

Exhibit No.:  
Issue: Cost of Capital; Capital Structure  
Witness: Robert B. Hevert  
Type of Exhibit: Surrebuttal Testimony  
Sponsoring Party: Kansas City Power & Light Company  
Case No.: ER-2016-0285  
Date Testimony Prepared: January 27, 2017

**MISSOURI PUBLIC SERVICE COMMISSION**

**CASE NO.: ER-2016-0285**

**SURREBUTTAL TESTIMONY**

**OF**

**ROBERT B. HEVERT**

**ON BEHALF OF**

**KANSAS CITY POWER & LIGHT COMPANY**

**Kansas City, Missouri  
January 2017**

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**SURREBUTTAL TESTIMONY  
OF**

**ROBERT B. HEVERT**

**Case No. ER-2016-0285**

1           **I.       INTRODUCTION AND SUMMARY OF RECOMMENDATIONS**

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

3   A:     My name is Robert B. Hevert. I am a Partner with ScottMadden, Inc. (“ScottMadden”),  
4           and my business address is 1900 West Park Drive, Suite 250, Westborough, MA 01581.

5   **Q:     Are you the same Robert B. Hevert who pre-filed Direct Testimony and Rebuttal**  
6           **Testimony in this matter?**

7   A:     Yes, I filed Direct and Rebuttal Testimony on behalf of Kansas City Power & Light  
8           (“KCP&L” or the “Company”).

9   **Q:     What is the purpose of your Surrebuttal Testimony?**

10   A:     On behalf of KCP&L, my Surrebuttal Testimony responds to the rebuttal testimonies of  
11           Dr. J. Randall Woolridge, Mr. Keith Majors, and Mr. David Murray submitted in this  
12           proceeding on behalf of the Missouri Public Service Commission Utility Services  
13           Division (“Staff”) as they relate to Staff’s recommended Return on Equity (“ROE”) and  
14           capital structure. I also respond to the rebuttal testimony of Mr. Michael P. Gorman filed  
15           on behalf of the Midwest Energy Consumers’ Group (“MECG”) and portions of the  
16           rebuttal testimony of Mr. Charles R. Hyneman on behalf of the Office of the Public  
17           Counsel (“OPC”). My analyses and conclusions are supported by the data presented in  
18           Schedules RBH-30 through RBH-31, which have been prepared by me or under my  
19           direction.

1 **Q: Have you updated your ROE analyses from those presented in your Rebuttal**  
2 **Testimony?**

3 A: No, I have not. I continue to rely on the analyses provided in my Rebuttal Testimony,  
4 which were updated based on market data through November 30, 2016.

5 **Q: Please provide a summary overview of your Surrebuttal Testimony.**

6 A: In my Direct Testimony and Rebuttal Testimony, I concluded that a reasonable range of  
7 ROE estimates is from 9.75 percent to 10.50 percent. For the reasons discussed  
8 throughout my Surrebuttal Testimony, none of the arguments raised in Dr. Woolridge's,  
9 Mr. Murray's, or Mr. Gorman's rebuttal testimonies have caused me to revise my  
10 recommendation. As such, I continue to conclude that an ROE within a range of 9.75  
11 percent to 10.50 percent is reasonable.

12 In particular, I do not agree with Dr. Woolridge that current market conditions  
13 support giving undue weight to the DCF model. As discussed in my Direct Testimony,  
14 because no one model is most reliable under all market conditions, investors tend to rely  
15 on multiple methods to develop their return requirements.<sup>1</sup> Current market conditions  
16 (including the analytical period on which Dr. Woolridge relied) are incompatible with the  
17 underlying assumptions of the DCF model, and, as such, it is appropriate to give greater  
18 weight to other models.

19 I also address certain concerns raised by Mr. Murray and Mr. Gorman. I continue  
20 to believe the analytical models, assumptions, and inputs presented in my Direct and  
21 Rebuttal Testimonies are reasonable and appropriate under current market conditions. I  
22 have relied on information and data that is supported by academic research and industry

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<sup>1</sup> Direct Testimony of Robert B. Hevert, at 5.

1 practice, represents market expectations, and is corroborated by long-term historical  
2 relationships.

3 **Q: How do the Opposing Witnesses ROE recommendations compare to recently**  
4 **authorized returns?**

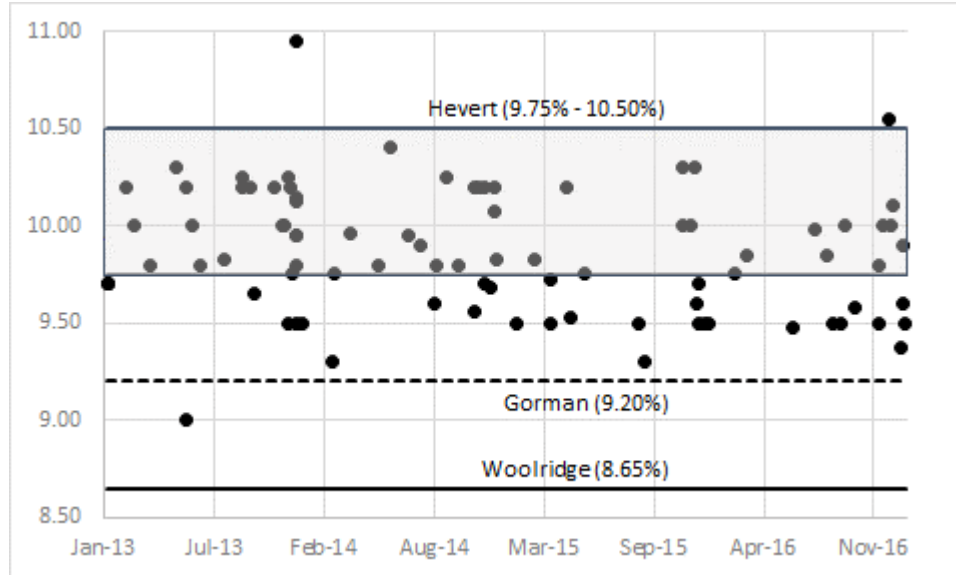
5 A: In my Direct Testimony, I recommended an ROE in the range of 9.75 percent to 10.50  
6 percent. The updated analyses in my Rebuttal Testimony continue to support my position  
7 that a range of 9.75 percent to 10.50 percent is a reasonable estimate of the Company's  
8 Cost of Equity. By contrast, Dr. Woolridge's and Mr. Gorman's recommendations of  
9 8.65 percent and 9.20 percent, respectively, are unreasonably low. Dr. Woolridge's  
10 recommendation in particular diverges so far from the range of reasonableness that it  
11 should be considered an outlier.

12 Taken as a group, the Opposing Witnesses' ROE recommendations are far below  
13 any objective measure of the Company's Cost of Equity. For example, as shown in Chart  
14 1, below, Mr. Gorman's revised recommendation is below all but one return authorized  
15 for a vertically integrated electric utility; that one case included a 50 basis points penalty  
16 for "system inefficiencies".<sup>2</sup> Dr. Woolridge' 8.65 percent recommendation is 35 basis  
17 points below the lowest authorized return since at least 1980.

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<sup>2</sup> Source: Regulatory Research Associates. The lowest return authorized for a vertically integrated electric utility was 9.00 percent given to Maui Electric Company and included a 50 basis point reduction due to the company's "inability to address certain apparent system inefficiencies" (*see* Decision and Order No. 31288, Public Utilities Commission of the State of Hawaii, Docket No. 2011-0092, at 107).

1 **Chart 1: Authorized Returns for Vertically Integrated Electric Utilities 2013-2016**



2  
3 It also is important to note that since 2013, the average authorized return for  
4 vertically integrated utilities was 9.86 percent, only four basis points from my 9.90  
5 percent recommendation.<sup>3</sup> Mr. Gorman’s 9.20 percent ROE recommendation on the  
6 other hand, is 66 basis points from the average; Dr. Woolridge’s recommendation is 121  
7 basis points removed. On that basis alone, it is apparent that Dr. Woolridge’s 8.65  
8 percent recommendation is an outlier that falls well below the objective measure of  
9 reasonableness that is represented by returns authorized in other jurisdictions. And as  
10 discussed earlier, but for the 50 basis points adjustment in Maui Electric’s rate  
11 proceeding, Mr. Gorman’s recommendation would set the floor.

12 For the reasons discussed throughout the balance of my Rebuttal Testimony, their  
13 recommendations cannot be supported by the reasonable application of financial models,  
14 nor can they be justified by current or expected market conditions. Rather, the Opposing  
15 Witnesses’ ROE recommendations are unproductive and would only serve to increase the

<sup>3</sup> The average authorized return for vertically integrated utilities in 2016 was 9.77 percent.

1 Company's regulatory and financial risk, diminish its ability to compete for capital, and  
2 have the counter-productive effect of increasing KCP&L's overall cost of capital,  
3 ultimately to the detriment of its customers.

4 **Q: How is the remainder of your Testimony organized?**

5 A: The remainder of my Direct Testimony is organized as follows:

6 Section II – Provides my response to Dr. Woolridge's rebuttal testimony  
7 regarding the Company's cost of capital;

8 Section III – Provides my response to Messrs. Hyneman's and Majors rebuttal  
9 testimony regarding Missouri's regulatory environment;

10 Section IV – Provides my response to Mr. Murray's rebuttal testimony regarding  
11 the Company's capital structure;

12 Section V – Provides my response to Mr. Gorman's rebuttal testimony regarding  
13 the Company's cost of capital; and

14 Section VI– Summarizes my conclusions and recommendation.  
15

## II. RESPONSE TO THE REBUTTAL TESTIMONY OF STAFF WITNESS

### WOOLRIDGE

16 **Q: Please briefly summarize Dr. Woolridge's rebuttal testimony.**

17 A: Dr. Woolridge argues that my ROE recommendation is overstated because: (1) the I did  
18 not give proper weight to my Constant Growth DCF results; (2) the DCF models relied  
19 on analysts' projected growth rates, which Dr. Woolridge believes are overly optimistic  
20 and biased; (3) the Multi-Stage DCF model is based on an overstated GDP growth  
21 estimate; (4) my CAPM analysis is based on inflated estimates of the Market Risk

1 Premiums; (5) and my Bond Yield Plus Risk Premium analysis is based on an inflated  
2 utility Equity Risk Premium.<sup>4</sup> I respond to each of Dr. Woolridge's concerns in turn,  
3 below.

4 **Q: Does Dr. Woolridge express any concerns regarding your Constant Growth DCF**  
5 **analysis?**

6 A: Dr. Woolridge believes that I did not give proper weight to my Constant Growth DCF  
7 analysis and that my reliance on projected analyst EPS growth rates is inappropriate  
8 because those estimates are "overly optimistic and upwardly biased."<sup>5</sup>

9 **Q: What is your response to Dr. Woolridge on those points?**

10 A: As noted in Direct Testimony, because no one model is most reliable under all market  
11 conditions, investors tend to rely on multiple methods to develop their return  
12 requirements.<sup>6</sup> That is particularly relevant, because the currently high valuations for the  
13 utility sector violate the underlying assumptions of the Constant Growth DCF model,<sup>7</sup>  
14 which are that P/E ratios will remain constant in perpetuity. As such, relying on an  
15 analytical model without considering the context in which it is being applied could result  
16 in estimates of the Company's ROE that are not consistent with market expectations.

