

Filed  
March 23, 2015  
Data Center  
Missouri Public  
Service Commission

*Exhibit No.:*  
*Issue:* *Rate of Return*  
*Witness:* *David Murray*  
*Sponsoring Party:* *MoPSC Staff*  
*Type of Exhibit:* *Surrebuttal Testimony*  
*Case No.:* *ER-2014-0258*  
*Date Testimony Prepared:* *February 6, 2015*

**MISSOURI PUBLIC SERVICE COMMISSION**  
**REGULATORY REVIEW DIVISION**  
**UTILITY SERVICES – FINANCIAL ANALYSIS**

**SURREBUTTAL TESTIMONY**

**OF**

**DAVID MURRAY**

Staff Exhibit No. 028  
Date 2-23-15 Reporter KF  
File No. ER-2014-0258

**UNION ELECTRIC COMPANY,**  
**d/b/a Ameren Missouri**

**CASE NO. ER-2014-0258**

Jefferson City, Missouri  
February 2015

**\*\* Denotes Highly Confidential Information \*\***

**NP**

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1 | disagreement about the signals investors are providing by bidding up utility stock prices as a  
2 | result of the macroeconomic environment. Rather than provide information to the Commission  
3 | about how much the cost of equity ("COE") to utilities has declined since 2012, Mr. Hevert  
4 | attempts to deemphasize the very methodology, the Discounted Cash Flow ("DCF") methods,  
5 | that directly capture this information. While the Commission may hesitate to reduce the allowed  
6 | Return on Equity ("ROE") by as much as the decline in the COE implied by utility stock  
7 | valuations, this certainly is not a reason to dismiss this direct view into the minds of investors.

8 |         Instead, Mr. Hevert's main argument is that the recommendations of Staff and other  
9 | parties are not reasonable because they are lower than allowed ROEs over the last 30-plus years.  
10 | Considering that utility valuations are higher than they have ever been in 30-plus years (utility  
11 | stocks are expensive to investors, but the cost to issue equity is cheap to utilities), Staff believes  
12 | this is the very evidence that supports allowing an ROE that is lower than what has been allowed  
13 | in the past.

14 |         Q.     Are utility Price-to-earnings ("p/e") ratios going to decline from their current  
15 | levels as Mr. Hevert suggests in his rebuttal testimony?

16 |         A.     I don't know. My task is to estimate investors' cost of capital, which assumes  
17 | market equilibrium, not to make capital market predictions. As I explained in my rebuttal  
18 | testimony, I believe security prices reflect all known information at the time, which is consistent  
19 | with the efficient market hypothesis. ROR witnesses are not tasked to judge the market, but to  
20 | interpret the market. In fact, a basic assumption underlying all cost-of-capital models, not just  
21 | the DCF, but the Capital Asset Pricing Model ("CAPM") and risk premium models, are that  
22 | markets are efficient. Mr. Hevert tries to distance himself from the DCF because it is hard to  
23 | manipulate these results. Obviously, he is able to manipulate the results of his CAPM and risk

1 premium analyses, otherwise his risk premium estimates wouldn't be so far removed from  
2 investors' required risk premiums, such as JP Morgan, that actually invest and manage capital. If  
3 Mr. Hevert had used assumptions in his CAPM and risk premium models that are consistent with  
4 capital market professionals' expected market returns, these methodologies would have also  
5 produced lower implied costs of equity.

6 Q. Given that the Commission cannot know what other commissions will determine  
7 is fair and reasonable in other rate cases currently pending in which the same capital market  
8 information is being evaluated, how can the Commission judge how much to reduce the allowed  
9 ROEs it authorized in 2012 for its Missouri electric utilities?

10 A. At the same time this Commission authorized an ROE of 9.80% for Ameren  
11 Missouri in the last rate case and 9.70% for Kansas City Power & Light Company ("KCPL") and  
12 KCP&L Greater Missouri Operations ("GMO") in Case Nos. ER-2012-0174 and ER-2012-0175,  
13 respectively, the Kansas Corporation Commission authorized an ROE of 9.50% for KCPL's  
14 Kansas electric utility assets.<sup>1</sup> KCPL has continued to be able to attract capital at this allowed  
15 ROE. Based on the evidence provided by capital market conditions in 2014 compared to 2012,  
16 Staff believes 9.50% is the ceiling of what is reasonable in this case. If Staff were using Kansas'  
17 allowed ROE as a benchmark, Staff would have recommended that the Commission reduce  
18 Ameren Missouri's allowed ROE to 9.00% rather than 9.25%.

19 Q. What will the rest of your testimony address?

20 A. Although I believe the evidence from capital market conditions makes it fairly  
21 obvious that the COE has declined since 2012, I will still go through the process of addressing  
22 Mr. Hevert's more nuanced criticisms of my testimony.

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<sup>1</sup> Docket No. 12-KCPE-764-RTS

1 TRUE-UP RECOMMENDATION

2 Q. Has Ameren Missouri provided capital structure and embedded cost of  
3 capital information that allows you to update your recommendation through the true-up period in  
4 this case?

5 A. Yes. They provided me information through December 31, 2014.

6 Q. Are you revising your recommended allowed ROE in conjunction with the  
7 true-up of the capital structure and the embedded costs of the other capital components?

8 A. No.

9 Q. What are the components of the capital structure and the cost of capital after using  
10 data through December 31, 2014?

11 A. They are as follows (*see also* Schedules DM-4 and DM-5):

12 \*\*

13  
14 \*\*

1 **SPECIFIC REPOSSES TO ROBERT HEVERT'S CRITICISMS**

2 Q. Does Mr. Hevert believe there has been a decline in electric utilities' COE in  
3 general, and for Ameren Missouri specifically?

4 A. No.

5 Q. Do Mr. Hevert's own DCF cost-of-equity analyses support his position?

6 A. No. Even before Staff made any necessary adjustments to Mr. Hevert's updated  
7 DCF analyses in this case and in the 2012 rate case, his DCF analyses imply there has been a  
8 decline in the COE in the range of 30 to 50 basis points since 2012.

9 Q. Did the multi-stage DCF analyses you performed in your rebuttal testimony using  
10 Mr. Hevert's approach show an even larger relative decline in the COE?

11 A. Yes. When I updated Mr. Hevert's multi-stage DCF analyses in my rebuttal  
12 testimony I estimated a relative decline of around 75 basis points.

13 Q. Did you follow the same approach and make the same assumptions as Mr. Hevert  
14 normally makes when he performs his multi-stage DCF analyses?

15 A. Yes. In order to ensure a consistent comparison from one period to the next, I did  
16 not alter the fundamentals of his approach and also held the proxy groups constant. I assumed  
17 the same perpetual growth rate for 2012 and 2014 because the perpetual growth rate should not  
18 change much over time.<sup>2</sup> Mr. Hevert's multi-stage DCF relied upon iterative calculations using  
19 Excel functions and/or programming to solve for the COE, whereas I simply modeled  
20 Mr. Hevert's projected cash flows for a couple of hundred years into the future, which results in  
21 substantially the same COE estimate.

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<sup>2</sup> If anything, projected long-term growth rates in the economy declined since the 2012 rate case, which would cause a 2014 updated analyses to indicate an even larger decline in the cost of equity.

1 Q. If you followed the same approach Mr. Hevert normally uses and also made the  
2 same assumptions, why would your estimate of the decline in the COE be higher than that  
3 implied by Mr. Hevert's updated multi-stage DCF analyses?

4 A. One primary reason is that Mr. Hevert only updated stock price data through  
5 November 14, 2014, rather than updating his analysis through the end of the year, as Staff did  
6 when writing rebuttal testimony. As Staff explained in its rebuttal testimony, capital markets  
7 underwent significant enough changes through the end of the year to warrant at least an analysis  
8 and discussion of whether it should cause the Commission to consider reducing the allowed ROE  
9 by 75 basis points rather than the 50 basis points Staff had initially recommended.

10 Q. If stock prices are updated through December 31, 2014, should any companies be  
11 excluded for purposes of quantifying the amount of reduction to Mr. Hevert's COE indications if  
12 he had fully updated his analyses?

13 A. Yes. Because Nextera Energy recently made an offer to acquire Hawaiian  
14 Electric on December 4, 2014, these two companies should be excluded for purposes of  
15 quantifying the decline in the COE.

16 Q. Do you think any other companies should be excluded in order to gain a more  
17 reliable estimate of a decline in the COE for utilities?

18 A. Yes. Otter Tail has other business segments that are not at all related to the utility  
19 industry. These other segments cause Otter Tail's risks and growth rates to be inconsistent with  
20 those of a pure-play utility company. This causes any COE analyses including this company to  
21 be less reliable, both for absolute COE estimates and also estimating the relative change in the  
22 COE since 2012.



