.

8 **Q. Why do you think that short-term debt should be included into the capital**  
9 **structure?**

10 A. As described on page 10 of my rebuttal testimony, I believe that short-term debt  
11 should be excluded from capital structure only if it represents less than 2% of the  
12 capital structure after construction-work-in-progress has been subtracted.  
13 Southern Union has consistently maintained a level of short-term debt, less  
14 construction-work-in-progress, over the last year that is greater than 2% of their  
15 capital structure. Consequently, I believe that short-term debt should  
16 appropriately be included into the capital structure.

17 **Q. What criteria do other experts use when deciding whether or not to include**  
18 **short-term debt into the capital structure?**

19 A. According to the 1997 edition of The Cost of Capital, A Practitioners Guide by  
20 David Parcell:

21 *"Among the most frequent criteria for deciding on inclusion of short-term*  
22 *debt are:*

23  
24 *1. the extent to which the utility employs short-term debt on an*  
25 *on- going basis.*  
26



2. the relative level of short-term debt utilized by the utility.  
(p. 4-13)

**Q. Is this the same book referenced by witness Dunn in his rebuttal testimony?**

A. Yes, it is.

**Q. What does Standard and Poor's say about the way firms currently use short-term debt?**

A. According to Standard and Poor's;

*"Traditional measures focusing on long-term debt have lost much of their significance, since companies rely increasingly on short-term borrowings. It is now commonplace to find permanent layers of short-term debt, which finance not only seasonal working capital but also an ongoing portion of the asset base." (Standard and Poor's Corporate Rating Criteria p.24)*

**Q. Doesn't witness Dunn state that Southern Union has no outstanding short-term debt as of April 30, 2004?**

A. Yes, he does on page 27 of his rebuttal testimony.

**Q. And it is still your position that short-term debt should be included into the capital structure?**

A. Yes, Southern Union has consistently maintained a short-term debt, less construction-work-in-progress, balance greater than 2% of their capital structure over the last year.

**Q. Have you issued several data requests in an effort to determine if Southern Union's recent elimination of short-term debt represents a change in the Company's policies regarding the use of short-term debt?**

A. Yes, these data requests were sent out on June 1, 2004 and are due back on June 21, 2004.

1    **Q.    Would you consider excluding short-term debt from your capital structure**  
2           **recommendation?**

3    A.    Yes, if Southern Union demonstrates that they do not plan on maintaining a short-  
4           term debt, less construction-work-in-progress, balance greater than 2% of their  
5           capital structure from June 9, 2004 on a going forward basis, OPC is willing to  
6           consider excluding short-term debt from its recommended capital structure.

7    **Q.    What would excluding short-term debt do to OPC's recommended capital**  
8           **structure?**

9    A.    Excluding short-term debt would result in the following OPC capital structure  
10          recommendation;

11	Common Stock Equity	28.07%
12	Preferred Stock	6.64%
13	Long-Term Debt	<u>65.29%</u>
14	Total	100.00%

15  
16   **Q.    What would using this capital structure do to your recommended rate of**  
17          **return range?**

18   A.    It would result in the following range for rate of return;

19           $ROR_{(LOW)} = (.2807 * 9.01\%) + (.0664 * 7.758\%) + (.6529 * 7.17\%)$

20           $ROR_{(LOW)} = 7.73\%$

21           $ROR_{(HIGH)} = (.2807 * 9.34\%) + (.0664 * 7.758\%) + (.6529 * 7.17\%)$

22           $ROR_{(HIGH)} = 7.82\%$

23   **Q.    What would excluding short-term debt do to the OPC's calculated**  
24          **hypothetical capital structure?**

25   A.    Excluding short-term debt would result in the following hypothetical capital  
26          structure;

1	Common Stock Equity	37.60%
2	Preferred Stock	6.17%
3	Long-Term Debt	<u>56.23%</u>
4	Total	100.00%
5		

6 **Q. What would using this hypothetical capital structure do to your**  
7 **recommended rate of return range?**

8 A. It would result in the following rate of return range;

9 
$$ROR_{(LOW)} = (.3760 * 9.01\%) + (.0617 * 7.758\%) + (.5623 * 7.17\%)$$

10 
$$ROR_{(LOW)} = 7.90\%$$

11 
$$ROR_{(HIGH)} = (.3760 * 9.34\%) + (.0617 * 7.758\%) + (.5623 * 7.17\%)$$

12 
$$ROR_{(HIGH)} = 8.02\%$$

13 **Q. Why is it inappropriate to exclude PEPL's debt from the capital structure?**

14 A. The reason that it is inappropriate to exclude PEPL's debt from the capital  
15 structure is because ratepayers and shareholders share in the risks of the  
16 Panhandle acquisition but disproportionately in the potential benefits. That is, if  
17 the acquisition proves to be a failure, both ratepayers and shareholders are  
18 affected by the loss of some or all of the capital that Southern Union invested in  
19 Panhandle. In the worst-case scenario, Panhandle defaults on all of its debt and all  
20 of the assets of the business are seized by the debt holders. Consequently, all of  
21 the capital that Southern Union had invested in Panhandle, which could have gone  
22 toward paying down its debt, replacing infrastructure, etc., is now gone.  
23 Conversely, if the acquisition turns out to be a great success, the bulk of the  
24 benefits go to shareholders, not ratepayers, via a higher stock price.