17 **Q: Are analyst growth rates appropriate in the Constant Growth DCF analysis?**

18 A: Yes, they are. As discussed in my Rebuttal Testimony: (1) academic research has  
19 indicated that measures of earnings are strongly related to stock valuation;<sup>8</sup> (2) projected  
20 analysts' EPS growth rates for certain of Dr. Woolridge's proxy group are consistent with

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<sup>4</sup> Rebuttal Testimony of J. Randall Woolridge, at 3.

<sup>5</sup> *Ibid.*, at 7.

<sup>6</sup> Direct Testimony of Robert B. Hevert, at 16.

<sup>7</sup> Rebuttal Testimony of Robert B. Hevert, at 19.

<sup>8</sup> *Ibid.*, at 31.



1 management expectations of earnings growth;<sup>9</sup> and (3) the results of the analysis I  
2 performed in Schedule RBH-22 in my Rebuttal Testimony indicates that projected EPS  
3 growth rates are the only appropriate measure of expected growth.<sup>10</sup> Based on those  
4 analyses, I disagree that the earnings projections included in our respective analyses are  
5 likely to be systemically biased.

6 **Q: Does Dr. Woolridge express any concerns regarding your CAPM analysis?**

7 A: Dr. Woolridge's principal disagreement with my CAPM analysis involves the Market  
8 Risk Premium component of the model. As to my use of expected market returns, Dr.  
9 Woolridge states that the result is "inflated due to errors and bias in [my] study."<sup>11</sup> Dr.  
10 Woolridge also points to the long-term EPS growth rates for the S&P 500 based on the  
11 data from Bloomberg and Value Line, respectively,<sup>12</sup> and notes that they "are not  
12 consistent with historic or projected economic and earnings growth."<sup>13</sup> In support of his  
13 position that the expected market return included in my CAPM analysis is overstated, Dr.  
14 Woolridge cites two surveys: the Duke Chief Financial Officers ("CFO") survey, and the  
15 Philadelphia Federal Reserve Survey of Professional Forecasters.<sup>14</sup>

16 **Q: What is your response to Dr. Woolridge on those points?**

17 A: First, by referring to the survey by the Federal Reserve Bank of Philadelphia, Dr.  
18 Woolridge suggests that my estimated market return is inconsistent with those used by  
19 professional forecasters.<sup>15</sup> On reviewing that survey, I note that only 18 of 40 survey  
20 participants responded to the question regarding the expected return for the S&P 500 over

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<sup>9</sup> *Ibid.*, at 30.

<sup>10</sup> *Ibid.*, at 30-32, and Schedule RBH-22.

<sup>11</sup> Rebuttal Testimony of J. Randall Woolridge, at 19. [Clarification added]

<sup>12</sup> *Ibid.*, at 16.

<sup>13</sup> *Ibid.*

<sup>14</sup> *Ibid.*, at 19.

1 the next ten years.<sup>16</sup> Similarly, 26 of 40 responded to the question regarding expected  
2 return on ten-year Treasury bonds. Because a considerable portion of the survey  
3 respondents did not answer those questions, it is difficult to have confidence that the  
4 estimates represent the market's expected total return.

5 Even if all 40 economists provided expected market returns and Treasury yields,  
6 as noted earlier, Dr. Woolridge gives economists' interest rate projections little weight,  
7 going so far as to note that in a Bloomberg survey, "100% of the economists were  
8 wrong."<sup>17</sup> Yet, Dr. Woolridge relies on the Philadelphia Federal Reserve survey, even  
9 though it is based on economists' projections of interest rates and market returns.

10 As to the Duke CFO survey, Dr. Woolridge's 8.65 percent ROE recommendation,  
11 which applies to a company that is less risky than the overall market,<sup>18</sup> is 295 basis points  
12 above the expected market return of 5.70 percent suggested by the survey results. If the  
13 survey were a reasonable method of determining the expected market return, Dr.  
14 Woolridge's ROE recommendation would be no higher than 5.70 percent.<sup>19</sup> Moreover,  
15 as shown in Table 1 below, the survey respondents have provided estimates that, on  
16 average, significantly underestimated actual market returns.

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<sup>15</sup> *Ibid.*

<sup>16</sup> See Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters, First Quarter of 2016, at 17.

<sup>17</sup> Staff Revenue Requirement Cost of Service Report, at 15. [emphasis included]

<sup>18</sup> Dr. Woolridge and I agree that Beta coefficients for our proxy companies are less than 1.0.

<sup>19</sup> 5.70 percent equals the expected market return suggested by the Fourth Quarter 2016 Duke CFO survey.

1

**Table 1: S&P 500 Market Return: Accuracy of Survey Estimates<sup>20</sup>**

	Actual	Graham Harvey Estimate
2015	1.38%	6.07%
2014	13.69%	5.00%
2013	32.39%	3.40%
2012	16.00%	4.00%
2011	2.11%	5.30%
2010	15.06%	6.28%
Average	13.44%	5.01%

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One reason that the Duke CFO survey of expected market return does not provide a reasonable basis to estimate the Company’s ROE is the distinction between the expected and *required* returns. As the Commission has stated, a “utility’s cost of common equity is the return investors *require* on an investment in that company.”<sup>21</sup> In prior surveys, the authors referred to the “Hurdle Rate”, which is the weighted average after-tax return (including both debt and equity) required to commit capital to a given investment, noting that it was significantly higher than the expected market return. For example, the authors discuss a Hurdle Rate of 13.50 percent.<sup>22</sup> Consequently, I disagree with Dr. Woolridge’s view that the expected market return is a relevant benchmark in assessing our respective ROE recommendations.

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<sup>20</sup> Source: Morningstar, Inc., 2016 Stocks, Bonds, Bills and Inflation Appendix A, at 3-5, 21-23; <http://www.cfosurvey.org> (1-year return estimates as of fourth quarter of the previous year).

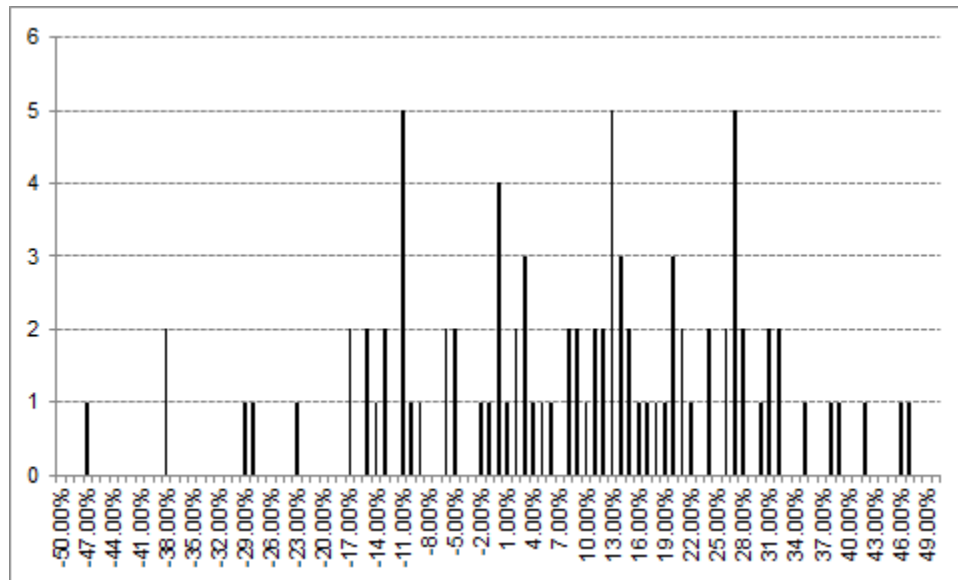
<sup>21</sup> Report and Order at 106, In re Kansas City Power & Light Co., No. ER-2010-0355 (2011) (emphasis added).

<sup>22</sup> John R. Graham, Campbell R. Harvey, *The Equity Risk Premium in 2015*, at 8.

1 **Q: Turning to Dr. Woolridge’s position that the EPS growth rates used to develop your**  
2 **estimated market return are too high, did you consider where your estimates fall**  
3 **within the range of historical observations?**

4 **A:** Yes. I gathered the annual capital appreciation return on Large Company Stocks reported  
5 by Morningstar for the years 1926 through 2015, produced a histogram of those  
6 observations, and calculated the probability that a given capital appreciation return  
7 estimate would be observed. The results of that analysis, which are presented in Chart 2  
8 (below), demonstrate that capital appreciation rates of 11.03 percent to 11.71 percent and  
9 higher actually occurred quite often.<sup>23</sup>

10 **Chart 2: Frequency Distribution of Observed Capital Appreciation Rates**  
11 **1926 – 2015<sup>24</sup>**

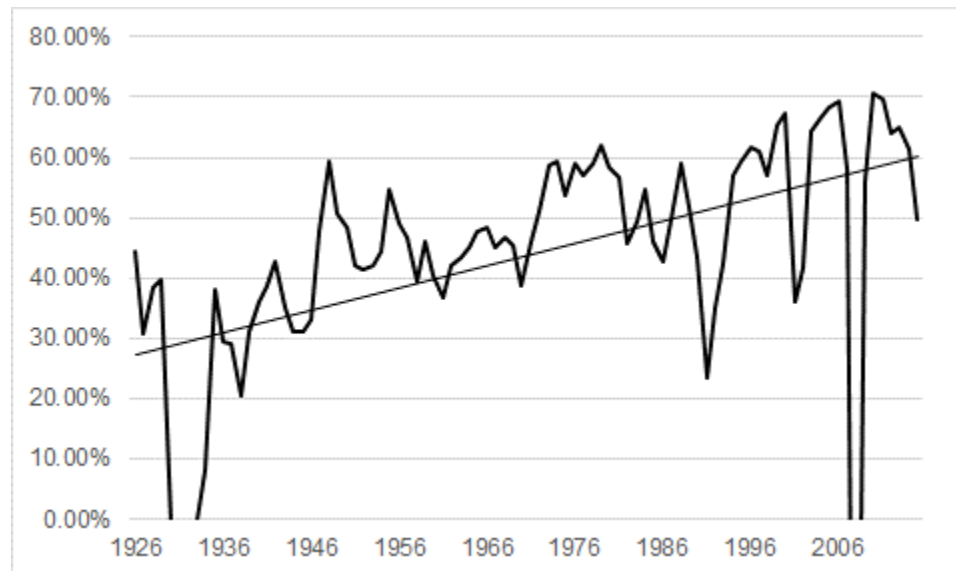


12 In fact, the growth rates that Dr. Woolridge asserts are “overstated” by historical  
13 standards represent approximately the 51<sup>st</sup> to 52<sup>nd</sup> percentile of the actual capital  
14 appreciation rates observed from 1926 to 2015.

<sup>23</sup> Under the Constant Growth DCF model’s assumptions, the growth rate equals the rate of capital appreciation.

1           Lastly, under the Sustainable Growth model, if the retention ratio is higher now  
2 than it historically has been, there would be reason to believe that expected growth rates  
3 would be higher than historical growth rates. To determine whether that has been the  
4 case, I calculated the annual retention ratio from 1926 to 2015 using earnings and  
5 dividends data published by Dr. Robert J. Shiller. As shown in Chart 3 (below), that data  
6 indicates the S&P 500 earnings retention has trended upward over time, and is currently  
7 well above its historical average. Consequently, the Sustainable Growth model included  
8 in Dr. Woolridge’s DCF analysis suggests that the future growth of the S&P 500 could  
9 outpace its historical growth.