1 Q. How much lower would Mr. Hevert's COE estimates be using his multi-stage  
2 DCF methodologies if he had updated stock prices through the end of the year?

3 A. It would have shown an additional 7 to 21 basis points decline in his multi-stage  
4 DCF analysis, depending on the number of days of stock prices he included in his analysis  
5 (*see* Schedule DM-6).

6 Q. What about his constant-growth DCF analyses?

7 A. It would have shown an additional 9 to 21 basis point decline (*see* Schedule  
8 DM-6).

9 Q. If Mr. Hevert had updated his multi-stage DCF analyses through December 31,  
10 2014, what decline in the COE would this support as compared to the 2012 rate case?

11 A. In the range of 45 to 60 basis points, based on a simple comparison of his mean  
12 results between the two rate cases. The following table shows Mr. Hevert's 2012 multi-stage  
13 COE estimates and what his 2014 multi-stage COE estimates would have been if he had properly  
14 updated his analyses through December 31, 2014. For purposes of showing the reduced COE,  
15 I am only providing the average COE estimates because his high and low results are not  
16 meaningful as detailed in Mr. Schafer's rebuttal testimony. Additionally, I am excluding  
17 Hawaiian Electric, Nextera Energy and Otter Tail from the 2014 results. Mr. Hevert did not  
18 include these companies in his multi-stage DCF analyses in the 2012 rate case.

19

Hevert Multi-Stage DCF Analyses	2014	2012	Reduced Cost of Equity
30-day Average	9.55%	10.15%	0.60%
90-day Average	9.78%	10.30%	0.52%
180-day Average	9.90%	10.35%	0.45%

20

1 Q. Why are the differences shown in the above table different from those that you  
2 provided in your rebuttal testimony?

3 A. In my rebuttal testimony, I kept the proxy groups constant over time. It is  
4 important to evaluate the same proxy group over periods to provide a reliable estimate of the  
5 change in the COE. Consequently, I believe the analysis I performed in my rebuttal testimony  
6 on Mr. Hevert's proxy groups is more reliable for estimating the relative decline in the COE.  
7 Regardless, the above differences support at least a 50-basis point reduction to Ameren  
8 Missouri's allowed ROE.

9 Q. If Mr. Hevert's DCF analyses clearly show a significant decline in the COE, why  
10 doesn't he recommend a lower allowed ROE for Ameren Missouri?

11 A. He indicates that the DCF methodology is not reliable in the current capital  
12 market environment.

13 Q. Why?

14 A. Mr. Hevert claims that the DCF methodology is producing lower results because  
15 of elevated p/e ratios in the utility industry.<sup>3</sup>

16 Q. Do you agree that this is why the DCF methodology is producing lower cost-of-  
17 equity results?

18 A. Yes.

19 Q. Do you agree that this makes the DCF methodology less reliable?

20 A. No. In fact, this is where Mr. Hevert and I have a fundamental disagreement on  
21 the interpretation of price signals provided by investors. The p/e ratios of regulated electric  
22 utilities are high because of a decline in investors' required returns (the cost of equity) rather

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<sup>3</sup> Hevert Rebuttal, pp. 5, 16-17.

1 than because of increased growth expectations in the industry. This is not a reason to dismiss the  
2 results, but rather to embrace them. The DCF methodology is the only methodology that directly  
3 considers the price of stocks as it relates to growth expectations. If the price of the stock  
4 increases, but growth remains about the same, then investors are paying more for the same unit  
5 of expected earnings than they did in the past. This means that the cost to issue equity is lower  
6 than it was before when investors were paying less per unit of earnings.

7 Q. What basis does Mr. Hevert give for giving less weight to the DCF methodology?

8 A. He believes that because p/e ratios for utilities are currently much higher than  
9 averages in the past, he claims that it is inappropriate to assume that p/e ratios will not change, as  
10 is often assumed when using the DCF to estimate the COE.

11 Q. What analysis does Mr. Hevert offer to support his conclusion that p/e ratios for  
12 utilities will eventually contract?

13 A. Only an observation of how current p/e ratios compare to historical p/e ratios.

14 Q. Do you know if utility p/e ratios will contract or expand in the future?

15 A. I don't know. In fact, utility equity analysts have commented that comparing  
16 utility p/e ratios to S&P p/e ratios implies that utility company stock prices are expensive, but  
17 utility dividend yields as compared to U.S. Treasury yields imply that utility company stock  
18 prices could increase even more if long-term interest rates remain low for a prolonged period of  
19 time. This would cause utilities' COE to decline even further.

20 Q. If you accept Mr. Hevert's opinion that investors expect utility stocks' p/e ratios  
21 to decline, what impact does this have on the implied COE using the DCF methodology?

22 A. As I explained in my rebuttal testimony addressing Mr. Schafer's "out-of-model"  
23 adjustment to his DCF results, if investors buying utility stocks today actually expect a decline in

1 utility's p/e ratios, then this indicates that their expected returns are actually lower than what is  
2 implied from a fundamental DCF analysis.

3 Q. How so?

4 A. The DCF is an absolute valuation model, meaning that it assumes that the  
5 investors' return will be determined by the current dividend yield and the expected growth in  
6 dividends. For example, if the dividend yield is 3.5% and the expected growth in dividends  
7 is 3%, then the investor will expect a total return of 6.5% over his/her holding period. The  
8 assumption is that the stock price will increase at a compound annual rate of 3%, based on the  
9 expected fundamental growth of the company's dividends.

10 If investors expect the p/e ratio to expand over time, then the growth in the stock price  
11 will be greater than the 3% growth supported by the expected fundamental growth of the  
12 company; and vice versa, if investors expect the p/e ratio to decline over time, then the growth in  
13 the stock price will be less than the 3% growth supported by the fundamental growth of  
14 the company.

15 Q. If an analyst believes investors are factoring in a decline in the p/e ratio in their  
16 expected returns, is there a means in which to incorporate this into a DCF analysis?

17 A. Yes.

18 Q. How is that?

19 A. The analyst simply adds another variable to the methodology to take into account  
20 an expected per period change in the p/e ratio. Staff discussed this methodology in its rebuttal  
21 testimony, which is formally referred to as the Grinold-Kroner model.

22 Q. Has Mr. Hevert indicated how soon investors expect utility p/e ratios to revert  
23 back to historical averages?

David Murray  
Surrebuttal Testimony

1 A. No.

2 Q. Has Mr. Hevert performed multi-stage DCF analyses in past rate cases that  
3 incorporates an expected terminal p/e ratio for the assumed terminal cash flow?

4 A. Yes. In the 2012 rate case, Case No. ER-2012-0166, Mr. Hevert applied an  
5 industry average terminal p/e multiple to a projected earnings level in the final year of his  
6 multi-stage DCF.

7 Q. What terminal p/e multiple did Mr. Hevert use in Case No. ER-2012-0166?

8 A. 15.98x.

9 Q. Did Mr. Hevert estimate the terminal p/e multiples differently in Case No.  
10 ER-2011-0028?

11 A. Yes. In Case No. ER-2011-0028, Mr. Hevert applied the median p/e ratio for  
12 each of his comparable companies for the period from 1990 through 2010.

13 Q. What were the average and the median of the p/e multiples Mr. Hevert used in  
14 Case No. ER-2011-0028?

15 A. The average and median were 13.66x and 13.70x, respectively.<sup>4</sup>

16 Q. What p/e multiples are implied in Mr. Hevert's testimony in this rate case?

17 A. 16.31x, 16.45x and 17.13x based on his mean multi-stage DCF results for the  
18 180-day average of stock prices, 90-day average of stock prices and 30-day average of stock  
19 prices, respectively.

20 Q. After you updated his multi-stage DCF analyses through December 31, 2014, and  
21 excluded Hawaiian Electric, Nextera Energy and Otter Tail, what were the implied p/e multiples  
22 in Mr. Hevert's multi-stage DCF analyses?

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<sup>4</sup> Case No. ER-2011-0028, Hevert Rebuttal, Schedule RBH-ER9, pp. 4-6.

1           A.     18.23x, 17.21x and 16.72x, respectively.

2           Q.     If Mr. Hevert had incorporated an assumed terminal p/e ratio of 15.98x in his  
3 multi-stage DCF analysis, updated through December 31, 2014, how much lower would his COE  
4 estimate have been?

5           A.     For the 30-day, 90-day and 180-day multi-stage DCF analyses and after  
6 eliminating Hawaiian Electric, Nextera Energy and Otter Tail, they would have been  
7 approximately 72 basis points, 40 basis points and 24 basis points lower, respectively (*see*  
8 Schedule DM-8).

9           Q.     What if he had used his even more conservative terminal p/e ratio of 13.70x  
10 he used in Case No. ER-2011-0028?

11          A.     His 30-day, 90-day, and 180-day multi-stage DCF analyses would have been 155  
12 basis points, 122 basis points, and 106 basis points lower, respectively (*see* Schedule DM-8).