25 **Q. On page 22, lines 18-26 of his rebuttal testimony witness Dunn states;**

1                    ***“We know at this point exactly the mix of capital used by Southern***  
2                    ***Union to acquire Panhandle Eastern. That mix of capital is the capital***  
3                    ***which currently stands behind Southern Union’s investment in***  
4                    ***Panhandle Eastern. It is reasonable to exclude that mix of capital from***  
5                    ***the consolidated capital structure and treat the residual Southern Union***  
6                    ***as the capital structure of the distribution entities, and the capital***  
7                    ***structure I have recommended follows this approach.”***  
8

9                    **Does witness Dunn’s recommended capital structure exclude all of the capital**  
10                  **investment that Southern Union has in Panhandle?**

11        A.        No, it does not. Witness Dunn merely excludes Panhandle’s long-term debt from  
12                  the consolidated capital structure of Southern Union Company. Witness Dunn  
13                  fails to exclude any of the capital that Southern Union has invested in its  
14                  Panhandle operations. Consequently, witness Dunn has not completely segregated  
15                  Panhandle from Southern Union’s capital structure.

16                                  **Arbitrary, Contrived, and Mechanistic DCF Calculations**

17        Q.        Did witness Dunn state on page 27 of his rebuttal testimony that your  
18                  analysis as well as witness Murray’s used arbitrary, contrived and  
19                  mechanistic DCF calculations?

20        A.        Yes, he did.

21        Q.        Did witness Dunn support his claim by accusing you of using dividend per  
22                  share growth rates, using old 2002 data, disregarding the results of your  
23                  CAPM and Risk-Premium analyses, and using the wrong form of the DCF  
24                  model?

25        A.        Yes, he did.

26        Q.        Did witness Dunn further support his claim by accusing you of using an  
27                  inappropriate comparable group, failing to make proper dividend

1           **adjustments and flotation cost adjustments, and failing to be consistent with**  
2           **Staff witness Murray?**

3    A.     Yes, he did.

4                                   *Dividend Growth Rates:*

5    **Q.     Is witness Dunn’s criticism of you using dividend per share growth rates,**  
6           **pages 28-32 in his rebuttal testimony, in developing your rate of return**  
7           **recommendation accurate?**

8    A.     No, it is not.

9    **Q.     Why not?**

10   A.     Because the dividend growth rate was only used in the creation of my **low** return  
11           on equity calculation, 8.04%. As stated clearly in my direct testimony, I discarded  
12           this low return on equity calculation and recommended a return on equity range of  
13           9.01%-9.34%. My recommended return on equity range relied primarily on the  
14           sustainable projected growth rates as well as a consensus of analyst forecasts.  
15           Consequently, while I considered dividend growth rates, they were not a factor in  
16           my recommended return on equity range or my recommended rate of return  
17           range.

18   **Q.     What does Company witness Morin think about looking at a consensus of**  
19           **analyst forecasts?**

20   A.     The following is an excerpt from pages 89-90 of witness Morin’s June 10, 2004  
21           deposition;

22                    *Q.     Would you agree with me because of the dominance of institutional*  
23                    *investors and their influence on individual investor, analysts’*  
24                    *forecasts of long-run growth rates provide a sound basis for*  
25                    *estimating required returns?*

- 1  
2 A. "Yes, I do..."  
3  
4 Q. Would you agree that an average of all the available forecasts  
5 from investment houses is likely to produce the best DCF growth  
6 rate?  
7  
8 A. "I would agree with that statement that the consensus forecast of  
9 many analysts is about the best proxy you can think of for long-  
10 term growth, I agree."  
11  
12 Q. And that would be better than one individual analysts'  
13 determination of growth?  
14  
15  
16  
17 A. "Yeah. I would think it's better to rely on the consensus forecast  
18 rather than one person's forecast. That stands to reason."  
19  
20 Q. Is the 4.90% Thomson Financial expected growth rate illustrated on page 43  
21 of witness Dunn's direct testimony a consensus forecast for witness Dunn's  
22 proxy group?  
23 A. Yes, it is.  
24 Q. Does witness Dunn recommend a growth rate range substantially higher than  
25 this consensus forecast?  
26 A. Yes, witness Dunn uses his own professional opinion to recommend a growth rate  
27 range of 6% - 7%. The following is an excerpt from pages 147 & 148 of witness  
28 Dunn's May 6, 2004 deposition;  
29 Q. And how did you arrive at the 6% growth rate?  
30 A. "It was my conclusion after the review of all that data."  
31 Q. It was your conclusion. There was no calculation?  
32 A. "There was no calculation."  
33 Q. That's just your belief that the growth rate should be 6 percent?

1 A. "That's correct."

2 Q. And the same thing if I asked you about the 7 percent growth rate,  
3 that equals the 11 – that's used to get the 11.9 percent?  
4

5 A. "That's correct."

6 Q. There's no specific way you did that, that's your expert opinion?

7 A. "That's right."

8 Old Data:

9 Q. Is witness Dunn's criticism of you using "old 2002 data", pages 32-34 of his  
10 rebuttal testimony, accurate?

11 A. No, it is not.

12 Q. Why not?

13 A. As clearly indicated on Schedule TA-6, pages 1-9 of my direct testimony, the  
14 historical data that I reviewed as part of my analysis covered the time period  
15 1996-2003. Thus, my historical analysis used the most up-to-date data available at  
16 the time of my analysis.

17 Q. In fact, is the data that you used in your analysis more up-to-date than the  
18 data that witness Dunn used in his analysis?

19 A. Yes, it is.  
20

21 Disregard of CAPM and Risk-Premium Results:

22 Q. Is witness Dunn's criticism of you "disregarding the results of your CAPM  
23 analysis" and thus relying solely on your DCF results, pages 34-35 of his  
24 rebuttal testimony, accurate?

25 A. No, it is not.

1    **Q.     Why not?**

2    A.     As illustrated on page 19 of my direct testimony, my CAPM analysis resulted in a  
3           return on equity of 9.17%, which is merely one half of one basis point from the  
4           middle of my recommended cost of common equity range, 9.01%-9.34%. Clearly,  
5           the results of my CAPM analysis completely support my recommended return on  
6           equity range. I simply do not have any idea as the where witness Dunn got the  
7           idea that I discarded my CAPM result.