10           **Chart 3: S&P 500 Annual Earnings Retention Ratio, 1926 - 2015**<sup>25</sup>



11   **Q: Please summarize Dr. Woolridge’s response to your Bond Yield Plus Risk Premium**  
12   **analysis.**

13   **A:** Dr. Woolridge believes that the Risk Premium derived from the analysis is “inflated” and  
14   “is a gauge of *commission* behavior and not *investor* behavior.”<sup>26</sup> Dr. Woolridge further

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<sup>24</sup> Source: Morningstar, Inc., 2016 Morningstar Stocks, Bonds, Bills and Inflation, Table A-3.

1 observes that my Risk Premium approach and results “reflect other factors used by utility  
2 commissions in authorizing ROEs in addition to capital costs.”<sup>27</sup> In particular, Dr.  
3 Woolridge points to a potential discrepancy between settled and litigated cases.<sup>28</sup> In  
4 addition, Dr. Woolridge reasons that the analysis overstates the actual ROE, because the  
5 estimated risk premium is based on historical Treasury yields, whereas the model is  
6 applied to current and expected yields.<sup>29</sup>

7 **Q: What is your response to Dr. Woolridge’s position that the Risk Premium analysis is**  
8 **a study of utility commissions’ behavior, rather than investor behavior?**

9 A: Those cases, and their associated decisions, reflect the same type of market-based  
10 analyses at issue in this proceeding. Moreover, given that authorized returns are publicly  
11 available, it is difficult to imagine that such data is not reflected, at least to some degree,  
12 in investors’ return expectations and requirements. For example, American Electric  
13 Power, one of Dr. Woolridge’s proxy companies, discloses authorized returns, by  
14 jurisdiction, in its 2015 SEC Form 10-K. Consequently, it is reasonable to assume that  
15 authorized returns are a reasonable (although not the only) measure of investor-required  
16 returns.

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<sup>25</sup> Source: <http://www.econ.yale.edu/~shiller/data.htm>.

<sup>26</sup> Rebuttal Testimony of J. Randall Woolridge, at 21. [emphasis included]

<sup>27</sup> *Ibid.*

<sup>28</sup> *Ibid.*

<sup>29</sup> *Ibid.*, at 20.

1 **Q: What is your response to Dr. Woolridge’s statement that your analysis applies an**  
2 **historical risk premium to projected rates and as such, overstates the Cost of**  
3 **Equity?**<sup>30</sup>

4 A: I applied both historical and projected interest rates to the regression coefficients  
5 developed in my Risk Premium analysis, not to an average historical risk premium. As  
6 discussed in my Direct Testimony, the regression coefficients specifically recognize that  
7 as interest rates increase the Equity Risk Premium decreases.<sup>31</sup> A consequence of that  
8 relationship is that interest rates and the Cost of Equity generally move in the same  
9 direction, although not on a one-to-one basis. As projected interest rates increase, the  
10 Cost of Equity also will increase, but not to the same degree. Dr. Woolridge’s concern  
11 that I have applied projected interest rates to an historical risk premium is misplaced in  
12 that (1) my analysis does not rely on an historical risk premium; and (2) because the  
13 estimated risk premium does not increase in lock step with interest rates, the resulting  
14 ROE estimate does not overstate the Cost of Equity.

15 **Q: What is your response to Dr. Woolridge’s position that your Risk Premium analysis**  
16 **must take into consideration the specific aspects of this proceeding relative to all**  
17 **others?**<sup>32</sup>

18 A: First, every case has its unique set of issues and circumstances; there is no disagreement  
19 on that point. Looking at over 1,000 cases over many economic cycles, and using that  
20 data to develop the relationship between the Equity Risk Premium and interest rates,  
21 mitigates that concern. I do agree, however, that the Risk Premium model results should

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<sup>30</sup> *Ibid.*

<sup>31</sup> *See* Direct Testimony of Robert B. Hevert, Schedule RBH-6.

<sup>32</sup> Rebuttal Testimony of J. Randall Woolridge, at 21.

1 be considered an industry average ROE estimate. To the extent KCP&L equity investors  
2 face incremental risks, its ROE should be adjusted.

3 **Q: Do you believe that it is a concern, as Dr. Woolridge states, to include both fully**  
4 **litigated and settled rate cases in your Risk Premium analysis?**<sup>33</sup>

5 A: No, I do not. Of the rate cases in my Risk Premium analysis, 378 were settled and 1,110  
6 were fully litigated. More recently (from 2012 through November 30, 2016), 83 cases  
7 were litigated and 89 were settled. The difference in average authorized returns between  
8 the two, however, was only six basis points (9.84 percent for settled cases and 9.78  
9 percent for litigated cases).

10 Equally importantly, and as illustrated on Schedule RBH-30, the same inverse  
11 relationship between interest rates and the Equity Risk Premium is present whether the  
12 analysis includes fully litigated rate cases, settled rate cases, or both. I therefore disagree  
13 with Dr. Woolridge's concern that the distinction between settled and litigated cases is  
14 meaningful.

15 **Q: Are authorized returns in other jurisdictions a relevant benchmark in assessing the**  
16 **reasonableness of ROE estimates and recommendations?**

17 A: Yes, they are. It is important to recognize that in establishing their return requirements,  
18 investors consider a broad range of data, including returns authorized in other  
19 jurisdictions. Equity investors have many options available to them, and allocate their  
20 capital based on the expected risks and returns associated with those alternatives. Given  
21 that investors consider such data in framing their investment decisions, return  
22 recommendations that materially depart from observed industry norms – such as such as

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<sup>33</sup> *Ibid.*



1 Dr. Woolridge’s 8.65 percent recommendation – should be supported by clear and  
2 unambiguous reasons.

3 I also disagree with Dr. Woolridge’s position that authorized returns are not  
4 meaningful because they are measures of “commission behavior” as opposed to measures  
5 of investors’ return expectations.<sup>34</sup> There is no reason to believe that other regulatory  
6 commissions do not consider the same type of market-related factors at issue in this  
7 proceeding. Nor is there reason to assume that investors dismiss authorized returns in  
8 establishing their return expectations. Rather, the fact that companies such as American  
9 Electric Power – one of Dr. Woolridge’s proxy companies – report authorized returns in  
10 their annual Securities Exchange Commission Form 10-K indicates that they are quite  
11 relevant to investors.

### 12

**III. RESPONSE TO PORTIONS OF THE REBUTTAL TESTIMONIES OF MR.  
HYNEMAN AND STAFF WITNESS MAJORS**

13 **Q: How do Messrs. Hyneman and Majors describe the Missouri regulatory**  
14 **environment?**

15 A: Messrs. Hyneman and Majors cite to Regulatory Research Associates (“RRA”) Average /  
16 2 ranking of Missouri to suggest that investors see an average level of risk associated  
17 with Missouri’s regulatory climate.<sup>35</sup>

18 **Q: What is your response to that point?**

19 A: I agree that Missouri currently is ranked as Average / 2 from RRA. However, as Mr.  
20 Hyneman notes in his rebuttal testimony, RRA states that “a reduction in the ranking may

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<sup>34</sup> *Ibid.*

1 be justified,” citing concerns regarding the potential failure of the legislature or the  
2 Commission to take action to address regulatory lag, or if the Commission exercises  
3 authority in the Great Plains Energy and Westar Energy merger.<sup>36</sup> As noted in my Direct  
4 Testimony, the Company faces relatively higher risk than its peers due to high levels of  
5 regulatory lag.<sup>37</sup> It appears that RRA believes the current level of regulatory lag  
6 significantly disadvantages utilities in the state to the point that it would consider  
7 downgrading Missouri’s ranking if regulatory lag is not addressed. As such, I do not  
8 agree with Mr. Hyneman’s suggestion that my recommended range is “overstated”<sup>38</sup>  
9 because of RRA’s Average / 2 ranking of Missouri.  
10

#### **IV. RESPONSE TO THE REBUTTAL TESTIMONY OF STAFF WITNESS**

##### **MURRAY**

11 **Q: Do you agree with Staff that the capital structure which is “most economical to**  
12 **KCPL ratepayers should be used”?**<sup>39</sup>

13 A: Not necessarily. Staff’s approach incorrectly assumes that the “most economical” capital  
14 structure may be determined independently of the assets and operations it must finance.  
15 In fulfilling their obligation to serve, utilities make large, essentially irreversible  
16 investments that are recovered over decades at a compensatory cost of capital. Unlike  
17 unregulated entities, utilities generally do not have the option to delay, defer, or reject  
18 many large capital investments. Because their operations are capital-intensive and

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<sup>35</sup> Rebuttal Testimony of Charles R. Hyneman, at 51; and Rebuttal Testimony of Keith Majors, at 31.

<sup>36</sup> Rebuttal Testimony of Charles R. Hyneman, at 7. *See*, also, Regulatory Research Associates, Assessment of the Missouri Public Service Commission, updated October 6, 2016.

<sup>37</sup> Direct Testimony of Robert B. Hevert, at 45-46.

<sup>38</sup> Rebuttal Testimony of Charles R. Hyneman, at 51.

<sup>39</sup> Rebuttal Testimony of David Murray, at 7.

1 meeting their service obligations is not discretionary, utilities generally do not have the  
2 option to avoid raising external funds during periods of capital market distress. Those  
3 conditions make capital structure optimization both dynamic and complex. Staff's  
4 approach, however, incorrectly assumes that minimizing the allowed rate of return is a  
5 substitute for optimizing the capital structure.

6 **Q: Please explain the difference between “minimizing” and “optimizing” financing**  
7 **costs.**

8 A: The optimal capital structure recognizes that there are numerous constraints associated  
9 with financing decisions, and minimizes financing costs subject to those constraints. In  
10 practice, financing constraints are dynamic in nature, in that they continually change in  
11 response to market conditions. In my practical experience, the factors that must be  
12 considered in making both day-to-day and long-term financing decisions include: (1) the  
13 availability and cost of different forms of financing at a particular time; (2) existing and  
14 expected capital market conditions (including the availability of capital, the terms at  
15 which capital may be acquired, and the ability to subsequently “roll over” maturing  
16 financings); (3) the level of existing and proposed debt relative to rating agency criteria,  
17 cash flow contingencies, planned and existing capital spending plans; (4) and lead times  
18 associated with changing from short-term to long-term financing. Only by considering  
19 all such factors can the issuing company establish an optimal financing plan and  
20 implement an optimal capital structure.

1 **Q: In your experience, is there a common practice typically used in financing utility**  
2 **rate base assets?**

3 A: Yes. A common financing practice, sometimes referred to as “maturity matching”,  
4 involves matching the lives of the assets being financed with the maturity of the securities  
5 issued to finance those assets, such that the exposure to changes in the cost of capital is  
6 minimized. Under maturity matching<sup>40</sup>, the overall term structure of the subject  
7 company’s long-term liabilities – including both debt and equity – should correspond to  
8 the life of its permanent assets. As noted by Brigham and Houston, “[t]his strategy  
9 minimizes the risk that the firm will be unable to pay off its maturing obligations.”<sup>41</sup>

10 Taken in isolation, maturity matching would involve extending the maturity of all  
11 debt to the furthest possible point (because the average useful life of utility assets often is  
12 in the range of 30 years, based on a composite depreciation rate of approximately 3.00  
13 percent). Doing so, however, would concentrate maturities within a relatively  
14 compressed period. Even if that period is well in the future, the concentration of  
15 maturities increases refinancing risk. It therefore is important to maintain the financial  
16 flexibility needed to issue securities of varying maturities. Staff’s proposed capital  
17 structure gives no consideration to such practical, yet important concerns.