13          Q.     If Mr. Hevert had adjusted his multi-stage DCF analyses to consider his opinion  
14 that the current higher p/e ratios for utilities can't continue into the indefinite future, would this  
15 provide support for an even higher adjusted allowed ROE than 50 basis points?

16          A.     Yes. Given the fact that utility stocks are trading at record high p/e ratios, it is  
17 pretty simple to conclude that utility investors are not requiring much of a return for utility  
18 stocks. It seems Mr. Hevert understands this because he does not dispute that current p/e ratios  
19 for utilities are at all-time highs. If Mr. Hevert had factored this expectation into his multi-stage  
20 DCF analyses as he has done in past rate cases, his COE results would easily support at least the  
21 high-end of Staff's estimate of a 75-basis point decline in the COE.

1 Q. What are the implications of Mr. Hevert's opinion that the Commission should  
2 not give weight to COE methodologies that clearly capture the reduction in capital costs to  
3 utilities because it is not a "normal" situation?

4 A. Mr. Hevert claims that due to the fact that it is not typical for utilities to trade at a  
5 premium to the S&P 500, the Commission should not consider lower COE indications that are  
6 actually quite logical considering the current level of long-term interest rates. If Mr. Hevert's  
7 rationale were followed for purposes of setting the allowed ROR for Ameren Missouri, then the  
8 Commission should also allow Ameren Missouri to recover more than its cost of debt. The same  
9 macro environment that allows Ameren Missouri to realize a lower cost of equity also allows it  
10 to realize a lower cost of debt. Regardless of why the cost of capital is low, the savings from this  
11 lower cost of capital should at least be shared with ratepayers.

12 Q. Mr. Hevert implies that the DCF method is the only COE methodology that  
13 assumes that p/e ratios will not change. Is this true?

14 A. No. The Capital Asset Pricing Model ("CAPM") and the risk premium  
15 methodology assume capital markets are efficient. These COE estimation methodologies are  
16 based on modern portfolio theory which assumes that investors will choose a portfolio of  
17 investments that maximizes the return for a given level of risk. The amount of return the  
18 investor requires is a function of the current capital and economic environment. The amount of  
19 incremental return an investor requires to take on additional risk is a function of current asset  
20 prices, which are based on all known information.

21 Q. If investors are aware of the possibility that p/e ratios may change over time, is it  
22 appropriate to factor this possibility into the equity risk premium, whether it is for the purpose of  
23 estimating the COE using the CAPM or in the bond-yield plus risk premium methodology?

1           A.     No. In fact, it is widely recognized that, for the period from 1950 to 2000, there  
2 was an expansion in p/e ratios. This expansion in p/e ratios resulted in earned returns that were  
3 higher than the required returns. This phenomenon was specifically addressed by Fama and  
4 French in a 2002 article studying whether it was appropriate to conclude that the earned return  
5 spreads for this period were consistent with investors' required returns over the same period.  
6 They concluded it was not because of an unexpected increase in p/e ratios, which was caused by  
7 a decline the COE for the market.<sup>5</sup>

8           Q.     What graphical illustration is used show the logic underlying the market equity  
9 risk premium?

10          A.     Finance textbooks often show the security market line ("SML"), which is simply  
11 a positively sloped line that displays the relationship between expected return and beta.<sup>6</sup> The  
12 graphic illustration is as follows:

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22                   *continued on next page*

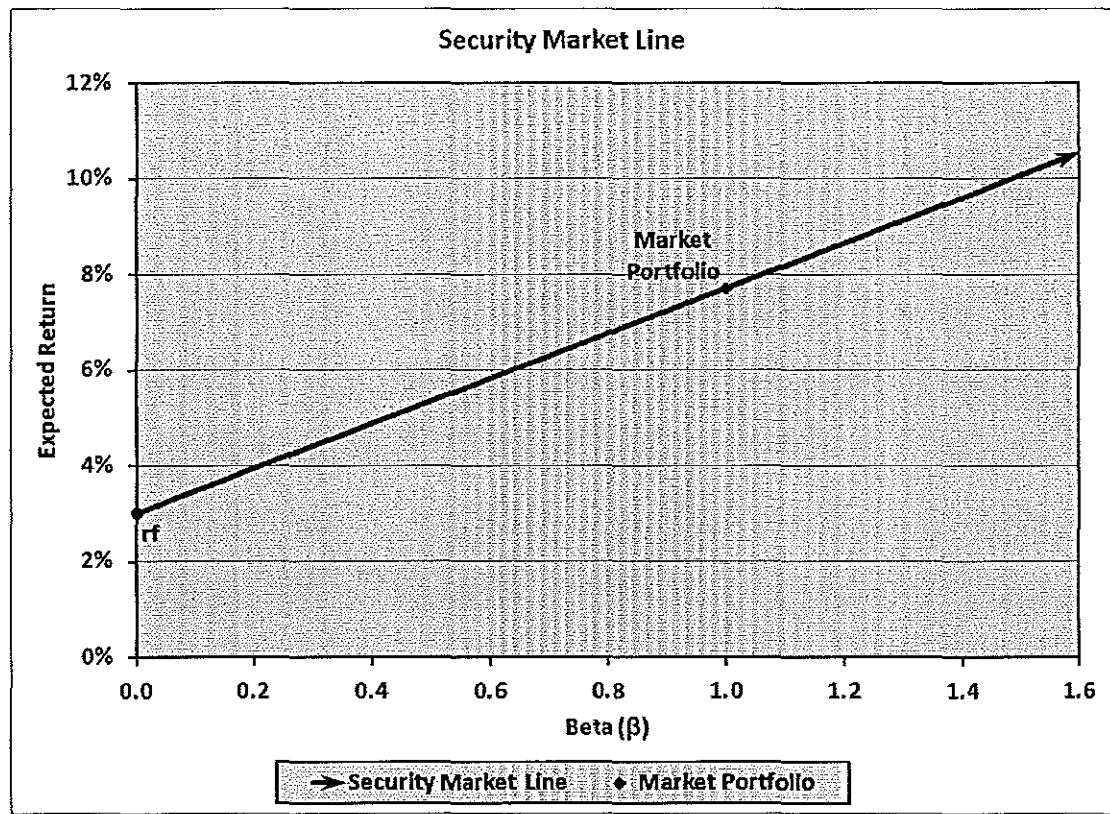
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<sup>5</sup> Eugene F. Fama and Kenneth R. French, "The Equity Premium," *The Journal of Finance*, (April 2002).

<sup>6</sup> Ross, Westerfield and Jordan, "Fundamentals of Corporate Finance," Second Edition, 1992 and 1993, Richard D. Irwin, Inc., p. 391.



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The above graph is not intended to be representative of the current market expected returns, but rather an illustration of the SML concept. The equity risk premium is represented by the expected return for a portfolio with a beta of 1.0 less the risk-free rate, which is represented to be approximately 3% in the above illustration. In the above graph, the equity risk premium is approximately 5%.

9

Q. Is the required return over the risk-free asset based on the assumption that the market is fairly valuing securities to determine their required return over securities?

11

A. Yes, a basic assumption underlying the SML is that the market is fairly valuing securities based on all currently known and available information. Consequently, the current p/e

12

<sup>7</sup> <http://financialexamhelp123.com/cal-vs-cml-vs-sml/>

1 ratios for the market, which includes the utility sector, are assumed to be rational based on  
2 current market expectations.

3 Q. Does this mean that a reasonable CAPM cost-of-equity estimate should also be  
4 based on the current valuation levels of stocks, as priced by the market?

5 A. Yes.

6 Q. Are you aware of any specific adjustments Mr. Hevert made to his CAPM cost of  
7 equity estimate to account for utility stocks' current higher p/e ratios?

8 A. No.

9 Q. Then why would he consider his CAPM cost-of-equity estimates to be reliable for  
10 estimating Ameren Missouri's COE?

11 A. Because his estimates for S&P 500 market returns are almost double what most  
12 investors expect is possible for the long-term. For the most part, there is not much of a debate  
13 among expert investors as to whether the S&P 500's future long-term returns will be in the single  
14 digits. Rather, the debate is where will that return fall in the single digits. Staff provided capital  
15 market experts' opinions that the S&P 500 won't produce compound annual returns much above  
16 6% in the long-term. For example, in a recent *Fortune* article published on December 22, 2014,  
17 annual Investor's Guide – 2015, Sarah Ketterer of Causeway Capital Management, stated the  
18 following in response to a question about whether the U.S. small-cap growth companies are  
19 underperforming:

20 It says that they've just outrun their valuations temporarily, but they'll  
21 catch up. What I find fascinating is that we're in a prolonged period of  
22 low interest rates. That means we have a low cost of capital. That means  
23 that stocks can trade at higher valuations for longer. And that helps to add  
24 a bit of confidence, because there's nothing worse than buying at the top.<sup>8</sup>

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<sup>8</sup> Stephen Gandel, "Where is Opportunity Lurking?" *Fortune*, December 22, 2014, p. 86.