8    **Q.     Does Company witness Morin think that more than one cost of equity**  
9           **technique should be considered when making a return on equity**  
10          **recommendation?**

11   A.     Yes, the following is an excerpt from page 96 of witness Morin's June 10, 2004  
12          deposition;

13                *Q.     Should more than one cost of equity capital estimating technique*  
14                *be consulted?*

15  
16                *A.     "Absolutely. I mentioned earlier that a smart and efficient pilot*  
17                *would fly a plane on several instruments, not fly on one instrument*  
18                *in the same ways that rate of return experts should rely on a*  
19                *variety of gauges or meters or signals or indicators to get as*  
20                *accurate an estimate as possible on investor-expected return. So*  
21                *the answer is yes, a variety of techniques should be used*  
22                *definitely."*  
23

24   **Q.     Does Company witness Morin think that a CAPM return on equity estimate**  
25          **supports a DCF return on equity estimate if the CAPM result is in the middle**  
26          **of the DCF range?**

27   A.     Yes, the following is an excerpt from page 106 of witness Morin's June 10, 2004  
28          deposition;



1                   Q.     *Okay. Let me ask you this. What if it were – your DCF was 10*  
2                             *percent to 11 percent and your CAP-M was 10.5 percent. What*  
3                             *would that indicate to you?*

4  
5                   A.     *“They’re roughly consistent, that they’re within the ballpark.”*

6     **Q.     Does Company witness Morin think that sole reliance on the DCF model**  
7                   **meets the Hope principle that the return to the equity owner should be**  
8                   **commensurate with returns on investment in other enterprises having**  
9                   **corresponding risks?**

10    A.     No, the following is an excerpt from pages 103-104 of witness Morin’s June 10,  
11             2004 deposition;

12                   Q.     *Does sole reliance on the DCF model to come to a conclusion with*  
13                             *respect to your recommendation meet the Hope principle that the*  
14                             *return to the equity owner should be commensurate with returns on*  
15                             *investment in other enterprises having corresponding risks?*

16  
17                   A.     *“I don’t think it does by itself.”*  
18

19    **Q.     Does Company witness Morin think that sole reliance on the DCF model**  
20                   **meets the Bluefield requirement that allowed returns be sufficient to assure a**  
21                   **utility’s financial soundness?**

22    A.     No, the following is an excerpt from page 103 of witness Morin’s June 10, 2004  
23             deposition;

24                   Q.     *Does sole reliance on the DCF method meet the Bluefield*  
25                             *requirement that allowed returns be sufficient to assure a utility’s*  
26                             *financial soundness?*

27  
28                   A.     *“No.”*

29  
30                   Q.     *And why not?*

31  
32                   A.     *“Because it’s highly subject to measurement error. You’ve got to*

1                                    *measure those returns accurately. And strict reliance on DCF, you*  
2                                    *run the danger that you will not do that."*  
3

4    **Q.     Does Company witness Morin recognize which analysts in this proceeding**  
5                    **solely rely on the DCF in making their return on equity recommendations?**

6    A.     Yes, the following is an excerpt from page 101 of witness Morin's June 10, 2004  
7                    deposition;

8                    *Q.     Are there any witness in this proceeding that are flying on one*  
9                    *instrument?*

10                    *A.     "Yes. Staff witness certainly is. I believe Mr. Allen at least used the*  
11                    *CAP-M as a check and did rely on it in his recommendation. And,*  
12                    *of course, Mister – the company witness, Mr. Dunn..."*  
13  
14

15   **Q.     Is witness Dunn's criticism of you "disregarding the results of your Risk-**  
16                    **Premium analysis", pages 34-35 of his rebuttal testimony, accurate?**

17   A.     No, it is not.

18   **Q.     Why not?**

19   A.     I did not perform a risk-premium analysis.

20                    *Wrong Form of the DCF:*

21   **Q.     Is witness Dunn's criticism of you for using the "wrong form of the DCF**  
22                    **model", pages 35-36 of his rebuttal testimony, accurate?**

23   A.     No, it is not.

24   **Q.     Why not?**

25   A.     I used the semi-annual compounding form of the DCF model in my analysis, (i.e.  
26                     $k = [D_0 * (1 + 0.50g)] / P_0 + g$ ). This form of the DCF model fully recognizes the

1 timing of dividend payments and dividend increases. Consequently, witness  
2 Dunn's criticism of my selected model has no merit.

3 *Non-Comparable Group:*

4 **Q. Does witness Dunn claim that your analysis does not contain a comparable**  
5 **group of companies?**

6 A. Yes, he does on pages 36-37 of his rebuttal testimony.

7 **Q. Do you agree with this claim?**

8 A. No, I do not.

9 **Q. Why not?**

10 A. Witness Dunn has claimed that earnings-per-share should be the primary  
11 surrogate for dividends in the DCF model. He goes on to state that since the  
12 standard deviation of the historical earnings-per-share growth rates used in my  
13 analysis is larger than the mean, there is no central tendency and thus my proxy  
14 group is not comparable to MGE.

15 **Q. So witness Dunn's methodology for determining if your proxy group is**  
16 **comparable to MGE is to look to see if the standard deviation of historical**  
17 **earnings-per-share is larger/smaller than the mean of the historical earnings-**  
18 **per-share?**

19 A. Yes, if the standard deviation is larger than the mean, he argues that the group has  
20 no central tendency and is therefore not comparable to MGE. If the standard  
21 deviation is not larger than the mean, he argues that the group has a central  
22 tendency and is therefore comparable to MGE.

23 **Q. Please define central tendency.**

1 A. Central tendency is defined as the degree of clustering of values of a statistical  
2 distribution.

3 **Q. Please define standard deviation.**

4 A. Standard deviation is defined as a measure of the dispersion of possible outcomes  
5 around the expected value of a random variable.