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<sup>40</sup> A more complex process matches the duration of assets to the “duration” of the capital structure. In finance, “duration” (whether for bonds or equity) typically refers to the present value weighted time to receive the security’s cash flows. A common optimization strategy includes matching the duration of investments with the term of the underlying asset in which the funds are being invested, or the term of a liability being funded.

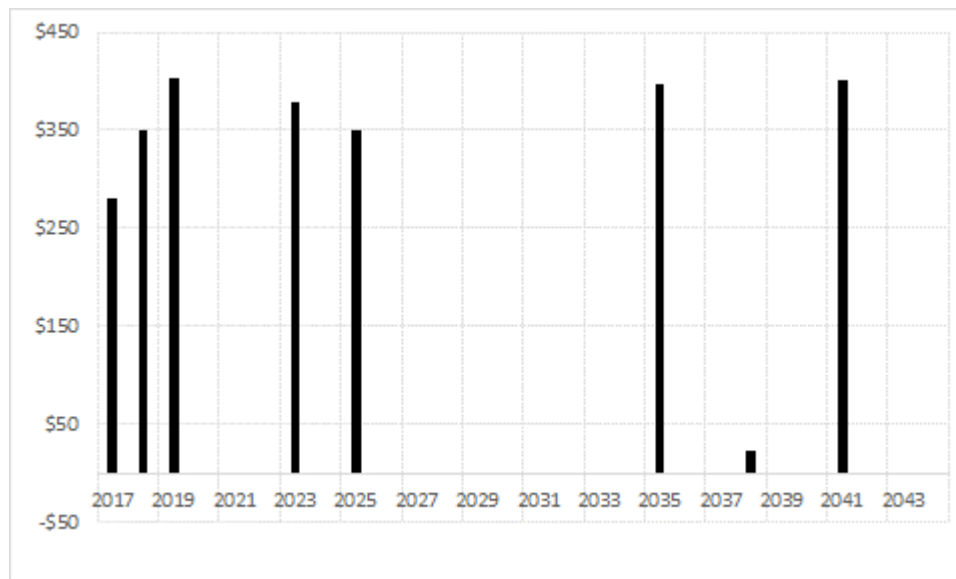
<sup>41</sup> Brigham, Eugene F. and Houston, Joel F., Fundamentals of Financial Management, Concise 4th Ed., Thomson South-Western, 2004, at 574. Maturity matching was also noted by the Commission in Decision 2191-D01-2015, pp. 437, at 88.

1 **Q: Are there observable data to determine whether utilities consider issues such as the**  
2 **term structure of securities in arriving at their financing decisions?**

3 A: Yes. A useful means of assessing the term structure of debt is to view its maturities over  
4 time. Doing so provides a useful perspective on two points. First, we are able to quickly  
5 assess whether there is a “maturity cliff” that requires a significant portion of existing  
6 indebtedness to be refinanced within a relatively compressed period. Second, we can  
7 develop an understanding of the extent to which the term structure of the existing debt  
8 portfolio corresponds to the lives of the assets being financed.

9 Chart 4 below, which summarizes KCP&L’s existing indebtedness by maturity  
10 date, indicates that debt is well-staggered. In no single year are maturities greater than  
11 about 20.00 percent of total outstanding indebtedness.

12 **Chart 4: KCP&L Debt Maturity Profile (\$ millions)<sup>42</sup>**



13

<sup>42</sup> Source: SNL Financial

1 **Q: How does addition of common equity to the capital structure affect financing**  
2 **strategies?**

3 A: Because it is perpetual in nature, common equity extends the weighted average life of  
4 long-term capital, and mitigates incremental refinancing risk. Conversely, relying more  
5 heavily on debt as the means of financing long-lived assets shortens the weighted average  
6 life, and increases the risk of refinancing maturing obligations during less  
7 accommodating market environments.

8 **Q: What are your conclusions as to the appropriate capital structure for the Company?**

9 A: I continue to believe the KCP&L's proposed capital structure is reasonable, because it is  
10 consistent with industry practice as reflected in the range of proxy company equity ratios.  
11

## V. RESPONSE TO THE REBUTTAL TESTIMONY OF MR. GORMAN

12 **Q: Did Mr. Gorman update his recommendation in his rebuttal testimony?**

13 A: Yes, he did. In his direct testimony, Mr. Gorman recommended an ROE of 9.00 percent  
14 based on a range of 8.80 percent to 9.20 percent.<sup>43</sup> Based on his updated analyses, Mr.  
15 Gorman increased his recommended ROE to 9.20 percent, within a range of 8.90 percent  
16 to 9.50 percent.<sup>44</sup>

17 **Q: Please summarize Mr. Gorman's criticisms of your Cost of Equity analyses.**

18 A: Mr. Gorman argues that my ROE recommendation is overstated because: (1) the  
19 Constant Growth DCF results are based on excessive, unsustainable growth rates; (2) the  
20 Multi-Stage DCF model is based on an unrealistic GDP growth estimate and

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<sup>43</sup> Direct Testimony of Michael P. Gorman, at 2.

<sup>44</sup> Rebuttal Testimony of Michael P. Gorman, at 2.

1           unsustainable payout ratio assumptions; (3) my CAPM analysis is based on inflated  
2           estimates of the Market Risk Premiums; (4) and my Bond Yield Plus Risk Premium  
3           analysis is based on an inflated utility Equity Risk Premium.<sup>45</sup> I respond to each of Mr.  
4           Gorman’s concerns in turn, below.

5   **Q:   Do you agree with Mr. Gorman’s assertion that the growth rates used in your**  
6   **constant growth DCF analysis are “excessive” and “unsustainable”?**

7   A:   No, I do not.  Although Mr. Gorman argues that the consensus growth rates in my  
8           constant growth DCF model (averaging 5.29 percent) are high relative to his estimate of  
9           projected GDP growth and retention growth, he also notes that my mean results are  
10          similar to his own.<sup>46</sup>

11 **Q:   Please respond to Mr. Gorman’s assertion your long-term growth rate is**  
12 **inconsistent with other consensus estimates of long-term GDP growth.**

13 A:   The long-term growth rate in my multi-stage DCF analysis reflects growth expectations  
14          beginning ten years in the future, whereas Mr. Gorman’s consensus GDP projections are  
15          only five or ten year projections.  Because there are no consensus forecasts that begin in  
16          ten years, it is reasonable to assume that real growth will revert to its long-term average  
17          over time.  Moreover, the terminal growth rate is intended to reflect expected growth in  
18          perpetuity and as such, the term of even the longest GDP forecast considered by Mr.  
19          Gorman does not reflect the expected, perpetual nature of the terminal growth assumed in  
20          the DCF model.

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<sup>45</sup> Rebuttal Testimony of Michael P. Gorman, at 3.

<sup>46</sup> *Ibid.*, at 5.

1           In his Rebuttal Testimony, Mr. Gorman cites to projections from Blue Chip and  
2 suggests that the terminal growth rate in my Multi-Stage DCF analysis is too high.<sup>47</sup>  
3 Those GDP projections are only five and ten year projections. That is, the longest  
4 estimate (i.e., the 10-year expected GDP) ends before it is actually applied to the Multi-  
5 Stage DCF model in the eleventh year, in perpetuity. As such, I do not agree that those  
6 projections invalidate the growth rate used in my analysis.

7           In addition, in his Multi-Stage DCF analysis, Mr. Gorman cites to projections  
8 from the Energy Information Administration (“EIA”), Congressional Budget Office  
9 (“CBO”), and other sources including the Social Security Administration (“SSA”).<sup>48</sup> In  
10 the case of the CBO and EIA forecast, those projections cover only fifteen years of a  
11 perpetual period, and represent forecasts from single entities. As such, I do not agree that  
12 those sources invalidate the growth rate used in my analysis.

13           In addition, the CBO provides updates regarding its forecasting record. In that  
14 context, the CBO discusses comparisons to other forecasts, and notes that “[d]espite their  
15 value, comparisons of forecasting errors can be misleading when forecasts are made for  
16 different purposes.”<sup>49</sup> In essence, the CBO notes that comparisons to other forecasts are  
17 not always apt, at least in part because they may be based on different assumptions and  
18 used for different purposes. Moreover, the CBO states that it is required to assume that  
19 future fiscal policy will reflect current law, so that it may “provide a benchmark” against  
20 which proposed changes in law may be assessed.<sup>50</sup> Given that purpose and structure, I

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<sup>47</sup> *Ibid.*, at 9.

<sup>48</sup> Direct Testimony of Michael P. Gorman, at 37.

<sup>49</sup> *CBO’s Economic Forecasting Record: 2015 Update*, February 2015, at 4-5.

<sup>50</sup> “In particular, forecasters in the private sector attempt to predict the future stance of federal fiscal policy, and the Administration’s forecasts assume the adoption of the fiscal policy reflected in the President’s proposed budget. CBO, however, is required to assume that fiscal policy in the future will generally reflect the provisions in current law, an approach that derives from the agency’s responsibility to provide a benchmark for lawmakers



1 disagree that the CBO’s forecast invalidates the growth rate used in my Multi-Stage DCF  
2 analysis.

3 The CBO also notes that among its two-year forecasts (since the early 1980’s), the  
4 forecast error for “real output growth” and inflation (measured by the Consumer Price  
5 Index) has been 1.40 percentage points, and 0.80 percentage points, respectively.<sup>51</sup> That  
6 range of error, if applied to the 4.00 percent long-term CBO forecast noted by Mr.  
7 Gorman, suggests that the 5.28 percent rate applied in my Direct Testimony is within the  
8 range of the CBO’s projections (1.80 percent to 6.20 percent).<sup>52</sup>

9 As to the SSA forecast, my long-term growth estimate falls well within the range  
10 of the “cases” that the SSA considers.<sup>53</sup> Moreover, Mr. Gorman’s 4.10 percent long-term  
11 sustainable growth rate conflicts with market measures cited elsewhere in his testimony.  
12 For example, Mr. Gorman does not consider the use of long-term historical data for the  
13 purpose of developing his terminal growth rate, yet he relies on long-term historical data  
14 for the purposes of his CAPM analyses. According to Duff & Phelps (which provides the  
15 data Mr. Gorman relies on to estimate the historical Market Risk Premium), the  
16 arithmetic average historical capital appreciation rate is 7.70 percent, which is

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as they consider proposed changes in law. Forecasting errors may be driven by those different assumptions, particularly when policymakers are considering major changes in the fiscal policy embedded in current law.”

<sup>51</sup> *CBO’s Economic Forecasting Record: 2015 Update*, February 2015, at 1.

<sup>52</sup> Mr. Gorman notes that the CBO projects both real GDP and inflation to be 2.00 percent. *See*, Direct Testimony of Michael P. Gorman, at 38. Applying the forecast error of 1.40 percentage points to the real GDP estimate suggests a range of 0.60 percent to 3.40 percent. Applying the forecast error of 0.80 percentage points to the inflation estimate suggests a range of 1.20 percent to 2.80 percent. That results in a range of estimates from 1.80 percent to 6.20 percent, after applying the CBO’s historical forecast error. As to the use of expected inflation, I note that the TIPS spread has been affected by low levels of inflation, which likely are affected by recently low oil prices. As noted at page 30 of the Federal Reserve’s February 2016 *Monetary Policy Report*, “Inflation is expected to remain low in the near term, in part because of recent further declines in energy prices, but to rise to 2 percent over the medium term as the transitory effects of declines in energy and import prices dissipate and the labor market strengthens further.”