1 Q. What expected returns does Mr. Hevert use for the S&P 500 when estimating the  
2 COE using the CAPM?

3 A. In his updated CAPM analysis, Mr. Hevert uses a 13.49% expected return for one  
4 of his CAPM estimates and a 12.75% expected return for the other.

5 Q. Why are his estimates so out of line with capital market experts' expectations?

6 A. Because he uses unreasonable assumptions for potential capital gains for the  
7 S&P 500.

8 Q. What methodology did Mr. Hevert use to estimate the returns for the S&P 500?

9 A. Surprisingly, he used the DCF methodology to estimate the required return for the  
10 S&P 500. Considering Mr. Hevert's belief that the DCF does not provide reliable results due to  
11 higher valuation levels of stocks, it is interesting that he does not mention the same concerns  
12 when using it to estimate a return for the S&P 500.

13 Q. Does Mr. Hevert believe the S&P 500's p/e ratios are too high due to low  
14 interest rates?

15 A. He doesn't explicitly indicate he thinks the S&P 500 is trading too high.

16 Q. Regardless of where the S&P 500 is trading, is it reasonable to use a DCF analysis  
17 to estimate market required returns on the S&P 500?

18 A. Yes, but the reasonableness of the inputs are critical for purposes of providing a  
19 reliable estimate of a market required return. Mr. Hevert makes the unreasonable assumption  
20 that S&P 500 stocks will grow at a compound annual growth rate of approximately 11.50% into  
21 perpetuity for one of his CAPM estimates and 10.38% in the other.

22 Q. What information does Mr. Hevert rely on when projecting capital gains on the  
23 S&P 500?

1           A.     He uses both Bloomberg's and Value Line's databases to extract equity analysts'  
2 projected 5-year CAGR in EPS for all companies in the S&P 500 for which this data is available.  
3 Although many rate-of-return witnesses assume utility companies' stock prices can grow in  
4 perpetuity at the same rate as projected 5-year CAGR in EPS, Staff has *never* seen an equity  
5 investment analyst make this assumption when valuing utility stocks. Equally and more  
6 significantly in this case, Staff has *never* seen an equity investment analyst make this assumption  
7 for purposes of estimating returns for the S&P 500. Just the mere fact that no reputable  
8 investment publication projects returns anywhere close to those used by Mr. Hevert should be  
9 proof in and of itself that investors do not approach projecting returns as Mr. Hevert suggests.  
10 However, Staff will provide some academic, practical and empirical support for this position and  
11 hopefully at the same time help dispel the assumption that investors use GDP as proxy for  
12 perpetual growth for utility companies.

13           Q.     What academic support are you aware of?

14           A.     The curriculum for Level III of the Chartered Financial Analyst ("CFA") Program  
15 discusses how analysts often use the Gordon growth model (synonymous with the constant  
16 growth DCF model used in utility ratemaking) to formulate the long-term expected return for the  
17 broader equity markets. In the case of a broad-based equity index, such as the S&P 500, it is  
18 reasonable to estimate the long-term potential capital gains for the index by using estimated  
19 nominal GDP over a long-term period. The curriculum specifically provides the following  
20 formula for estimating the constant growth rate with an explanation that follows:

21                     Earnings growth rate = GDP growth rate + Excess corporate growth

22                             (for the index companies)

23                     where the term *excess corporate growth* may be positive or negative  
24                     depending on whether the sectoral composition of the index companies is

1 viewed as higher or lower growth than that of the overall economy. If the  
2 analyst has chosen a broad-based equity index, the excess corporate  
3 growth adjustment, if any, should be small.<sup>9</sup>

4 Considering the fact that the S&P 500's dividend yield is approximately 2% and projected  
5 growth in U.S. nominal GDP is approximately 4.5%, it seems most investment professionals  
6 forecasts of returns in the 6% range is consistent with above-prescribed formula. Of course, the  
7 above-prescribed formula is based on a constant-growth estimate. Many capital market analysts  
8 also may look at the S&P 500 on a multi-stage basis as we did to estimate the COE for electric  
9 utilities in this rate case. In fact, Dr. Aswath Damodaran, Professor of Finance at the NYU Stern  
10 School of Business, incorporates 5-year EPS forecasts for the S&P 500 in his multi-stage DCF  
11 and then assumes the S&P 500 will grow at the same rate as the 30-year Treasury Bond Yield  
12 because long-term treasury bond yields have been a good leading indicator of expected economic  
13 growth. Needless to say, Dr. Damodaran's methodology produces a much lower expected return  
14 on the S&P 500 than Mr. Hevert's.

15 Q. Did you perform a multi-stage DCF analysis on the S&P 500 using equity  
16 analysts' projected 5-year CAGR for the first stage and a long-term projected GDP growth rate  
17 for the final stage?

18 A. Yes. Schedule DM-9 shows a multi-stage DCF analysis of the S&P 500. I used  
19 equity analysts' projected 5-year CAGR in EPS of 11.73% for the S&P 500 for the first stage.  
20 I then transitioned this growth to the expected long-term growth in GDP of 4.40% for the final  
21 stage. The implied required return on the S&P 500 using this much more reasonable long-term  
22 growth rate is 7.78%. While this is above some of the projected returns for the S&P 500 of  
23 professional forecasters, it is within reason.

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<sup>9</sup> 2010 CFA® Program Curriculum, Level III, Volume 3, p. 34.

1 Q. Does Dr. Damodaran also discuss the logic of using GDP as a proxy for long-term  
2 growth in a DCF analysis?

3 A. Yes. Dr. Damodaran does not advocate the use of a GDP growth rate as a  
4 perpetual growth rate for mature industries such as the utility industry. He indicates the  
5 following about potential perpetual growth rates in one of his textbooks:

6 Can a stable growth rate be much lower than the growth rate in the  
7 economy? There are no logical or mathematical limits on the downside.  
8 Firms that have a stable growth rate much lower than the growth rate in  
9 the economy will become smaller in proportion to the economy over time.  
10 Since there is no economic basis for arguing that this cannot happen, there  
11 is no reason to prevent analysts from using a stable growth rate much  
12 lower than the nominal growth rate in the economy.<sup>10</sup>

13 Staff provided information in Ameren Missouri's last rate case, Case No. ER-2012-0166,  
14 published by the Bureau of Economic Analysis that showed the utility industry has been  
15 becoming a smaller part of the economy in recent years. The below graph shows the reduction  
16 of utilities' contribution to GDP over the last several years:

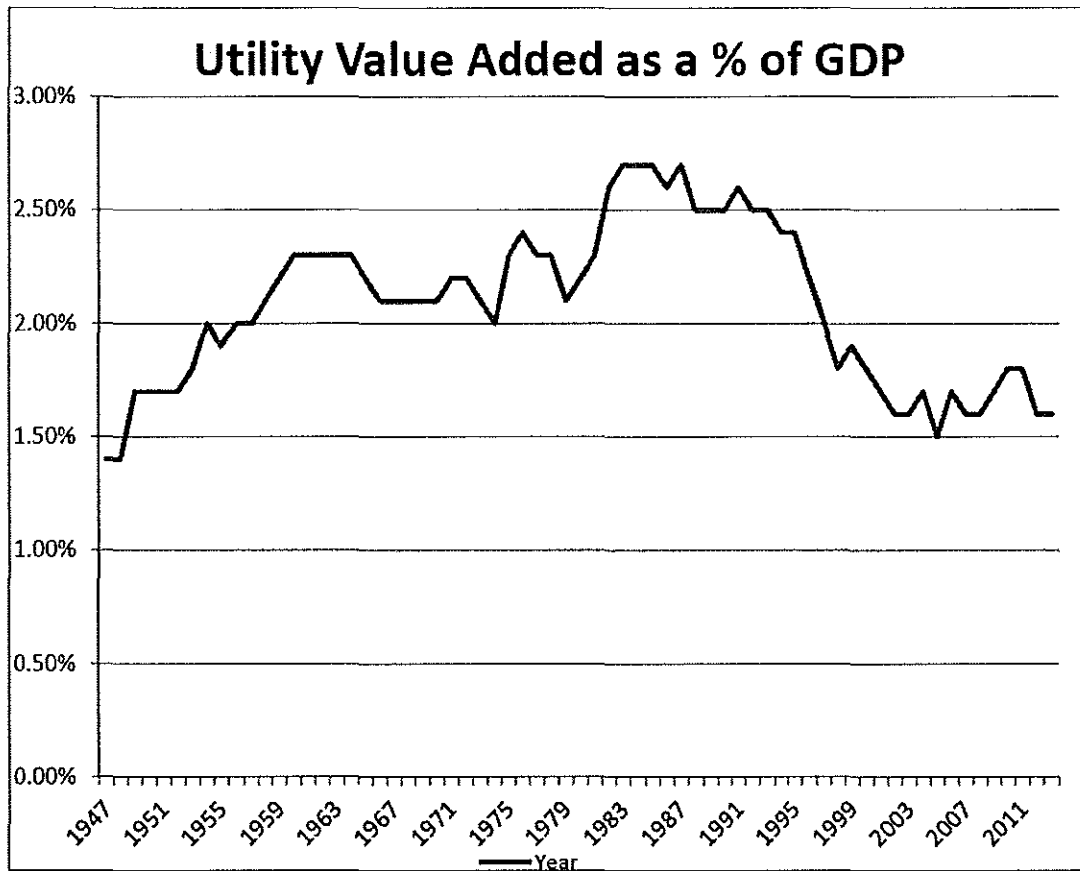
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<sup>10</sup> Aswath Damodaran, *Investment Valuation: Tools and techniques for determining the value of any asset*, p. 193, 1996, John Wiley & Sons, Inc.