6 **Q. Is witness Dunn's assertion that your proxy group is not comparable to MGE**  
7 **correct?**

8 A. No, it is not. Looking at my calculated company specific historical earnings-per-  
9 share compound growth rates as well as Value Lines estimates on Schedule TA-6,  
10 page 1 of my direct testimony, the average earnings-per-share compound growth  
11 rate is 4.56% for my proxy group and the average Value Line earnings-per-share  
12 growth rate is 6.16% for my proxy group. The standard deviations of these two  
13 columns are 3.68% and 5.50%, respectively. Consequently, using witness Dunn's  
14 own methodology, my proxy group is comparable to MGE.

15 **Q. Based on his own methodology, is witness Dunn's proxy group comparable to**  
16 **MGE?**

17 A. Interestingly, no. If you calculate the average and standard deviation, including  
18 negative and zero values, of the five-year earnings growth on Schedule JCD-4 of  
19 his direct testimony, you get a mean of 4.90% and a standard deviation of 6.41%.

20 **Q. Why did you include the negative and zero growth values?**

21 A. Normally, I would have excluded them however, witness Dunn included both  
22 zero and negative growth values when developing his statistical comparability

1 criticism in his rebuttal testimony. Consequently, I included zero and negative  
2 growth values in order to perform an apples to apples comparison.

3 *Failure to Adjust DCF Model for Dividend Increases and Flotation Costs:*

4 **Q. Does witness Dunn claim on pages 39-42 of his rebuttal testimony that you**  
5 **failed to adjust your DCF model appropriately?**

6 A. Yes, he does.

7 **Q. Is he correct?**

8 A. No, he is not.

9 **Q. Please explain.**

10 A. First on pages 41-42, witness Dunn claims that I did not adjust my DCF  
11 calculation to capture the increase in dividends that investors anticipate will occur  
12 during the course of the next year.

13 **Q. Is this correct?**

14 A. No, it is not. As clearly indicated on Schedule TA-8 of my direct testimony, I **did**  
15 adjust my DCF calculation to capture the increase in dividends that investors  
16 anticipate will occur during the course of the next year.

17 **Q. How did you do this?**

18 A. I annualized each company's last quarterly dividend and then multiplied it by  $(1 +$   
19  $(0.50) * (\text{expected sustainable growth}))$ .

20 **Q. Does witness Dunn claim on pages 40-41 of his rebuttal testimony that you**  
21 **neglected to adjust your DCF cost of equity to factor in flotation costs?**

22 A. Yes, he does.

23 **Q. Why is Southern Union asking for a flotation cost adjustment?**

1 A. On page 41 of his rebuttal testimony, witness Dunn claims that a flotation cost  
2 adjustment should be made because "...Southern Union has indicated that there  
3 will be a sale of common stock in the relatively near future in order to maintain  
4 its bond rating."

5 **Q. Why does Southern Union have to make a common stock offering to**  
6 **maintain its bond rating?**

7 A. Because Southern Union dramatically increased the level of debt in its  
8 consolidated capital structure by approximately \$1.2 billion when it acquired  
9 Panhandle.

10 **Q. Would granting a flotation cost adjustment increase Missouri ratepayer**  
11 **costs?**

12 A. Yes, it would increase the cost of equity, which would increase the rate of return.

13 **Q. Would granting a flotation cost adjustment violate the stipulation and**  
14 **agreement in GM-2003-0238 that Southern Union entered into with the**  
15 **Missouri Public Service Commission Staff and the Office of the Public**  
16 **Counsel when it acquired Panhandle?**

17 A. Yes, it would. Stipulation III, part E on page 9 of the stipulation and agreement  
18 reads as follows;

19 *Southern Union will not recommend an increase or claim Staff should*  
20 *make an adjustment to increase the cost of capital for MGE as a result of*  
21 *the Transaction. Any increases in cost of capital Southern Union seeks for*  
22 *MGE will be supported by documented proof: (1) that the increases are a*  
23 *result of factors not associated with the Transaction; (2) that the increases*  
24 *are not a result of changes in business, market, economic or other*  
25 *conditions for MGE caused by the Transaction; or (3) that the increases*  
26 *are not a result of changes in the risk profile of MGE caused by the*  
27 *Transaction. Southern Union will ensure that the retail distribution rates*  
28 *for MGE ratepayers will not increase as a result of the Transaction.*

1

2     **Q.     Has Southern Union provided you “documented proof” that the need to issue**  
3             **common stock and recover an additional flotation cost from Missouri**  
4             **ratepayers is a result of factors not associated with the Panhandle**  
5             **transaction?**

6     A.     No.

7     **Q.     Has Southern Union provided you “documented proof” that the need to issue**  
8             **common stock and recover an additional flotation cost from Missouri**  
9             **ratepayers is not a result of changes in business, market, economic or other**  
10            **conditions for MGE caused by the Panhandle transaction?**

11    A.     No.

12    **Q.     Has Southern Union provided you “documented proof” that the need to issue**  
13             **common stock and recover an additional flotation cost from Missouri**  
14             **ratepayers is not a result of changes in the risk profile of MGE caused by the**  
15             **Panhandle transaction?**

16    A.     No.

17    **Q.     Did you make a flotation cost adjustment?**

18    A.     No, I did not.

19    **Q.     Why not?**

20    A.     In addition to the fact that making a flotation cost adjustment would violate the  
21             aforementioned stipulation and agreement, I have clearly laid out on pages 17-18  
22             of my rebuttal testimony that flotation costs are inherently factored in the DCF  
23             cost of equity calculation and therefore, no adjustments are necessary.