<sup>53</sup> Tables V.B1 and V.B2 of the 2016 *Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* includes “Low Cost” scenario assumptions

1 substantially higher than Mr. Gorman's 4.10 percent estimate of long-term GDP  
2 growth.<sup>54</sup> Aside from the inconsistency with his other analyses, Mr. Gorman's low  
3 growth rate has the effect of producing unduly low DCF estimates.

4 In addition, in my Direct Testimony I assessed whether my 5.28 percent nominal  
5 GDP growth estimate is reasonable within the context of historical observations by  
6 calculating five-year average annual growth rates over the 1929 to 2015 period. My 5.28  
7 percent estimate is reasonable, if not conservative, as it fell within the 28<sup>th</sup> percentile of  
8 observed growth rates.<sup>55</sup> Mr. Gorman's 4.10 percent nominal GDP growth estimate,  
9 however, falls in the 12<sup>th</sup> percentile and is below 71 of 82 periods.

10 **Q: What is your response to Mr. Gorman's assertion that your dividend payout ratio**  
11 **assumption is "unreliable"?**

12 A: Mr. Gorman argues that because the assumption of changing payout ratios over the three  
13 stages of the Multi-Stage DCF model is not based on a "market participant's outlook" the  
14 assumption is unreliable.<sup>56</sup> However, as noted in my Direct Testimony there are several  
15 reasons why management may adjust dividend payments in the near term, such as  
16 increases or decreases in expected capital spending.<sup>57</sup> Over the long term, it is reasonable  
17 to assume that dividend payout ratios will converge to the industry average; that is, the  
18 analysis assumes that short-term trends in the payout ratio will not continue in perpetuity.

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of 2.90 percent and 2.70 percent for the GDP Price Index, and Real GDP Growth, respectively, over the period 2025 through 2085. Combined, those projections indicate nominal GDP growth of approximately 5.70 percent.

<sup>54</sup> Duff & Phelps, 2016 Valuation Handbook: Guide to Cost of Capital at 2-4. Even if we were to consider the geometric mean, the historical capital appreciation rate exceeds Mr. Gorman's 4.10 percent estimate; Mr. Gorman notes on page 44 of his direct testimony that the long-term geometric average growth rate is 5.80 percent.

<sup>55</sup> Rebuttal Testimony of Robert B. Hevert, at 29.

<sup>56</sup> Rebuttal Testimony of Michael P. Gorman, at 11.

<sup>57</sup> Direct Testimony of Robert B. Hevert, at 26.

1 I also note that several of Mr. Gorman's proxy companies recently have discussed  
2 target payout ratios that are highly consistent with my 66.88 percent assumption. For  
3 example, in late 2016 and early 2017 investor relations presentations, Alliant Energy,  
4 NorthWestern Corporation, and Xcel Energy all noted target payout ratios in the range of  
5 60.00 percent to 70.00 percent.<sup>58</sup> Consequently, I disagree with Mr. Gorman's position  
6 that a long-term payout ratio of approximately 67.00 percent is unreasonable.

7 **Q: Turning to the CAPM, please summarize Mr. Gorman's criticisms of your CAPM**  
8 **analysis.**

9 A: Mr. Gorman's concern with my CAPM analysis lies primarily with my Market Risk  
10 Premium estimates.<sup>59</sup> In particular, Mr. Gorman states that my 13.14 percent and 13.75  
11 percent projected returns on the market are "inflated."<sup>60</sup> To determine the reasonableness  
12 of my derived expected market returns, it is instructive to understand how often various  
13 ranges of total returns actually have occurred over the 1926 to 2015 period. In fact, the  
14 13.14 percent and 13.75 percent estimates presented in my Direct Testimony, which Mr.  
15 Gorman asserts are "inflated,"<sup>61</sup> represent the approximately 49<sup>th</sup> percentile of the actual  
16 returns observed from 1926 to 2015. In other words, of the 90 annual observations, 45  
17 were 13.75 percent or higher. Moreover, given the historical volatility in market returns  
18 (as noted by Morningstar, the long-term standard deviation is 19.99 percent), my total

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<sup>58</sup> Alliant Energy, Wells Fargo Pipeline, MLP and Utility Symposium, December 7, 2016; NorthWestern Energy, Investor Update, Investor Presentation, December 12, 2016; and Xcel Energy, Evercore ISI Conference, Investor Presentation, January 12-13, 2017.

<sup>59</sup> Rebuttal Testimony of Michael P. Gorman, at 13.

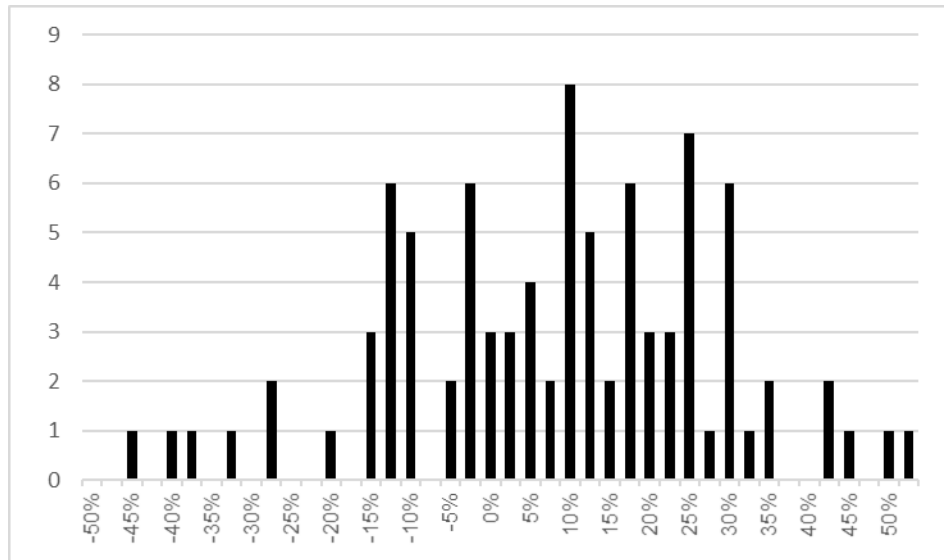
<sup>60</sup> *Ibid.*

<sup>61</sup> *Ibid.*

1 return estimates of 13.14 percent and 13.75 percent are statistically indistinguishable  
2 from the long-term arithmetic average of 11.95 percent.<sup>62</sup>

3 Mr. Gorman further states that my Market Risk Premium (“MRP”) estimates are  
4 “inflated and not reliable.”<sup>63</sup> I therefore performed a similar analysis using historical  
5 Market Risk Premium. I first gathered the annual Market Risk Premium reported by  
6 Morningstar, and produced a histogram of the observations (Mr. Gorman also includes  
7 historical data from 1926 to 2015 to estimate the Market Risk Premium in his direct  
8 testimony at pages 49 - 52). The results of my analysis, which are presented in Chart 5  
9 demonstrate that MRPs of at least 11.10 percent (the high end of the range of the MRP  
10 estimates in my Direct Testimony) will occur approximately half of the time.

11 **Chart 5: Frequency Distribution of Observed Market Risk Premium, 1926 - 2015<sup>64</sup>**



12  
<sup>62</sup> See, Morningstar, Inc., 2016 Ibbotson Stocks, Bonds, Bills and Inflation Classic Yearbook, Appendix A, at 3-5; Schedule RBH-31. Even if we were to look at the standard error, my estimate is well within one standard error of the long-term average.

<sup>63</sup> Rebuttal Testimony of Michael P. Gorman, at 14.

<sup>64</sup> Schedule RBH-31.

1 **Q: Please summarize Mr. Gorman’s criticisms of your Bond Yield Plus Risk Premium**  
2 **analysis.**

3 A: Mr. Gorman’s concern with my Bond Yield Plus Risk Premium analysis is my  
4 “contention” of a “simplistic inverse relationship” between the Equity Risk Premium and  
5 interest rates is not supported by academic research.<sup>65</sup> Mr. Gorman further argues that  
6 the relevant factor explaining changes in the Equity Risk Premiums is the change to  
7 equity risk relative to debt risk, not “simply” changes in interest rates. He concludes that  
8 my analysis ignores such investment risk differentials.

9 **Q: What is your response to Mr. Gorman’s critiques?**

10 A: First, regarding the inverse relationship between the Equity Risk Premium and interest  
11 rates, I cited several academic studies in my Rebuttal Testimony that support my  
12 findings.<sup>66</sup> Moreover, Mr. Gorman’s own data clearly demonstrate that the Equity Risk  
13 Premium moves inversely to interest rates (both Treasury Yields and Utility Bond  
14 Yields). Mr. Gorman may disagree with the premise, but empirical results based on his  
15 data support my position (*see*, Schedule RBH-27 of my Rebuttal Testimony).

16 **Q: Are there any additional analyses that address Mr. Gorman’s concern regarding the**  
17 **effect of expected market volatility and other interest rate environments on your**  
18 **results?**

19 A: Yes. To address the prospect that the market conditions affect the relationship between  
20 interest rates and the Equity Risk Premium, I performed an additional analysis in my  
21 Direct Testimony to specifically include the effect of equity market volatility, and credit  
22 spreads (*see*, Schedule RBH-7). In both forms of the Bond Yield Plus Risk Premium

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<sup>65</sup> Rebuttal Testimony of Michael P. Gorman, at 17.

1 approach, the statistically significant inverse relationship between Treasury yields and the  
2 Risk Premium remains.<sup>67</sup>

3 Lastly, I note that applying Mr. Gorman's projected 3.40 percent 30-year  
4 Treasury yield to the alternative Bond Yield Plus Risk Premium Analysis in my Direct  
5 Testimony produces a more reasonable (although still low) ROE estimate of 9.78 percent  
6 relative to Mr. Gorman's 9.00 percent recommendation.<sup>68</sup>

7 Based on all of this data, the Bond Yield Plus Risk Premium range in my Direct  
8 Testimony for 10.04 percent to 10.47 percent is reasonable.

## 9

### VI. SUMMARY AND CONCLUSIONS

10 **Q: Please briefly summarize your Surrebuttal Testimony.**

11 A: In my Direct Testimony and Rebuttal Testimony, I concluded that a reasonable range of  
12 ROE estimates is from 9.75 percent to 10.50 percent. For the reasons discussed  
13 throughout my Surrebuttal Testimony, none of the arguments raised in Dr. Woolridge's,  
14 Mr. Murray's, or Mr. Gorman's rebuttal testimonies have caused me to revise my  
15 recommendation. As such, I continue to conclude that an ROE within a range of 9.75  
16 percent to 10.50 percent is reasonable. In addition, I also continue to believe the  
17 Company's proposed capital structure is reasonable.

18 **Q: Does this conclude your Surrebuttal Testimony?**

19 A: Yes, it does.

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<sup>66</sup> Rebuttal Testimony of Robert B. Hevert, at 60-61.