1



2

3 The above graphical representation provides evidence that utilities have been becoming a  
4 smaller portion of the overall economy.

5 Q. Are you aware of projected returns provided by an authoritative individual, who is  
6 often cited by rate-of-return witnesses in rate cases?

7 A. Yes. Burton G. Malkiel projects low rates of returns under the current  
8 macroeconomic and capital market environment. In a December 31, 2014, *Wall Street Journal*  
9 *Article*, Mr. Malkiel indicated the following:

1           We are very likely to be in a low-return environment for some time to  
2           come, with a broadly diversified portfolio earning no more than 6% a  
3           year.<sup>11</sup>

4   While Mr. Malkiel did not state his expected returns for the U.S. markets in this particular  
5   article, he did provide the basis for his expected returns in an article at the beginning of 2012. In  
6   a January 5, 2012, editorial in the *Wall Street Journal*, "Where to Put Your Money in 2012,"  
7   Burton G. Malkiel provided his opinion on the long-run return expectations for U.S. equities.  
8   Malkiel estimated a long-term return on U.S. equities by adding a long-term growth rate of  
9   earnings and dividends in the U.S. market of approximately 5% based on long-term averages  
10   over the long run. He then added this long-run growth rate to the approximate 2% dividend yield  
11   on the U.S. stock market to arrive at a long-run return estimate of 7% for the U.S. stock market.

12           Q.     Why is it important to be aware of how Mr. Malkiel determines expected returns  
13           on the broader U.S. markets?

14           A.     Because rate-of-return witnesses, such as Mr. Hevert,<sup>12</sup> cite to studies performed  
15           in which Mr. Malkiel was an author to attempt to support their proposition that investors project  
16           their stock investments will grow at the same rate as investment analysts' long-term projected  
17           CAGR in EPS forever into the future. Although Staff believes the fact that the very equity  
18           analysts that provide these forecasts do not make this same assumption when valuing utility  
19           stocks disproves this conclusion, it is important to understand the true conclusion of some of  
20           these studies. One of the specific studies often cited to support the use of equity analysts' 5-year  
21           EPS growth rate forecasts in the DCF is that of Burton G. Malkiel and John G. Cragg,  
22           "Expectations and the Structure of Share Prices." The conclusion of this academic study was  
23           that equity analysts' expectations had a greater influence on stock prices compared to simple

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<sup>11</sup> Burton G. Malkiel, "A 2015 'Rebalancing' Act for Investors," *Wall Street Journal*, December 31, 2014, p. A17.

<sup>12</sup> Robert Hevert's Direct Testimony, pp. 16-18.



1 | extrapolations of historical financial data. Staff believes this conclusion is logical considering  
2 | the vast amounts of resources dedicated to the discipline of securities analysis. However, Staff is  
3 | not sure how subsequent studies concluded that the results of this study somehow translated into  
4 | a proof that investors use 5-year EPS forecasts as a constant growth rate in the single-stage DCF  
5 | methodology. In fact, the Cragg and Malkiel study did not even use the DCF valuation model  
6 | when testing their hypothesis regarding the influence of analysts' projections on stock prices. It  
7 | is more plausible to conclude that, because investors rely on equity analysts' expectations, they  
8 | rely on their investment recommendations (e.g. buy, sell or hold). Equity analysts' investment  
9 | recommendations are based on their assessment of the intrinsic value of a given stock. Analysts'  
10 | methodologies for estimating a fair price varies, but most at least assess the current price-to-  
11 | forward earnings ratios both on a consensus basis and on the analysts' own estimates. If the  
12 | analyst believes the company can grow its earnings faster than the consensus and/or the company  
13 | deserves a higher price-to-earnings ("p/e") ratio than the consensus, then the analyst will expect  
14 | a higher return than the consensus. In Staff's experience, this is the primary purpose for  
15 | providing both absolute EPS forecasts and EPS growth rate forecasts. It allows investors to  
16 | estimate a potential justified p/e multiple.

17 |         It is clear Mr. Malkiel does not project returns as Mr. Hevert prescribes. Mr. Malkiel's  
18 | projected returns are less than half of the returns Mr. Hevert develops by making the irrational  
19 | assumption that the S&P 500 will achieve CAGR in stock prices of 12% to 13% into the  
20 | indefinite future.

21 |         Q.     Is there any other analysis that Mr. Hevert relies upon to attempt to support his  
22 | position that the COE has not declined since the last rate case?

1 A. Yes. Mr. Hevert claims that a properly-applied bond-yield plus risk premium  
2 analysis would show that the COE has not changed since 2012.

3 Q. Why does Mr. Hevert believe your bond-yield plus risk premium results  
4 are misleading?

5 A. He indicates I should have used U.S. Treasurys rather than utility bond yields.  
6 I completely disagree because the risk premiums of 3% to 4% are based on experience for  
7 U.S. Companies based on a typical cost of equity over their own bond costs. The risk premiums  
8 as cited by the authors were fully intended to provide a reasonable estimate of a company's cost  
9 of equity based on the tangible knowledge of what their cost of debt is.

10 Q. Do you know what Ameren Missouri's bond yields have been during the general  
11 period in which you analyzed capital market data for this case?

12 A. Yes. Based on over-the-counter ("OTC") trades of Ameren Missouri's 8.45%  
13 long-term bond that matures in 2039, the average yield was 4.14% from July 2014 through  
14 December 2014.<sup>13</sup> Based on OTC trades for Ameren Missouri's more thinly traded 5.50%  
15 long-term bond that matures in 2034, the average yield was 4.43%.<sup>14</sup>

16 Q. How do these yields compare to the yields on the same bonds for the first six  
17 months of 2012?

18 A. The 8.45% coupon bond had an average yield of 4.48% and the 5.50% coupon  
19 bond had an average yield of 4.92%.

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<sup>13</sup> <http://finra-markets.morningstar.com/BondCenter/BondTradeActivitySearchResult.jsp?ticker=C492432&startdate=02%2F04%2F2014&enddate=02%2F04%2F2015>

<sup>14</sup> <http://finra-markets.morningstar.com/BondCenter/BondTradeActivitySearchResult.jsp?ticker=C159870&startdate=02%2F04%2F2014&enddate=02%2F04%2F2015>

1           This shows a decline in Ameren Missouri's company-specific debt costs of  
2 approximately 35 to 50 basis points.

3           Q.     Have Ameren Missouri's debt costs declined even further since the end of  
4 the year?

5           A.     Yes. OTC bond trades for the 8.45% coupon bond have traded at a price to yield  
6 of around 3.45% in early February 2015. Recent OTC bond trades for 5.50% coupon bond were  
7 priced-to-yield at approximately 3.5%.

8           Q.     What does the above information indicate?

9           A.     Data that cannot be manipulated clearly shows that the cost of capital is lower for  
10 Ameren Missouri than it was in 2012. It is not a matter of whether to reduce Ameren Missouri's  
11 allowed ROE, but rather how much it should be reduced.

12          Q.     Does all of this straight-forward information showing a decline in capital costs  
13 support the reliability of using a DCF analysis for estimating the reduction in the cost of equity?

14          A.     Yes. If an analyst is using inputs in other models that cause him to conclude  
15 that the COE has not declined since 2012, then all of this straight-forward capital market  
16 evidence should cause him to question the reliability of his inputs. Mr. Hevert unfortunately  
17 hasn't done so.

18          Q.     Do you have corroborating information from investment analysts that supports  
19 Staff's position that the COE has declined and investors are expecting some compression in  
20 allowed ROEs?