1   **Q.    Has the Missouri Commission denied merger-related flotation cost**  
2       **adjustment requests in the past?**

3    A.    Yes, it has.

4   **Q.    What was the Commission's reason for doing so?**

5    A.    In GR-91-291 In the Matter of Kansas Power and Light Company the  
6       Commission rejected the requested flotation cost adjustment in order to shield  
7       Missouri ratepayers from adverse effects arising from the merger. The following  
8       is an excerpt from the Report and Order of case number GR-91-291 at pages 24-  
9       25;

10               *"Company has made an adjustment to its DCF analysis to reflect*  
11               *the effect of flotation costs on the amount of capital Company can raise...*  
12               *Public Counsel opposes recognition of the flotation costs in establishing*  
13               *Company's cost of equity. Public Counsel points to the statement of*  
14               *Company's rate of return witness that the impending issuance of common*  
15               *stock is merger related. Public Counsel also points to the Commission's*  
16               *commitment to shield Missouri ratepayers from costs associated with the*  
17               *merger as a reason to exclude any flotation costs associated with the*  
18               *impending issuance of common stock. Public Counsel notes that the effect*  
19               *on Missouri ratepayers of including a flotation cost adjustment in*  
20               *establishing Company's cost of equity would be roughly \$650,000*  
21               *annually.*

22               *The Commission determines that these flotation costs should not be*  
23               *accounted for in establishing the appropriate cost of equity for Company.*  
24               *Since Company's witness has admitted that the imminent common stock*  
25               *issuance is merger related, the Commission believes that flotation costs*  
26               *associated with such issuance should not be paid by Missouri ratepayers*  
27               *in order to shield them from any adverse effect arising from the merger."*  
28

29  
30   **Q.    Do the same principles apply to this case?**

31  
32    A.    Yes, although Panhandle was an acquisition, not a merger, the same principles  
33       apply to this case. Southern Union in the stipulation and agreement in GM-2003-  
34       0238 agreed not to recommend an increase or claim that Staff should make an



1 adjustment to increase the cost of capital for MGE as a result of the Panhandle  
2 acquisition.

3 **Q. What did Company witness Morin say about Southern Union's collection of**  
4 **flotation costs in his June 10, 2004 deposition?**

5 A. On pages 33 & 34 of his deposition, witness Morin was asked the following  
6 question;

7 *Q. "Do you believe that it is appropriate for MGE to collect flotation*  
8 *costs for Southern Union's equity issues that are used to drive*  
9 *down the debt that Southern Union incurred from its acquisition of*  
10 *the Panhandle operations?"*

11 *A. "No, I do not."*

12  
13 *Comparison of Public Counsel and Staff End Results:*

14  
15 **Q. Does witness Dunn claim on pages 43-45 of his rebuttal testimony that it is**  
16 **not reasonable for two analysts to make the same calculation with the same**  
17 **formula and the same data and produce radically different results?**

18 A. Yes, he does.

19 **Q. Do you agree with this?**

20 A. No.

21 **Q. Why not?**

22 Witness Dunn's assertion that witness Murray and myself performed the same  
23 calculation with the same formula and the same data is not correct. The data set  
24 that witness Murray used to perform his analysis only extended to year 2002

1       whereas the data set that I used to perform my analysis included 2003 data. Also,  
2       witness Murray relied on the annual compounding form of the DCF model in his  
3       analysis, (  $k = D_1 / P_0 + g$  ). I however, relied on the semi-annual compounding  
4       form of the DCF model in my analysis, (  $k = [D_0 * (1 + 0.50g)] / P_0 + g$  ). As a  
5       result of these differences, as well as the subjective nature of cost of equity  
6       analyses, it is completely reasonable for witness Murray and I to obtain different  
7       results.

## 8 Use of Sustainable Growth Rate

9 Q. Does witness Dunn claim on pages 51-52 of his rebuttal testimony that the  
10 retention growth rate methodology championed by Dr. Myron Gordon in his  
11 1974 book The Cost of Capital to a Public Utility and used by you in your  
12 analysis could result in a “death spiral” in equity returns for MGE?

13 A. Yes, he does.

14 Q. Is this correct?

15 A. Absolutely not.

16 Q. Why not?

17 A. My analysis of the investor expected sustainable growth rate focuses on the  
18 **projected** “br + sv” growth rate. Consequently, **projected**, not historical, equity  
19 returns were factored into the development of the investor expected sustainable  
20 growth rate. As can be seen on Schedule TA-6, pages 2-9, lines 27-29 of my  
21 direct testimony, none of the projected equity returns for any of my sample  
22 companies are negative. Consequently, none of the projected growth rates in my  
23 analysis are negative. Even if some of the growth rates calculated using the

1 projected “br + sv” method had turned out to be negative it would not have  
2 resulted in a “death spiral”.

3 **Q. Why would it not result in a “death spiral”?**

4 A. Because consistent with the methodology laid out in my direct testimony, the  
5 negative growth rates would not have been included into my calculation.  
6 Consequently, witness Dunn’s “death spiral” assertion is simply off base.