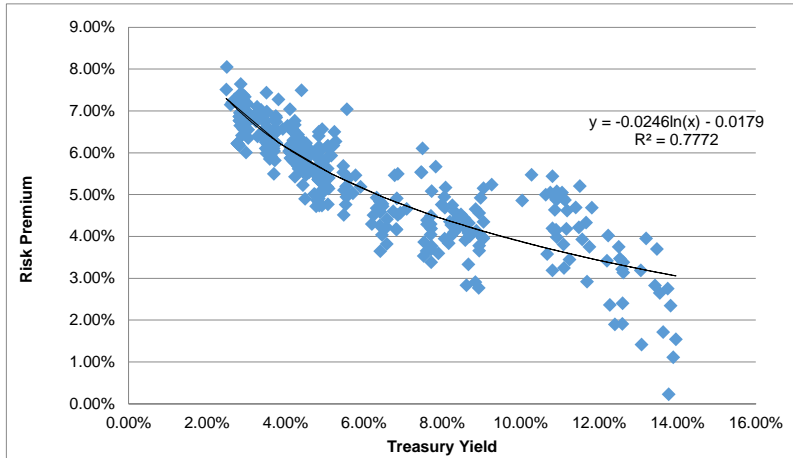
<sup>67</sup> See, Schedule RBH-7.

<sup>68</sup>  $9.78\% = 3.10\% + -0.029 + (\text{LN}(3.10\%) \times -0.026) + (0.86\% \times 0.082) + (14.61 \times 0.0003)$ . Differences due to rounding. Mr. Gorman uses a 3.10 percent projected Treasury yield in his risk premium analysis. See, Direct Testimony of Michael P. Gorman, at 46.



Bond Yield Plus Risk Premium - Settled Only

	[1]	[2]	[3]	[4]	[5]
	Constant	Slope	30-Year Treasury Yield	Risk Premium	Return on Equity
	-1.79%	-2.46%			
Current 30-Year Treasury			2.75%	7.05%	9.81%
Near-Term Projected 30-Year Treasury			3.13%	6.73%	9.87%
Long-Term Projected 30-Year Treasury			4.35%	5.93%	10.28%



Notes:

- [1] Constant of regression equation
- [2] Slope of regression equation
- [3] Source: Current = Bloomberg Professional,  
Near-Term Projected = Blue Chip Financial Forecasts, Vol. 35, No. 12, December 1, 2016 at 14,  
Long-Term Projected = Blue Chip Financial Forecasts, Vol. 35, No. 12, December 1, 2016 at 14.
- [4] Equals [1] + ln([3]) x [2]
- [5] Equals [3] + [4]
- [6] Source: SNL Financial
- [7] Source: SNL Financial
- [8] Source: Bloomberg Professional, equals 192-trading day average (i.e. lag period)
- [9] Equals [7] - [8]



Bond Yield Plus Risk Premium - Settled Only			
[6]	[7]	[8]	[9]
Date of Electric Rate Case	Return on Equity	30-Year Treasury Yield	Risk Premium
6/2/1980	15.63%	10.64%	4.99%
6/12/1980	14.25%	10.67%	3.58%
7/15/1980	15.80%	10.76%	5.04%
8/14/1980	14.00%	10.81%	3.19%
8/14/1980	16.25%	10.81%	5.44%
9/15/1980	15.80%	10.91%	4.89%
10/16/1980	16.10%	11.05%	5.05%
12/9/1980	15.35%	11.17%	4.18%
12/18/1980	15.80%	11.19%	4.61%
9/3/1981	14.50%	13.09%	1.41%
10/15/1981	16.25%	13.43%	2.82%
11/25/1981	15.35%	13.64%	1.71%
2/17/1982	15.00%	13.89%	1.11%
4/2/1982	15.50%	13.96%	1.54%
6/23/1982	16.17%	13.83%	2.34%
7/13/1982	14.00%	13.78%	0.22%
7/19/1982	16.50%	13.75%	2.75%
9/3/1982	16.20%	13.55%	2.65%
9/23/1982	17.17%	13.47%	3.70%
10/22/1982	17.15%	13.20%	3.95%
11/4/1982	16.25%	13.06%	3.19%
12/22/1982	16.25%	12.50%	3.75%
1/12/1983	14.63%	12.27%	2.36%
3/30/1983	16.71%	11.51%	5.20%
5/23/1983	14.90%	10.92%	3.98%
8/19/1983	15.00%	10.81%	4.19%
9/7/1983	15.00%	10.88%	4.12%
9/14/1983	15.78%	10.91%	4.87%
11/1/1983	16.00%	11.08%	4.92%
11/10/1983	14.35%	11.11%	3.24%
11/23/1983	16.00%	11.13%	4.87%
12/20/1983	14.69%	11.24%	3.45%
1/30/1984	16.10%	11.41%	4.69%
2/15/1984	15.70%	11.49%	4.21%
4/2/1984	15.50%	11.75%	3.75%
6/22/1984	16.25%	12.23%	4.02%
7/19/1984	14.30%	12.41%	1.89%
9/26/1984	14.50%	12.59%	1.91%
9/28/1984	15.00%	12.60%	2.40%
11/9/1984	16.00%	12.62%	3.38%
11/14/1984	15.75%	12.62%	3.13%
12/3/1984	15.80%	12.58%	3.22%
12/20/1984	16.00%	12.53%	3.47%
3/15/1985	15.62%	12.20%	3.42%
5/10/1985	16.50%	11.81%	4.69%
5/29/1985	14.61%	11.69%	2.92%
5/31/1985	16.00%	11.67%	4.33%
6/14/1985	15.50%	11.57%	3.93%
9/9/1985	14.90%	11.09%	3.81%
10/28/1985	16.00%	10.92%	5.08%
10/31/1985	15.06%	10.91%	4.15%
11/7/1985	15.50%	10.87%	4.63%
2/5/1986	15.75%	10.28%	5.47%
3/5/1986	14.90%	10.04%	4.86%
5/16/1986	14.50%	9.26%	5.24%
9/16/1986	12.75%	7.99%	4.76%
12/16/1986	13.60%	7.50%	6.10%
3/31/1987	13.00%	7.46%	5.54%
4/6/1987	13.00%	7.47%	5.53%
8/27/1987	13.25%	8.09%	5.16%
9/30/1987	12.75%	8.35%	4.40%
10/15/1987	13.00%	8.48%	4.52%
12/17/1987	11.75%	8.84%	2.91%
12/18/1987	13.50%	8.85%	4.65%
12/22/1987	13.00%	8.87%	4.13%
1/26/1988	13.90%	8.98%	4.92%
3/30/1988	12.72%	8.94%	3.78%
5/16/1988	13.00%	9.00%	4.00%

8/23/1988	11.70%	8.93%	2.77%
8/30/1988	13.50%	8.94%	4.56%
9/8/1988	12.60%	8.94%	3.66%
12/27/1988	13.00%	9.05%	3.95%
12/30/1988	13.40%	9.05%	4.35%
2/17/1989	13.00%	9.05%	3.95%
3/8/1989	13.00%	9.04%	3.96%
4/5/1989	14.20%	9.05%	5.15%
12/27/1989	13.00%	8.26%	4.74%
1/26/1990	12.00%	8.16%	3.84%
5/29/1990	12.40%	8.30%	4.10%
6/4/1990	12.90%	8.31%	4.59%
9/26/1990	11.45%	8.62%	2.83%
10/19/1990	13.00%	8.68%	4.32%
11/21/1990	12.70%	8.70%	4.00%
12/19/1990	12.00%	8.67%	3.33%
12/20/1990	12.75%	8.67%	4.08%
12/27/1990	12.79%	8.66%	4.13%
2/4/1991	12.50%	8.59%	3.91%
2/12/1991	13.00%	8.57%	4.43%
2/22/1991	12.80%	8.54%	4.26%
6/28/1991	12.50%	8.35%	4.15%
7/3/1991	12.50%	8.34%	4.16%
9/27/1991	12.50%	8.23%	4.27%
9/30/1991	12.25%	8.23%	4.02%
10/23/1991	12.55%	8.20%	4.35%
1/16/1992	12.75%	8.07%	4.68%
1/21/1992	12.00%	8.06%	3.94%
1/22/1992	13.00%	8.05%	4.95%
4/14/1992	11.50%	7.90%	3.60%
7/13/1992	13.50%	7.84%	5.66%
9/28/1992	11.40%	7.71%	3.69%
10/12/1992	12.20%	7.71%	4.49%
10/30/1992	11.75%	7.71%	4.04%
11/3/1992	12.00%	7.70%	4.30%
12/30/1992	12.00%	7.62%	4.38%
12/31/1992	11.90%	7.61%	4.29%
2/2/1993	11.40%	7.54%	3.86%
8/24/1993	11.50%	6.93%	4.57%
11/2/1993	10.80%	6.58%	4.22%
1/4/1994	10.07%	6.42%	3.65%
2/25/1994	11.25%	6.33%	4.92%
3/1/1994	11.00%	6.32%	4.68%
5/13/1994	10.50%	6.46%	4.04%
11/28/1994	11.06%	7.53%	3.53%
2/17/1995	11.90%	7.72%	4.18%
3/9/1995	11.50%	7.73%	3.77%
3/23/1995	12.81%	7.73%	5.08%
4/6/1995	11.10%	7.72%	3.38%
6/9/1995	11.25%	7.60%	3.65%
9/27/1995	11.75%	7.10%	4.65%
11/9/1995	11.38%	6.87%	4.51%
11/9/1995	12.36%	6.87%	5.49%
11/17/1995	11.00%	6.83%	4.17%
12/4/1995	11.35%	6.75%	4.60%
3/29/1996	10.67%	6.41%	4.26%
4/24/1996	11.25%	6.41%	4.84%
4/30/1996	11.00%	6.41%	4.59%
5/13/1996	11.00%	6.42%	4.58%
5/23/1996	11.25%	6.42%	4.83%
6/25/1996	11.25%	6.47%	4.78%
6/27/1996	11.20%	6.48%	4.72%
8/12/1996	10.40%	6.58%	3.82%
10/16/1996	12.25%	6.79%	5.46%
11/5/1996	11.00%	6.84%	4.16%
12/18/1996	11.75%	6.84%	4.91%
12/12/1997	11.00%	6.59%	4.41%
3/6/1998	10.75%	6.25%	4.50%
3/20/1998	10.50%	6.20%	4.30%
11/30/1998	12.60%	5.56%	7.04%
9/23/1999	10.75%	5.72%	5.03%
11/17/1999	11.10%	5.92%	5.18%
1/23/2001	11.25%	5.79%	5.46%