21          A.     Yes. The recent further reduction of interest rates was not expected by utility  
22 stock analysts. In fact, many stock analysts had been expressing concern about utility valuations  
23 for the last few years because they had been predicting interest rates would increase as recently

1 as the summer of 2014. Steve Fleischman and others from Wolfe Research indicated the  
2 following in a March 2013 report:

3 **Initiating coverage with a cautious view on sector**

4 Investor thirst for yield has driven utility stocks to premium multiples to  
5 the broader market and to the high end of their historical valuation range.  
6 Low interest rates and the tax advantage of dividends for income could  
7 sustain this for a while. We caution, however, that the current 15x-plus  
8 P/E multiples appear high relative to the sector's earnings growth of 4-5%.  
9 Moreover, the unregulated power sector remains under pressure from  
10 weak power prices and credit overhangs. Our real concern is what  
11 happens to the sector when interest rates ultimately go up.

12 **Prefer regulated over integrated near-term; integrated better L-T**

13 Despite high valuations, we are Market Weight on the Regulated utilities  
14 as they remain 1) a go-to sector for income investing, 2) a safe haven in  
15 "risk-off" markets and 3) provide a solid 4% yield and 3%+ dividend  
16 growth supported by rate base growth and constructive regulation...<sup>15</sup>

17 The analysts went on further to state:

18 **Historic valuation versus S&P 500 still near highs**

19 Despite the sector's recent underperformance, utility earnings valuations  
20 are near record highs relative to the S&P 500 though off their peak from  
21 2012. The group is trading at a relative P/E of 116% of the S&P 500,  
22 above its historic average of 86%.

23 On an absolute basis, the current forward utility p/e is 16.2x earnings.  
24 This is near the top of its long-term range of between 9x-17x and well  
25 above the historic average of 13.1x.<sup>16</sup>

26 Goldman Sachs specifically stated the following in a report published in July 2014:

27 \*\* \_\_\_\_\_  
28 \_\_\_\_\_  
29 \_\_\_\_\_  
30 \_\_\_\_\_

<sup>15</sup> Steven Fleishman, Alex Kania, Naaz Khumawala, and David Paz, "Utilities & Power: *Income but little growth; Patience on power*," Wolfe Trahan, March 13, 2013, p. 1.

<sup>16</sup> *Id.*, p. 7.

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10 To put the above previous valuation levels in perspective compared to current valuation levels  
11 for utilities, most regulated utility proxy groups' average stock prices are trading at 18x to 20x  
12 next year's earnings. Utility stocks are trading at levels never seen before. Mr. Hevert attempts  
13 to confuse the record and indicates this is a reason to dismiss DCF COE indications that directly  
14 capture the effect of the increased valuations on a utility company's COE. While I may be able  
15 to understand the Commission's hesitancy to recognize the entire amount of the implied COE  
16 reduction until it can observe if utility valuations will remain at these levels, there is no question  
17 in Staff's mind that reducing the allowed ROE by 50 basis points would be conservative based  
18 on current capital market conditions.

19 Q. How has the recent unexpected decline in interest rates impacted investment  
20 analysts' views on regulated utility stocks and the potential impact on allowed ROEs?

21 A. Equity analysts clearly recognize that recent record breaking valuation multiples  
22 will have to put pressure on allowed ROEs. It is not even a debate among those in investing as  
23 to whether recent capital market activities should cause some decline in allowed ROEs. Rather,  
24 the question is how much will commissions reduce them to capture the lower COE caused by the  
25 decline in interest rates. For example, analysts at UBS indicated the following:

<sup>17</sup> Michael Lapedes, Adam Muro, Vikas Sharma, Rishabh Gupta, "Power Positioning 2H2014: CPN to the CL [Conviction List] Buy list, upgrade DYN, downgrade PCG," Goldman Sachs, July 27, 2014, pp. 1-2.

1           **What are the key themes we're hearing? More Pressure on Returns.**

2           We have heard quite a number, but we emphasize continued pressure on  
3           authorized ROEs in rate cases remains among the pre-eminent. While we  
4           emphasize that regulators polled in our survey earlier this year suggested  
5           they had seen a 'bottoming' in ROE trends, the *latest cautionary*  
6           *commentary suggests there remains widespread risk for this to occur.*<sup>18</sup>

7           Q.     Did any analysts specifically comment on Staff's and the Company's ROE  
8           recommendations in this case as it compares to changes in valuation levels of utility stocks and  
9           changes in interest rates?

10          A.     Yes. Analysts from Wolfe Research provided the following table to show Staff's  
11          ROE recommendations in the last three rate cases as compared to P/E ratios:

12

Filing Year	Staff ROE	6-mo avg 10-yr Treasury	Utility fwd p/e	AEE Ask	Final
2010	8.75%	2.91%	13.0x	10.70%	10.10%
2012	9.00%	1.90%	14.7x	10.50%	9.80%
2014	9.25%	2.44%	16.7x	10.40%	?

13          <sup>19</sup>  
14          Q.     Based on the above table, it would appear that Staff believed the COE was  
15          increasing when it was actually decreasing. Why are Staff's ROE recommendations increasing  
16          in a falling COE environment?

17          A.     Historically, Staff's ROE recommendations were driven by the absolute value of  
18          Staff's COE estimates. Staff has consistently provided first-hand evidence from third party  
19          investors showing that their required returns, i.e. COE, are much lower than allowed ROEs.

<sup>18</sup> Julien Dumoulin-Smith, Michael Weinstein, Paul Zimbardo, "US Electric Utilities and IPPs: *Our First Buckshot From the EEI Conference*," UBS Investment Research, November 13, 2014, p. 1.

<sup>19</sup> Steven Fleishman, David Paz, "Ameren Corp: *Staff's ROE recommendation not as bad as feared*," Wolfe Research, December 8, 2014.

1 However, Staff also recognizes that the Commission does not want to deviate too far from what  
2 other commissions allow their utility companies. Consequently, in the interest of allowing the  
3 Commission to work off its own decision on a fair and reasonable allowed ROE for Missouri's  
4 electric utilities, Staff has recommended an allowed ROE higher than Staff's COE estimates.

5 Q. Has it been Staff's experience that investors actually expect commissions to allow  
6 ROEs that are higher than the COE?

7 A. Yes. Staff has had interactions with equity analysts in the past and these analysts  
8 indicate that their investment assumptions assume that commissions will maintain some margin  
9 over the COE when determining a fair and reasonable allowed ROE.

10 Q. If the above table had reflected the absolute value of Staff's COE estimates since  
11 the 2010 rate case, what would it have shown?

12 A. The absolute value of Staff's COE estimate in 2010 was 8.75%; in 2012 it was  
13 8.20%; and in 2014 it was approximately 8.0%.

14 Q. In the Staff Report, you indicated that the implied COE decline since 2012 was  
15 closer to 50 basis points rather than the 20 basis points indicated above. What is the reason for  
16 the difference?

17 A. For purposes of quantifying the change in the COE since 2012, Staff used two  
18 proxy groups and kept them constant for purposes of comparing COE indications in 2012 as  
19 compared to 2014. I believe keeping the proxy groups constant allows for a more reliable  
20 quantification for the decline in the COE. Additionally, when updating the data through the end  
21 of 2014 to reflect the unexpected decline in interest rates, the implied COE decline is likely to be  
22 closer to the high end of Staff's original estimate of 75 basis points.

1 Q. Regardless of the quantification, what is the most important thing for the  
2 Commission to understand about the information currently being conveyed through valuation  
3 levels of utility stocks?

4 A. Utility stocks are trading at levels never experienced in the last 35 years, which  
5 covers the period of the allowed ROE data Mr. Hevert used to attempt to indicate that the various  
6 parties' ROE recommendations are unreasonable. While Staff has no way of knowing how  
7 much other commissions may reduce their allowed ROEs in current pending rate cases around  
8 the country, Staff is confident that the capital market evidence clearly supports this movement.  
9 If interest rates continue to remain low, as they have been for the last few years, commissions  
10 may no longer be debating whether an allowed ROE in the single digits is reasonable, but  
11 whether or not allowed ROEs in the 9% range are too high.

12 **SPECIFIC REPOSSES TO LANCE SCHAFER'S CRITICISMS**

13 Q. Mr. Schafer indicates that your estimate of the reduction in the COE should be  
14 adjusted to scale, which results in an addition of 7 basis points to your estimate. How do you  
15 respond?

16 A. Mr. Schafer's criticism implies precision to a variable that is not precise. ROR  
17 witnesses often rely on many theories, assumptions and mathematical relationships to attempt to  
18 explain why their number should be accepted as the correct estimate of the COE. Many ROR  
19 witnesses sponsor hundreds of pages of testimony to attempt to support a number that is  
20 supposed to be their best estimate of an investor's required rate of return on equity. Considering  
21 the fact that utility bond yields trade below 4% and utility stocks are viewed by investors as bond  
22 substitutes, it seems rather trivial to argue over a 7-basis point adjustment when ROR witnesses



1 are providing COE estimates that are likely 200 to 300 basis points over what investors actually  
2 use to determine the price they will pay for a utility stock.