7 **Q. Is there support for the “br + sv” growth rate methodology in the financial  
8 literature?**

9 A. Yes, there is. Please see the surrebuttal testimony of OPC witness John Tuck for a  
10 thorough discussion.

11 **Q. Does Company witness Morin recognize Dr. Myron Gordon as an expert in  
12 the field of regulatory finance?**

13 A. Yes, he does. The following is an excerpt from page 64 of witness Morin’s June  
14 10, 2004 deposition;

15 *Q. Do you consider Dr. Myron Gordon to be an expert in the field of*  
16 *regulatory finance?*

17  
18 *A. “Yes.”*

19  
20 *Q. Do you consider Dr. Gordon’s book The Cost of Capital to a*  
21 *Public Utility published by Michigan State University in 1974 to be*  
22 *an authoritative book?*

23  
24 *A. “That’s the one I mentioned to you earlier, yes.”*

25  
26 *Q. Is Dr. Gordon the father of the DCF method?*

27  
28 *A. “Yes, he is. Grandfather by now, but yes, he is.”*

29  
30 *Q. Is he one of the individuals who you look to who influenced your*  
31 *opinions regarding regulatory finance?*  
32

1                   A.       *“He is one, yes.”*

2

3

**Unexplained Adjustments**

4   **Q.     Does witness Dunn claim on page 52 of his rebuttal testimony that you**  
5           **substituted your judgment for the growth rate calculations of four of your**  
6           **eight comparable companies?**

7   A.     Yes, he does.

8   **Q.     Is this correct?**

9   A.     Yes, it is.

10   **Q.    Please explain.**

11   A.     As laid out in my direct testimony, for the high expected growth rate, I analyzed  
12           the individual Company’s growth rates on Schedule TA-6 pages 2-9 of my direct  
13           testimony to determine if there was any reason to expect a higher rate of growth  
14           than the projected retention growth rate. If there was, I recognized it and recorded  
15           it as the high-expected growth rate. If there was not, I simply used the projected  
16           retention growth rate as the high-expected growth rate.

17   **Q.    So all of your adjustments were upward and therefore beneficial to the**  
18           **Company?**

19   A.     Yes.

20   **Q.    Which companies in your comparable group did you make an upward**  
21           **growth rate adjustment to?**

22   A.     I made upward growth rate adjustments to the following companies in my  
23           comparable group;

24               1) Northwest Natural Gas

- 1                   2) Cascade Natural Gas Corporation
- 2                   3) WGL Holdings, Incorporated
- 3                   4) Peoples Energy Corporation

4   **Q.    Could you explain why you made an upward growth rate adjustment for**  
5   **Northwest Natural Gas?**

6   A.    Looking at Schedule TA-6, page 5 of my direct testimony, the calculated  
7   projected “br + sv” sustainable growth rate for Northwest Natural Gas was 4.46%.  
8   However, the average analyst projected earnings per share growth rate was  
9   4.50%. Consequently, I used my professional judgment to select 4.50% as the  
10   high end of my expected sustainable growth rate range for Northwest Natural  
11   Gas.

12   **Q.    Could you explain why you made an upward growth rate adjustment for**  
13   **Cascade Natural Gas Corporation?**

14   A.    Looking at Schedule TA-6, page 6 of my direct testimony, the calculated  
15   projected “br + sv” sustainable growth rate for Cascade Natural Gas Corporation  
16   was 4.23%. However, the average analyst projected growth rate in earnings per  
17   share and the Value Line projected growth rate in book value per share was  
18   6.50% and 4.50%, respectively. Consequently, I used my professional judgment  
19   to select 5.00% as the high end of my expected sustainable growth rate range for  
20   Cascade Natural Gas Corporation.

21   **Q.    Could you explain why you made an upward growth rate adjustment for**  
22   **WGL Holdings, Incorporated?**

1 A. Looking at Schedule TA-6, page 8 of my direct testimony, the calculated  
2 projected “br + sv” sustainable growth rate for WGL Holdings, Incorporated was  
3 3.58%. However, the average analyst projected growth rate in earnings per share  
4 and Value Line projected growth rate in book value per share was 3.75% and  
5 4.50%, respectively. Consequently, I used my professional judgment to select  
6 4.00% as the high end of my expected sustainable growth rate range for WGL  
7 Holdings, Incorporated.

8 **Q. Could you explain why you made an upward growth rate adjustment for**  
9 **Peoples Energy Corporation?**

10 A. Looking at Schedule TA-6, page 9 of my direct testimony, the calculated  
11 projected “br + sv” sustainable growth rate for Peoples Energy Corporation was  
12 3.15%. However, the average analyst projected earnings per share growth rate  
13 was 4.50%. Consequently, I used my professional judgment and selected 4.50%  
14 as the high end of my expected sustainable growth rate range for Peoples Energy  
15 Corporation.

16 **Q. How do your growth rate recommendations for these four companies**  
17 **compare to those published by Thomson Financial and illustrated on page 43**  
18 **of witness Dunn’s direct testimony?**

19 A. They are very consistent with the Thomson Financial growth rates illustrated on  
20 page 43 of witness Dunn’s direct testimony.

21 **Q. Doesn’t witness Dunn claim that your analysis is mechanistic?**

22 A. Yes, he does.

1 **Q. Would a mechanistic analyst have substituted his own professional judgment**  
2 **in the way that you did?**

3 A. No.

4 **Use of an Inappropriate Source**

5 **Q. Does witness Dunn claim on pages 52-53 of his rebuttal testimony that you**  
6 **used an inappropriate source in your analysis?**

7 A. Yes, he does.

8 **Q. What is the name of the alleged inappropriate source?**

9 A. Witness Dunn claims that I used C.W. Turner Reports as a data source when  
10 performing my analysis. Clearly, he is referring to the C.A. Turner Utility Reports  
11 that I cited in my direct testimony.

12 **Q. Do you believe that this is an inappropriate source?**

13 A. No, I do not. I believe that the C.A. Turner Utility Reports provide analysts with a  
14 wide variety of useful, relevant, and reliable information. In fact, Company  
15 witness Morin utilized C.A. Turner Utility Reports in the development of his  
16 rebuttal testimony for this case. The following is an excerpt from page 81 of  
17 witness Morin's June 10, 2004 deposition;

18 *Q. Is C.A. Turner Utility Reports a source appropriate for use in this*  
19 *proceeding?*

20  
21 *A. "Yes."*

22 **Mischaracterization of Public Counsel's Recommendation and Adjustments**

23  
24 **Q. On page 5, lines 18-20 of his rebuttal testimony, witness Dunn states;**

25 *".....the Public Counsel is recommending a 9.34% return on equity on a*  
26 *25.98% equity ratio resulting in a cost of capital of 7.38%."*

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**Is this a completely accurate characterization of your recommendation?**

A. No. I am recommending a return on equity range of 9.01% - 9.34% on a 26.10% equity ratio. My recommended cost of capital range is 7.32% - 7.41%.