6/26/2001	11.00%	5.61%	5.39%
7/31/2001	11.00%	5.59%	5.41%
8/31/2001	10.50%	5.55%	4.95%
9/7/2001	10.75%	5.55%	5.20%
10/24/2001	10.30%	5.54%	4.76%
11/28/2001	10.60%	5.49%	5.11%
1/22/2002	10.00%	5.49%	4.51%
6/18/2002	11.16%	5.48%	5.68%
6/20/2002	11.00%	5.47%	5.53%
12/4/2002	11.55%	5.28%	6.27%
12/13/2002	11.75%	5.25%	6.50%
12/20/2002	11.40%	5.23%	6.17%
1/8/2003	11.10%	5.17%	5.93%
6/25/2003	10.75%	4.80%	5.95%
6/26/2003	10.75%	4.80%	5.95%
7/9/2003	9.75%	4.79%	4.96%
7/25/2003	9.50%	4.78%	4.72%
8/26/2003	10.50%	4.82%	5.68%
12/17/2003	10.70%	4.94%	5.76%
12/18/2003	11.50%	4.94%	6.56%
12/23/2003	10.50%	4.94%	5.56%
5/27/2004	10.25%	5.07%	5.18%
6/2/2004	11.22%	5.07%	6.15%
6/30/2004	10.50%	5.11%	5.39%
6/30/2004	10.50%	5.11%	5.39%
8/25/2004	10.25%	5.10%	5.15%
11/9/2004	10.50%	5.07%	5.43%
12/14/2004	10.97%	5.08%	5.89%
12/21/2004	11.25%	5.08%	6.17%
12/29/2004	9.85%	5.08%	4.77%
1/6/2005	10.70%	5.08%	5.62%
2/25/2005	10.50%	4.94%	5.56%
3/24/2005	10.30%	4.88%	5.42%
4/7/2005	10.25%	4.85%	5.40%
5/18/2005	10.25%	4.77%	5.48%
5/25/2005	10.75%	4.75%	6.00%
5/26/2005	9.75%	4.75%	5.00%
6/1/2005	9.75%	4.74%	5.01%
8/15/2005	10.13%	4.60%	5.53%
9/28/2005	10.00%	4.53%	5.47%
10/4/2005	10.75%	4.52%	6.23%
12/21/2005	10.29%	4.53%	5.76%
12/21/2005	10.40%	4.53%	5.87%
3/3/2006	10.39%	4.54%	5.85%
6/27/2006	10.75%	4.81%	5.94%
7/6/2006	10.20%	4.84%	5.36%
7/24/2006	9.60%	4.86%	4.74%
7/26/2006	10.50%	4.87%	5.63%
9/14/2006	10.00%	4.91%	5.09%
10/6/2006	9.67%	4.93%	4.74%
12/1/2006	10.25%	4.97%	5.28%
12/1/2006	10.50%	4.97%	5.53%
12/7/2006	10.75%	4.96%	5.79%
12/22/2006	10.25%	4.96%	5.29%
1/5/2007	10.00%	4.95%	5.05%
3/21/2007	11.35%	4.85%	6.50%
3/22/2007	9.75%	4.85%	4.90%
5/25/2007	9.67%	4.80%	4.87%
6/22/2007	10.50%	4.83%	5.67%
7/12/2007	9.67%	4.86%	4.81%
8/15/2007	10.40%	4.89%	5.51%
11/29/2007	10.90%	4.88%	6.02%
12/14/2007	10.70%	4.86%	5.84%
12/19/2007	10.20%	4.86%	5.34%
12/20/2007	10.20%	4.86%	5.34%
12/20/2007	11.00%	4.86%	6.14%
12/28/2007	10.25%	4.85%	5.40%
12/31/2007	11.25%	4.85%	6.40%
1/31/2008	10.71%	4.79%	5.92%
3/12/2008	10.25%	4.71%	5.54%
4/22/2008	10.25%	4.59%	5.66%
5/1/2008	10.70%	4.57%	6.13%
6/27/2008	10.50%	4.53%	5.97%

7/16/2008	9.40%	4.50%	4.90%
7/31/2008	10.70%	4.50%	6.20%
9/10/2008	10.30%	4.49%	5.81%
9/30/2008	10.20%	4.48%	5.72%
10/8/2008	10.15%	4.47%	5.68%
11/13/2008	10.55%	4.44%	6.11%
11/17/2008	10.20%	4.44%	5.76%
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12/29/2008	10.20%	4.23%	5.97%
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7/8/2009	10.63%	3.75%	6.88%
7/17/2009	10.50%	3.76%	6.74%
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12/7/2009	10.70%	4.21%	6.49%
12/16/2009	10.90%	4.24%	6.66%
12/16/2009	11.00%	4.24%	6.76%
1/26/2010	10.13%	4.37%	5.76%
1/27/2010	10.40%	4.37%	6.03%
1/27/2010	10.40%	4.37%	6.03%
1/27/2010	10.70%	4.37%	6.33%
2/24/2010	10.18%	4.41%	5.77%
3/4/2010	10.50%	4.41%	6.09%
3/5/2010	10.50%	4.41%	6.09%
3/11/2010	11.90%	4.41%	7.49%
3/17/2010	10.00%	4.41%	5.59%
3/25/2010	10.15%	4.42%	5.73%
5/12/2010	10.30%	4.45%	5.85%
5/12/2010	10.30%	4.45%	5.85%
5/28/2010	10.20%	4.45%	5.75%
6/7/2010	10.30%	4.45%	5.85%
6/16/2010	10.00%	4.45%	5.55%
6/28/2010	9.67%	4.45%	5.22%
6/28/2010	10.50%	4.45%	6.05%
7/15/2010	10.70%	4.44%	6.26%
7/30/2010	10.70%	4.42%	6.28%
8/4/2010	10.50%	4.41%	6.09%
9/3/2010	10.60%	4.35%	6.25%
9/14/2010	10.70%	4.32%	6.38%
9/16/2010	10.00%	4.32%	5.68%
9/16/2010	10.00%	4.32%	5.68%
10/14/2010	10.35%	4.22%	6.13%
10/28/2010	10.70%	4.19%	6.51%
11/19/2010	10.20%	4.16%	6.04%
12/1/2010	10.13%	4.14%	5.99%
12/9/2010	10.25%	4.13%	6.12%
12/13/2010	10.70%	4.13%	6.57%
12/14/2010	10.13%	4.13%	6.00%
12/17/2010	10.00%	4.13%	5.87%
12/21/2010	10.30%	4.12%	6.18%
12/29/2010	11.15%	4.11%	7.04%
1/5/2011	10.15%	4.11%	6.04%
1/20/2011	10.13%	4.10%	6.03%
2/25/2011	10.00%	4.14%	5.86%
3/30/2011	10.00%	4.19%	5.81%
4/26/2011	9.67%	4.24%	5.43%
6/8/2011	10.75%	4.32%	6.43%
6/17/2011	9.95%	4.34%	5.61%
8/8/2011	10.00%	4.39%	5.61%
8/11/2011	10.00%	4.38%	5.62%
8/19/2011	10.25%	4.36%	5.89%
9/22/2011	10.00%	4.23%	5.77%
10/12/2011	10.30%	4.12%	6.18%
12/14/2011	10.00%	3.77%	6.23%
12/14/2011	10.30%	3.77%	6.53%

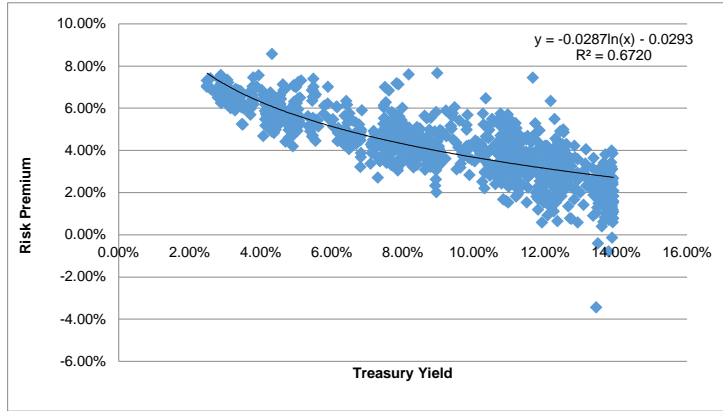
12/20/2011	10.20%	3.74%	6.46%
12/21/2011	10.20%	3.73%	6.47%
1/25/2012	10.50%	3.53%	6.97%
1/27/2012	10.50%	3.52%	6.98%
2/15/2012	10.20%	3.44%	6.76%
2/23/2012	9.90%	3.40%	6.50%
2/29/2012	10.40%	3.38%	7.02%
3/29/2012	10.37%	3.27%	7.10%
4/4/2012	10.00%	3.25%	6.75%
4/26/2012	10.00%	3.17%	6.83%
5/2/2012	10.00%	3.15%	6.85%
5/15/2012	10.00%	3.13%	6.87%
6/14/2012	9.40%	3.05%	6.35%
6/18/2012	9.60%	3.05%	6.55%
6/29/2012	10.00%	3.04%	6.96%
7/9/2012	10.20%	3.03%	7.17%
7/16/2012	9.80%	3.01%	6.79%
9/19/2012	9.80%	2.94%	6.86%
10/12/2012	9.60%	2.93%	6.67%
10/23/2012	9.75%	2.93%	6.82%
10/24/2012	10.30%	2.93%	7.37%
11/29/2012	9.75%	2.89%	6.86%
11/29/2012	9.88%	2.89%	6.99%
12/13/2012	10.50%	2.86%	7.64%
12/19/2012	10.25%	2.85%	7.40%
12/20/2012	9.50%	2.85%	6.65%
12/20/2012	9.80%	2.85%	6.95%
12/20/2012	10.25%	2.85%	7.40%
12/20/2012	10.25%	2.85%	7.40%
12/26/2012	9.80%	2.84%	6.96%
1/9/2013	9.70%	2.83%	6.87%
1/9/2013	9.70%	2.83%	6.87%
1/9/2013	9.70%	2.83%	6.87%
1/16/2013	9.60%	2.83%	6.77%
1/16/2013	9.60%	2.83%	6.77%
2/27/2013	10.00%	2.86%	7.14%
3/14/2013	9.30%	2.89%	6.41%
3/27/2013	9.80%	2.91%	6.89%
5/1/2013	9.84%	2.95%	6.89%
5/15/2013	10.30%	2.96%	7.34%
5/30/2013	10.20%	2.99%	7.21%
5/31/2013	9.00%	2.99%	6.01%
6/11/2013	10.00%	3.01%	6.99%
6/21/2013	9.75%	3.03%	6.72%
6/25/2013	9.80%	3.04%	6.76%
9/11/2013	10.20%	3.28%	6.92%
9/11/2013	10.25%	3.28%	6.97%
9/24/2013	10.20%	3.32%	6.88%
11/21/2013	10.00%	3.45%	6.55%
12/3/2013	10.25%	3.48%	6.77%
12/9/2013	9.75%	3.50%	6.25%
12/16/2013	9.95%	3.51%	6.44%
12/16/2013	9.95%	3.51%	6.44%
12/17/2013	9.50%	3.52%	5.98%
12/17/2013	10.95%	3.52%	7.43%
12/18/2013	9.80%	3.52%	6.28%
12/19/2013	10.15%	3.53%	6.62%
2/20/2014	9.20%	3.70%	5.50%
2/26/2014	9.75%	3.71%	6.04%
3/17/2014	9.55%	3.73%	5.82%
5/16/2014	9.80%	3.70%	6.10%
6/30/2014	9.55%	3.64%	5.91%
7/10/2014	9.95%	3.63%	6.32%
7/23/2014	9.75%	3.61%	6.14%
7/29/2014	9.45%	3.60%	5.85%
7/31/2014	9.90%	3.60%	6.30%
8/20/2014	9.75%	3.56%	6.19%
8/25/2014	9.60%	3.55%	6.05%
8/29/2014	9.80%	3.53%	6.27%
9/11/2014	9.60%	3.50%	6.10%
9/15/2014	10.25%	3.49%	6.76%
10/9/2014	9.80%	3.43%	6.37%
12/4/2014	9.68%	3.29%	6.39%