3 **SUMMARY AND CONCLUSIONS**

4 Q. Please summarize the conclusions of your surrebuttal testimony.

5 A. There is ample evidence from the markets to support the Commission lowering  
6 Ameren Missouri's allowed ROE by at least 50 basis points. Mr. Hevert's attempt to discredit  
7 models that provide direct insight into the reduced COE should be dismissed.

8 Q. Does this conclude your surrebuttal testimony?

9 A. Yes, it does.

**BEFORE THE PUBLIC SERVICE COMMISSION**

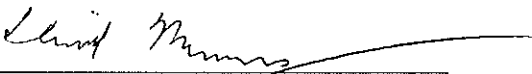
**OF THE STATE OF MISSOURI**

In the Matter of Union Electric Company d/b/a )  
Ameren Missouri's Tariff to Increase Its ) Case No. ER-2014-0258  
Revenues for Electric Service )

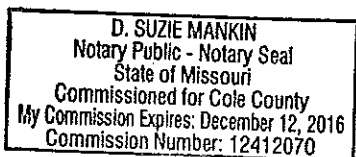
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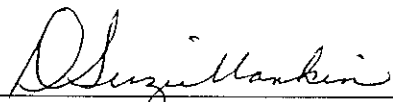
STATE OF MISSOURI )  
 ) ss.  
COUNTY OF COLE )

David Murray, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Surrebuttal Testimony in question and answer form, consisting of 31 pages to be presented in the above case; that the answers in the foregoing Surrebuttal 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.

  
\_\_\_\_\_  
David Murray

Subscribed and sworn to before me this 6<sup>th</sup> day of February, 2015.



  
\_\_\_\_\_  
Notary Public

**SCHEDULE DM-4**

**HAS BEEN DEEMED**

**HIGHLY CONFIDENTIAL**

**IN ITS ENTIRETY**

**SCHEDULE DM-5**

**HAS BEEN DEEMED**

**HIGHLY CONFIDENTIAL**

**IN ITS ENTIRETY**

Union Electric Company d/b/a Ameren Missouri  
Case No. ER-2014-0258

Summary of Impact of Updating Stock Prices  
through December 31, 2014

Hevert Constant-Growth DCF	Hevert's Stock Prices in Rebuttal	Stock Prices Through 12/31/2014	Difference
30-day	8.85%	8.64%	0.21%
90-day	9.01%	8.85%	0.16%
180-day	9.05%	8.96%	0.09%
<b>Hevert Multi-Stage DCF</b>			
30-day	9.76%	9.55%	0.21%
90-day	9.93%	9.78%	0.15%
180-day	9.96%	9.90%	0.07%

**Union Electric Company d/b/a Ameren Missouri**  
**Case No. ER-2014-0258**

Constant Growth Discounted Cash Flow Model  
 30 Day Average Stock Price

Company	Ticker	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
American Electric Power Company, Inc.	AEP	\$2.12	\$58.68	3.60%	3.69%	4.50%	4.97%	4.50%	4.75%	8.15%	8.48%	8.66%
Duke Energy Corporation	DUK	\$3.18	\$52.15	3.87%	3.95%	4.70%	4.76%	5.00%	4.62%	8.65%	8.78%	8.97%
Empire District Electric Company	EDF	\$1.04	\$26.62	3.93%	3.89%	3.00%	3.00%	4.00%	3.33%	6.69%	7.03%	7.71%
Great Plains Energy Inc.	GXP	\$0.98	\$27.00	3.63%	3.73%	5.00%	5.00%	6.00%	5.33%	8.72%	8.96%	9.74%
Hawaiian Electric Industries, Inc.	HE	\$1.24	\$31.27	3.97%	4.04%	4.00%	4.00%	4.00%	4.00%	8.04%	8.04%	8.04%
IDACORP, Inc.	IDA	\$1.88	\$53.94	2.94%	2.99%	4.00%	4.00%	1.50%	3.17%	4.46%	6.15%	7.02%
Nuclear Energy, Inc.	NEE	\$2.50	\$104.42	2.78%	2.87%	6.00%	6.47%	6.00%	6.30%	8.69%	9.22%	9.47%
Northeast Utilities	NU	\$1.57	\$51.92	3.02%	3.13%	6.70%	6.16%	8.00%	6.96%	9.23%	10.08%	11.14%
Old Tail Corporation	OTTR	\$1.21	\$29.93	4.04%	4.26%	NA	6.00%	15.50%	10.75%	10.16%	15.01%	19.86%
Pinnacle West Capital Corporation	PNW	\$2.38	\$58.68	3.62%	3.70%	4.00%	3.95%	4.00%	3.96%	7.69%	7.66%	7.70%
PNM Resources, Inc.	PNM	\$0.74	\$29.24	2.53%	2.65%	8.50%	8.34%	11.00%	9.25%	10.98%	11.93%	13.87%
Portland General Electric Company	POR	\$1.12	\$37.64	2.95%	3.08%	7.80%	7.83%	5.00%	6.66%	8.05%	10.52%	12.87%
Southern Company	SO	\$2.10	\$48.24	4.35%	4.43%	3.60%	3.62%	3.50%	3.57%	7.93%	8.00%	8.05%
Westar Energy, Inc.	WR	\$1.40	\$39.66	3.51%	3.59%	3.80%	3.20%	6.00%	4.33%	6.77%	7.92%	9.62%
PROXY GROUP MEAN				3.46%	3.56%	5.12%	5.09%	6.00%	5.54%	8.17%	8.10%	10.04%
PROXY GROUP MEDIAN				3.61%	3.69%	4.70%	4.87%	5.00%	4.81%	8.12%	8.63%	9.22%

Mean without HE and NEE

9.17%

Mean without HE, NEE and OTTR

8.64%

**Notes:**

- (1) Source: Bloomberg Professional Service
- (2) Source: Bloomberg Professional Service, equals 30-trading day average as of November 14, 2014
- (3) Equals (1) / (2)
- (4) Equals (3) x (1 + 0.5 x (5))
- (5) Source: Zacks
- (6) Source: Yahoo! Finance
- (7) Source: Value Line
- (8) Equals Average(5), (6), (7)
- (9) Equals (8) x (1 + 0.5 x Minimum(5), (6), (7)) + Minimum(5), (6), (7)
- (10) Equals (4) + (8)
- (11) Equals (9) x (1 + 0.5 x Maximum(5), (6), (7)) + Maximum(5), (6), (7)

Schedule RBH-R7  
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Constant Growth Discounted Cash Flow Model  
 50 Day Average Stock Price

Company	Ticker	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
American Electric Power Company, Inc.	AEP	\$2.12	\$56.02	3.78%	3.88%	4.50%	4.97%	4.50%	4.75%	8.37%	8.67%	8.85%
Duke Energy Corporation	DUK	\$3.18	\$78.73	4.04%	4.14%	4.70%	4.76%	5.00%	4.62%	8.83%	8.96%	9.14%
Empire District Electric Company	EDF	\$1.04	\$26.60	3.87%	3.93%	3.00%	3.00%	4.00%	3.33%	6.92%	7.26%	7.94%
Great Plains Energy Inc.	GXP	\$0.98	\$26.01	3.77%	3.87%	5.00%	5.00%	6.00%	5.33%	8.66%	9.20%	9.68%
Hawaiian Electric Industries, Inc.	HE	\$1.24	\$28.18	4.40%	4.69%	4.00%	4.00%	4.00%	4.00%	8.49%	8.69%	8.69%
IDACORP, Inc.	IDA	\$1.88	\$59.66	3.15%	3.20%	4.00%	4.00%	1.50%	3.17%	4.67%	6.37%	7.21%
Nuclear Energy, Inc.	NEE	\$2.50	\$79.40	2.92%	3.01%	6.00%	6.47%	6.00%	6.30%	9.00%	9.30%	9.61%
Northeast Utilities	NU	\$1.57	\$48.56	3.23%	3.35%	6.70%	6.16%	8.00%	6.96%	9.49%	10.30%	11.36%
Old Tail Corporation	OTTR	\$1.21	\$29.04	4.17%	4.39%	NA	6.00%	15.50%	10.75%	10.23%	15.14%	19.99%
Pinnacle West Capital Corporation	PNW	\$2.38	\$60.48	3.94%	4.01%	4.00%	3.95%	4.00%	3.96%	7.96%	8.00%	8.01%
PNM Resources, Inc.	PNM	\$0.74	\$27.68	2.67%	2.80%	8.50%	8.34%	11.00%	9.25%	11.13%	12.05%	13.82%
Portland General Electric Company	POR	\$1.12	\$35.39	3.16%	3.27%	7.80%	7.83%	5.00%	6.66%	8.24%	10.15%	11.12%
Southern Company	SO	\$2.10	\$46.26	4.54%	4.62%	3.60%	3.62%	3.50%	3.57%	8.12%	8.19%	8.21%
Westar Energy, Inc.	WR	\$1.40	\$37.42	3.74%	3.82%	3.80%	3.20%	6.00%	4.33%	7.00%	8.16%	9.85%
PROXY GROUP MEAN				3.67%	3.77%	5.12%	5.09%	6.00%	5.54%	8.39%	8.31%	10.25%
PROXY GROUP MEDIAN				3.76%	3.87%	4.70%	4.87%	5.00%	4.81%	8.43%	8.81%	9.36%