**Q. On page 16 of his rebuttal testimony, witness Dunn identifies your recommended capital structure as follows;**

<b>Common Stock Equity</b>	<b>25.98%</b>
<b>Preferred Stock</b>	<b>6.14%</b>
<b>Long-Term Debt</b>	<b>59.42%</b>
<b>Short-Term Debt</b>	<b>7.35%</b>

**Is this a correct representation of the capital structure you recommended in your direct testimony?**

A. No, it is not. The capital structure that I recommended in my direct testimony is as follows;

Common Stock Equity	25.98%
Preferred Stock	6.14%
Long-Term Debt	60.42%
Short-Term Debt	<u>7.46%</u>
Total	100.00%

**Q. Is this your current recommended capital structure?**

A. No, it is not. As explained on pages 2-3 of my rebuttal testimony, I made corrections to the level of short-term debt included in my capital structure recommendation. My corrected capital structure recommendation is as follows;

Common Stock Equity	26.10%
Preferred Stock	6.17%
Long-Term Debt	60.71%
Short-Term Debt	<u>7.01%</u>
Total	100.00%



**Rebuttal of Staff Witness Murray's Rebuttal:**

**CAPM "Fundamental Flaw"**

**Q. Does witness Murray state that you made a "fundamental flaw" in your CAPM calculation?**

**A.** Yes, he does on pages 44-45 of his rebuttal testimony.

**Q. Do you believe that this is a valid criticism?**

**A.** No, I do not.

**Q. Why not?**

**A.** The Capital Asset Pricing Model is a forward-looking model. Consequently, I believe that witness Murray's use of a "stale" risk-free rate is not nearly as indicative of current investor expectations as the current risk-free rate. My use of the current risk-free rate does a better job of capturing the current expectations of investors and is therefore by no means a "fundamental flaw"

**Corrections to Allen Direct:**

**Q. Please explain the corrections to your direct testimony at this time.**

**A.** Page 6, lines 7-9 of my direct testimony currently read;

... "***D/P***" is the ***current*** dividend yield (dividend (*D*) divided by the stock price (*P*)) and "***g***" is the expected sustainable growth rate.

It should read;

... "***D<sub>1</sub>/P<sub>0</sub>***" is the ***expected*** dividend yield (***expected*** dividend (*D<sub>1</sub>*) divided by the ***current*** stock price (*P<sub>0</sub>*)) and "***g***" is the expected sustainable

1                    *growth rate.*

2    **Q.**    **Is that the only correction to your direct testimony you would like to make?**

3    A.    No, page 6, line 12 currently reads;

4                    *...the sum of the **current** dividend yield (D/P) and the expected growth...*

5                    It should read;

6  
7                    *... the sum of the **expected** dividend yield (D<sub>1</sub>/P<sub>0</sub>) and the expected growth...*

8  
9    **Q.**    **Any other changes?**

10  
11    A.    Yes, lines 10-12 on page 30 of Appendix G in my direct testimony currently  
12                    reads;

13                    *As stated earlier, the DCF model can correctly identify the cost of equity*  
14                    *capital to a firm by adding the **current** dividend yield (D/P) to the correct*  
15                    *determination of investor-expected growth (g).*

16  
17                    It should read;

18  
19                    *As stated earlier, the DCF model can correctly identify the cost of equity*  
20                    *capital to a firm by adding the **expected** dividend yield (D<sub>1</sub>/P<sub>0</sub>) to the*  
21                    *correct determination of investor-expected growth (g).*

22  
23    **Q.**    **Are there any other corrections to Appendix G that you would like to make?**

24    A.    Yes, Line 26 on page 30 of Appendix G currently reads that the intrinsic value of  
25                    a stock is a function of the **current** dividend divided by the required return less  
26                    the expected growth rate;

27                     $P^{\wedge} = D/k-g$

28                    It should read that the intrinsic value of a stock is a function of the **expected**  
29                    dividend divided by the required return less the expected growth rate;

30                     $P_0 = D_1/k-g$

31

1 Also, line 2 on page 31 of Appendix G currently reads;

2  $D = \text{the current dividend.}$

3 It should read;

4  $D_1 = \text{the expected dividend.}$

5

6 Finally, line 11 on page 31 of Appendix G reads that a firm's current cost of  
7 equity is a function of the **current** dividend yield plus the expected sustainable  
8 growth rate;

9  $k = D/P + g$

10 It should read that a firm's current cost of equity is a function of the **expected**  
11 dividend yield plus the expected sustainable growth rate;

12  $k = D_1/P_0 + g.$

13 **Q. Did making any of these corrections have any effect on your rate of return**  
14 **recommendation for MGE?**

15 A. No.

16 **Q. Why did you not make these corrections to your direct testimony in your**  
17 **rebuttal testimony?**

18 A. I did not notice the errors until after rebuttal testimony was filed.

19 **Q. Have you attached a corrected copy of page 6 and Appendix G of your direct**  
20 **testimony to this testimony?**

21 A. Yes.

22 **Q. Did you provide the changes to Appendix G of your direct testimony to MGE**  
23 **in response to Company data request number 1025 on June 1, 2004?**

1 A. Yes, I did.

2 **Q. Why did you take out the quote that appeared on lines 24-28 of page 31 and**  
3 **lines 2-18 of page 32 of the original copy of Appendix G that was attached to**  
4 **your direct testimony?**

5 A. I took it out because, although the quote appears in the fourth edition of the  
6 Brealey and Myers textbook Principles of Corporate Finance, I subsequently  
7 received a copy of the seventh edition and I was unable to find the quote in that  
8 edition.

9 **Corrections to Allen Rebuttal:**

10 **Q. Please explain the corrections to your rebuttal testimony.**

11 A. Page 19, lines 22-23 currently reads;

12 *In fact, only one of his proxy companies has a total market capitalization*  
13 *greater than Southern Union's.*

14  
15 It should read as follows;

16 *In fact, only one of his proxy companies has a total capitalization greater*  
17 *than Southern Union's.*

18  
19 **Q. Does making this correction have any effect on your rate of return**  
20 **recommendation for MGE?**

21 A. No.

22 **Q. Does this conclude your surrebuttal testimony?**

23 A. Yes, it does.

24

25

26

27

(DIRECT TESTIMONY PAGE 6)

1

2 Q. PLEASE DESCRIBE THE STANDARD DISCOUNTED CASH FLOW (DCF) MODEL  
3 YOU USED TO ARRIVE AT THE APPROPRIATE COST OF EQUITY CAPITAL.

4 A. The model is represented by the following equation:

5 
$$k = D/P + g$$

6 where “k” is the cost of equity capital (i.e. investors’ required return), “ $D_1/P_0$ ” is the  
7 current dividend yield (expected dividend ( $D_1$ ) divided by the current stock price ( $P_0$ ))  
8 and “g” is the expected sustainable growth rate.

9 If future dividends are expected to grow at a constant rate (i.e., the constant  
10 growth assumption) and dividends, earnings and stock price are expected to increase in  
11 proportion to each other, the sum of the expected dividend yield ( $D_1/P_0$ ) and the  
12 expected growth rate (g) equals the required rate of return, or the cost of equity, to the  
13 firm. This form of the DCF model is known as the constant growth, or Gordon, DCF  
14 model. The constant growth DCF model is based on the following assumptions:

- 15 1) A constant rate of growth,  
16 2) The constant growth will continue for an infinite period,  
17 3) The dividend payout ratio remains constant,  
18 4) The discount rate must exceed the growth rate, and  
19 5) The stock price grows proportionately to the growth rate.

20 Although all of these assumptions do not always hold in a technical sense, the  
21 relaxation of these assumptions does not make the model unreliable.

22 Q. WHAT BASIC FINANCIAL PRINCIPLES IS THE DCF MODEL BASED ON?

23 A. The DCF model is based on two basic financial principals. First, the current market  
24 price of any financial asset, including a share of stock, is equivalent to the value of all  
25 expected future cash flows associated with that asset discounted back to the present at  
26 the appropriate discount rate.

**APPENDIX G**

**EFFICIENT NATURE OF THE CAPITAL MARKETS**

Q. IS THE DISCOUNTED CASH FLOW MODEL INHERENTLY CAPABLE OF ADJUSTING FOR THE LEVEL OF REAL OR PERCEIVED RISKINESS TO A GIVEN SECURITY?

A. Yes. It is impossible for any one analyst to systematically interpret the impact that each and every risk variable facing an individual firm has on the cost of equity capital to that firm. Fortunately, this type of risk-by-risk analysis is not necessary when determining the appropriate variables to be plugged into the DCF formula.

As stated earlier, the DCF model can correctly identify the cost of equity capital to a firm by adding the expected dividend yield ( $D_1/P_0$ ) to the correct determination of investor-expected growth ( $g$ ). Thus, the difficult task of determining the cost of equity capital is made easier, in part, by the relative ease of locating dividend and stock price information and the efficient nature of the capital markets.

Q. PLEASE EXPLAIN THAT STATEMENT.

A. The DCF model is based on the assumption that investors (1) calculate intrinsic values for stocks on the basis of their interpretation of available information concerning future cash flows and risk, (2) compare the calculated intrinsic value for each stock with its current market price, and (3) make buy or sell decisions based on whether a stock's intrinsic value is greater or less than its market price.

Only if its market price is equal to or lower than its intrinsic value as calculated by the marginal investor will a stock be demanded by that investor. If a stock sells at a price significantly above or below its calculated intrinsic value, buy or sell orders will quickly push the stock towards market equilibrium. The DCF model takes on the following form when used by investors to calculate the intrinsic value of a given security,

1                     $P_0 = D_1 / k - g$

2            where  $P_0$  = the intrinsic value of the security,

3                     $D_1$  = the expected dividend,

4                     $g$  = the expected growth rate, and

5                     $k$  = the required return on the security

6            Since the required rate of return for any given investor is based on both the perceived  
7            riskiness of the security and return opportunities available in other segments of the  
8            market, it can be easily demonstrated that when perceived riskiness is increased, the  
9            investors' required return is also increased and the market value of the investment falls  
10           as it is valued less by the marginal investor. Returning to the form of the DCF model  
11           used to determine the cost of equity capital to the firm,

12                     $k = D_1 / P_0 + g$

13           we see that the required return rises as an increase in the perceived risk associated with  
14           a given security drives the price down. Within this context, the DCF formula  
15           incorporates all known information, including information regarding risks, into the cost  
16           of equity capital calculation. This is known as the "efficient market" hypothesis.

17    Q.    IS THE "EFFICIENT MARKET" HYPOTHESIS SUPPORTED IN THE FINANCIAL  
18           LITERATURE?

19    A.    Yes. Modern investment theory maintains that the U.S. capital markets are efficient  
20           and, at any point in time, the prices of publicly traded stocks and bonds reflect all  
21           available information about those securities. Additionally, as new information is  
22           discovered, security prices adjust virtually instantaneously. This implies that, at any  
23           given time, security prices reflect "real" or intrinsic values.

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