Mean without HE and NEE

9.37%

Mean without HE, NEE and OTTR

8.85%

**Notes:**

- (1) Source: Bloomberg Professional Service
- (2) Source: Bloomberg Professional Service, equals 50-trading day average as of November 14, 2014
- (3) Equals (1) / (2)
- (4) Equals (3) x (1 + 0.5 x (5))
- (5) Source: Zacks
- (6) Source: Yahoo! Finance
- (7) Source: Value Line
- (8) Equals Average(5), (6), (7)
- (9) Equals (8) x (1 + 0.5 x Minimum(5), (6), (7)) + Minimum(5), (6), (7)
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Constant Growth Discounted Cash Flow Model  
 180 Day Average Stock Price

Company	Ticker	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		Annualized Dividend	Average Stock Price	Dividend Yield	Expected Dividend Yield	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth	Average Earnings Growth	Low ROE	Mean ROE	High ROE
American Electric Power Company, Inc.	AEP	\$2.12	\$54.50	3.89%	3.98%	4.50%	4.97%	4.50%	4.75%	8.48%	8.77%	8.99%
Duke Energy Corporation	DUK	\$3.18	\$75.43	4.22%	4.32%	4.70%	4.76%	5.00%	4.62%	9.01%	9.14%	9.32%
Empire District Electric Company	EDF	\$1.04	\$23.75	4.04%	4.11%	3.00%	3.00%	4.00%	3.33%	7.10%	7.44%	8.12%
Great Plains Energy Inc.	GXP	\$0.98	\$25.92	3.78%	3.88%	5.00%	5.00%	6.00%	5.33%	8.68%	9.22%	9.69%
Hawaiian Electric Industries, Inc.	HE	\$1.24	\$26.21	4.73%	4.83%	4.00%	4.00%	4.00%	4.00%	8.83%	8.83%	8.83%
IDACORP, Inc.	IDA	\$1.88	\$57.25	3.28%	3.33%	4.00%	4.00%	1.50%	3.17%	4.80%	6.50%	7.34%
Nuclear Energy, Inc.	NEE	\$2.50	\$58.48	2.94%	3.04%	6.00%	6.47%	6.00%	6.30%	8.60%	9.40%	9.64%
Northeast Utilities	NU	\$1.57	\$47.00	3.34%	3.46%	6.70%	6.16%	8.00%	6.96%	9.60%	10.41%	11.47%
Old Tail Corporation	OTTR	\$1.21	\$28.91	4.19%	4.41%	NA	6.00%	15.50%	10.75%	10.31%	15.16%	20.01%
Pinnacle West Capital Corporation	PNW	\$2.38	\$57.92	4.11%	4.19%	4.00%	3.95%	4.00%	3.96%	8.14%	8.17%	8.19%
PNM Resources, Inc.	PNM	\$0.74	\$27.63	2.68%	2.80%	8.50%	8.34%	11.00%	9.25%	11.13%	12.05%	13.83%
Portland General Electric Company	POR	\$1.12	\$34.23	3.27%	3.36%	7.80%	7.83%	5.00%	6.66%	8.35%	10.25%	11.23%
Southern Company	SO	\$2.10	\$45.18	4.65%	4.73%	3.60%	3.62%	3.50%	3.57%	8.23%	8.30%	8.33%
Westar Energy, Inc.	WR	\$1.40	\$36.85	3.80%	3.86%	3.80%	3.20%	6.00%	4.33%	7.05%	8.22%	9.91%
PROXY GROUP MEAN				3.76%	3.86%	5.12%	5.09%	6.00%	5.54%	8.50%	8.42%	10.36%
PROXY GROUP MEDIAN				3.84%	3.93%	4.70%	4.87%	5.00%	4.81%	8.65%	8.96%	9.45%

Mean without HE and NEE

9.47%

Mean without HE, NEE and OTTR

8.95%

**Notes:**

- (1) Source: Bloomberg Professional Service
- (2) Source: Bloomberg Professional Service, equals 180-trading day average as of November 14, 2014
- (3) Equals (1) / (2)
- (4) Equals (3) x (1 + 0.5 x (5))
- (5) Source: Zacks
- (6) Source: Yahoo! Finance
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Union Electric Company d/b/a Ameren Missouri  
Case No. ER-2014-0258

2014 Versus 2012 Multi-Stage DCF Results

Hevert Multi-Stage DCF	2014	2012	Reduction
30-day	9.55%	10.15%	-0.60%
90-day	9.78%	10.30%	-0.52%
180-day	9.90%	10.35%	-0.45%



Union Electric Company d/b/a Ameren Missouri  
Case No. ER-2014-0258

**2014 Multi-Stage DCF Results Based  
on Price-to-Earnings Terminal Multiples**

Hevert Multi-Stage DCF	Unadusted Terminal P/E	15.98x	13.70x
30-day	9.55%	8.83%	8.00%
90-day	9.78%	9.39%	8.56%
180-day	9.90%	9.66%	8.83%
<b>Difference</b>			
30-day		0.72%	1.55%
90-day		0.40%	1.22%
180-day		0.24%	1.06%



# Union Electric Company d/b/a Ameren Missouri

## Case No. ER-2014-0258

Multi-Stage Growth Discounted Cash Flow Model  
30 Day Average Stock Price  
Average EPS Growth Rate Estimate in First Stage

### 13.70x Terminal Price-to-Earnings

Ticker	Company	EPS Growth Rate Estimates												Payoff Ratio	Terminal Valuation									
		Year													Terminals									
		[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]		[26]	[27]	[28]	[29]	[30]					
Company	Ticker	Price	Yield	First Cal	Average	Growth	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
American Electric Power Company, Inc.	ASP	\$58.88	4.50%	4.50%	4.75%	5.63%	61.00%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Duke Energy Corporation	DUK	\$42.15	4.70%	4.76%	5.00%	5.82%	61.00%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Empire District Electric Company	EDF	\$18.62	3.00%	3.00%	4.00%	5.33%	58.00%	62.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Great Plains Energy Inc.	GXP	\$27.00	5.00%	5.00%	6.00%	7.00%	58.00%	62.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Hawaiian Electric Industries, Inc.	HE	\$31.27	4.00%	4.00%	4.00%	5.83%	76.00%	85.00%	87.23%	80.00%	87.23%	80.00%	87.23%	80.00%	87.23%	80.00%	87.23%	80.00%	87.23%	80.00%	87.23%	80.00%	87.23%	80.00%
IMCOP, Inc.	IDA	\$53.94	4.00%	4.00%	4.00%	5.83%	61.00%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Nuclear Energy, Inc.	NEE	\$104.42	6.00%	6.00%	6.00%	6.58%	61.00%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Northeast Utilities	NU	\$51.92	6.00%	6.16%	6.16%	6.58%	61.00%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Otar Tail Corporation	OTTR	\$29.93	NA	6.00%	10.50%	5.83%	70.00%	59.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Principale West Capital Corporation	PNW	\$55.58	4.00%	3.95%	4.00%	3.85%	63.00%	65.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
PNM Resources, Inc.	PNM	\$29.24	5.00%	5.34%	11.00%	9.24%	66.00%	66.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Portland General Electric Company	POR	\$37.84	7.83%	7.83%	5.00%	6.83%	60.00%	54.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Southern Company	SO	\$45.24	3.89%	3.89%	3.50%	3.78%	58.00%	74.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%
Wester Energy, Inc.	WER	\$39.85	3.82%	3.20%	6.00%	4.33%	56.00%	58.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%	67.23%	63.00%

Note: Annual Cash Flows Past from June 30, 2009 through June 30, 2015 grow at constant rate of 5.63%









Union Electric Company d/b/a Ameren Missouri  
Case No. ER-2014-0258

**Multiple-Stage Discounted Cash Flow (DCF) Estimated Costs of Common Equity  
for the Standard & Poor's 500 Index**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Company Name	Annualized Quarterly Dividend	Growth Years 1-5	6	7	Growth Years 8	9	10	Growth in Perpetuity	Cost of Equity
S&P 500	\$41.88	11.73%	10.51%	9.29%	8.07%	6.84%	5.62%	4.40%	7.78%

Quarterly Dividend = \$10.47

Sources:

S&P 500 Information: <http://us.spindices.com/indices/equity/sp-500>

GDP: Page 41 from Staff's Cost of Service Report