12/11/2014	10.07%	3.27%	6.80%
2/24/2015	9.83%	3.02%	6.81%
4/23/2015	10.20%	2.85%	7.35%
5/1/2015	9.60%	2.83%	6.77%
6/17/2015	9.00%	2.80%	6.20%
6/17/2015	9.00%	2.80%	6.20%
10/15/2015	9.00%	2.83%	6.17%
12/15/2015	9.60%	2.92%	6.68%
12/18/2015	9.50%	2.92%	6.58%
1/6/2016	9.50%	2.95%	6.55%
2/23/2016	9.75%	2.94%	6.81%
6/15/2016	9.00%	2.78%	6.22%
6/15/2016	9.00%	2.78%	6.22%
7/18/2016	9.98%	2.70%	7.28%
8/9/2016	9.85%	2.64%	7.21%
8/24/2016	9.75%	2.60%	7.15%
11/18/2016	10.00%	2.49%	7.51%
11/29/2016	10.55%	2.50%	8.05%

# of Cases: 378  
Average: 5.40%

Bond Yield Plus Risk Premium - Fully Litigated Only

[1]	[2]	[3]	[4]	[5]
Constant	Slope	30-Year Treasury Yield	Risk Premium	Return on Equity
-2.93%	-2.87%			
		Current 30-Year Treasury	2.75%	7.37%
		Near-Term Projected 30-Year Treasury	3.13%	7.00%
		Long-Term Projected 30-Year Treasury	4.35%	6.06%
				10.12%
				10.13%
				10.41%



Notes:

- [1] Constant of regression equation
- [2] Slope of regression equation
- [3] Source: Current = Bloomberg Professional,  
Near-Term Projected = Blue Chip Financial Forecasts, Vol. 35, No. 12, December 1, 2016 at 14,  
Long-Term Projected = Blue Chip Financial Forecasts, Vol. 35, No. 12, December 1, 2016 at 14.
- [4] Equals [1] + ln([3]) x [2]
- [5] Equals [3] + [4]
- [6] Source: SNL Financial
- [7] Source: SNL Financial
- [8] Source: Bloomberg Professional, equals 205-trading day average (i.e. lag period)
- [9] Equals [7] - [8]

Bond Yield Plus Risk Premium - Fully Litigated Only

[6] Date of Electric Rate Case	[7] Return on Equity	[8] 30-Year Treasury Yield	[9] Risk Premium
1/1/1980	14.50%	9.35%	5.15%
1/7/1980	14.39%	9.37%	5.02%
1/9/1980	15.00%	9.39%	5.61%
1/14/1980	15.17%	9.41%	5.76%
1/17/1980	13.93%	9.43%	4.50%
1/23/1980	15.50%	9.46%	6.04%
1/30/1980	13.86%	9.51%	4.35%
1/31/1980	12.61%	9.52%	3.09%
2/6/1980	13.71%	9.57%	4.14%
2/13/1980	12.80%	9.62%	3.18%
2/14/1980	13.00%	9.63%	3.37%
2/19/1980	13.50%	9.67%	3.83%
2/27/1980	13.75%	9.77%	3.98%
2/29/1980	13.75%	9.80%	3.95%
2/29/1980	14.00%	9.80%	4.20%
2/29/1980	14.77%	9.80%	4.97%
3/7/1980	12.70%	9.88%	2.82%
3/14/1980	13.50%	9.95%	3.55%
3/26/1980	14.16%	10.07%	4.09%
3/27/1980	14.24%	10.09%	4.15%
3/28/1980	14.50%	10.11%	4.39%
4/11/1980	12.75%	10.24%	2.51%
4/14/1980	13.85%	10.25%	3.60%
4/16/1980	15.50%	10.28%	5.22%
4/22/1980	13.25%	10.32%	2.93%
4/22/1980	13.90%	10.32%	3.58%
4/24/1980	16.80%	10.34%	6.46%
4/29/1980	15.50%	10.37%	5.13%
5/6/1980	13.70%	10.41%	3.29%
5/7/1980	15.00%	10.42%	4.58%
5/8/1980	13.75%	10.42%	3.33%
5/9/1980	14.35%	10.43%	3.92%
5/13/1980	13.60%	10.44%	3.16%
5/15/1980	13.25%	10.46%	2.79%
5/19/1980	13.75%	10.47%	3.28%
5/27/1980	13.62%	10.50%	3.12%
5/27/1980	14.60%	10.50%	4.10%
5/29/1980	16.00%	10.52%	5.48%
5/30/1980	13.80%	10.52%	3.28%
6/9/1980	15.90%	10.56%	5.34%
6/10/1980	13.78%	10.56%	3.22%
6/19/1980	13.40%	10.58%	2.82%
6/30/1980	13.00%	10.61%	2.39%
6/30/1980	13.40%	10.61%	2.79%
7/9/1980	14.75%	10.64%	4.11%
7/10/1980	15.00%	10.64%	4.36%
7/18/1980	13.80%	10.67%	3.13%
7/22/1980	14.10%	10.68%	3.42%
7/24/1980	15.00%	10.69%	4.31%
7/25/1980	13.48%	10.70%	2.78%
7/31/1980	14.58%	10.72%	3.86%
8/8/1980	13.50%	10.76%	2.74%
8/8/1980	14.00%	10.76%	3.24%
8/8/1980	15.45%	10.76%	4.69%
8/11/1980	14.85%	10.76%	4.09%
8/25/1980	13.75%	10.81%	2.94%
8/27/1980	13.80%	10.82%	2.98%
8/29/1980	12.50%	10.83%	1.67%
9/15/1980	13.50%	10.86%	2.64%
9/15/1980	13.93%	10.86%	3.07%
9/24/1980	12.50%	10.91%	1.59%
9/24/1980	15.00%	10.91%	4.09%
9/26/1980	13.75%	10.92%	2.83%
9/30/1980	14.10%	10.94%	3.16%
9/30/1980	14.20%	10.94%	3.26%
10/1/1980	13.90%	10.95%	2.95%
10/3/1980	15.50%	10.96%	4.54%
10/7/1980	12.50%	10.97%	1.53%
10/9/1980	13.25%	10.98%	2.27%
10/9/1980	14.50%	10.98%	3.52%
10/9/1980	14.50%	10.98%	3.52%
10/17/1980	14.50%	11.01%	3.49%
10/31/1980	13.75%	11.09%	2.66%
10/31/1980	14.25%	11.09%	3.16%
11/4/1980	15.00%	11.10%	3.90%
11/5/1980	13.75%	11.11%	2.64%
11/5/1980	14.00%	11.11%	2.89%



11/8/1980	13.75%	11.13%	2.62%
11/10/1980	14.85%	11.14%	3.71%
11/17/1980	14.00%	11.18%	2.82%
11/18/1980	14.00%	11.18%	2.82%
11/19/1980	13.00%	11.19%	1.81%
11/24/1980	14.00%	11.21%	2.79%
11/26/1980	14.00%	11.22%	2.78%
12/8/1980	14.15%	11.25%	2.90%
12/8/1980	15.10%	11.25%	3.85%
12/12/1980	15.45%	11.26%	4.19%
12/17/1980	13.25%	11.26%	1.99%
12/19/1980	14.50%	11.26%	3.24%
12/19/1980	14.64%	11.26%	3.38%
12/22/1980	13.45%	11.26%	2.19%
12/22/1980	15.00%	11.26%	3.74%
12/30/1980	14.50%	11.25%	3.25%
12/30/1980	14.95%	11.25%	3.70%
12/31/1980	13.39%	11.24%	2.15%
1/2/1981	15.25%	11.24%	4.01%
1/7/1981	14.30%	11.23%	3.07%
1/19/1981	15.25%	11.23%	4.02%
1/23/1981	13.10%	11.23%	1.87%
1/23/1981	14.40%	11.23%	3.17%
1/26/1981	15.25%	11.22%	4.03%
1/27/1981	15.00%	11.22%	3.78%
1/31/1981	13.47%	11.23%	2.24%
2/3/1981	15.25%	11.23%	4.02%
2/5/1981	15.75%	11.24%	4.51%
2/11/1981	15.60%	11.28%	4.32%
2/20/1981	15.25%	11.32%	3.93%
3/11/1981	15.40%	11.47%	3.93%
3/12/1981	14.51%	11.48%	3.03%
3/12/1981	16.00%	11.48%	4.52%
3/13/1981	13.02%	11.49%	1.53%
3/18/1981	16.19%	11.51%	4.68%
3/19/1981	13.75%	11.52%	2.23%
3/23/1981	14.30%	11.55%	2.75%
3/25/1981	15.30%	11.57%	3.73%
4/1/1981	14.53%	11.63%	2.90%
4/3/1981	19.10%	11.66%	7.44%
4/9/1981	15.00%	11.73%	3.27%
4/9/1981	15.30%	11.73%	3.57%
4/9/1981	16.50%	11.73%	4.77%
4/9/1981	17.00%	11.73%	5.27%
4/10/1981	13.75%	11.74%	2.01%
4/13/1981	13.57%	11.76%	1.81%
4/15/1981	15.30%	11.80%	3.50%
4/16/1981	13.50%	11.82%	1.68%
4/17/1981	14.10%	11.82%	2.28%
4/21/1981	14.00%	11.85%	2.15%
4/21/1981	16.80%	11.85%	4.95%
4/24/1981	16.00%	11.90%	4.10%
4/27/1981	12.50%	11.92%	0.58%
4/27/1981	13.61%	11.92%	1.69%
4/29/1981	13.65%	11.95%	1.70%
4/30/1981	13.50%	11.97%	1.53%
5/4/1981	16.22%	12.01%	4.21%
5/5/1981	14.40%	12.03%	2.37%
5/7/1981	16.25%	12.06%	4.19%
5/7/1981	16.27%	12.06%	4.21%
5/8/1981	13.00%	12.08%	0.92%
5/8/1981	16.00%	12.08%	3.92%
5/12/1981	13.50%	12.11%	1.39%
5/15/1981	15.75%	12.17%	3.58%
5/18/1981	14.88%	12.18%	2.70%
5/20/1981	16.00%	12.22%	3.78%
5/21/1981	14.00%	12.23%	1.77%
5/26/1981	14.90%	12.26%	2.64%
5/27/1981	15.00%	12.27%	2.73%
5/29/1981	15.50%	12.30%	3.20%
6/1/1981	16.50%	12.31%	4.19%
6/3/1981	14.67%	12.33%	2.34%
6/5/1981	13.00%	12.36%	0.64%
6/10/1981	16.75%	12.38%	4.37%
6/17/1981	14.40%	12.43%	1.97%
6/18/1981	16.33%	12.43%	3.90%
6/25/1981	14.75%	12.48%	2.27%
6/26/1981	16.00%	12.49%	3.51%
6/30/1981	15.25%	12.51%	2.74%
7/1/1981	15.50%	12.52%	2.98%
7/1/1981	17.50%	12.52%	4.98%
7/10/1981	16.00%	12.59%	3.41%

7/14/1981	16.90%	12.61%	4.29%
7/15/1981	16.00%	12.62%	3.38%
7/17/1981	15.00%	12.64%	2.36%
7/20/1981	15.00%	12.65%	2.35%
7/21/1981	14.00%	12.66%	1.34%
7/28/1981	13.48%	12.71%	0.77%
7/31/1981	13.50%	12.74%	0.76%
7/31/1981	15.00%	12.74%	2.26%
7/31/1981	16.00%	12.74%	3.26%
8/5/1981	15.71%	12.79%	2.92%
8/10/1981	14.50%	12.83%	1.67%
8/11/1981	15.00%	12.84%	2.16%
8/20/1981	13.50%	12.92%	0.58%
8/20/1981	16.50%	12.92%	3.58%
8/24/1981	15.00%	12.95%	2.05%
8/28/1981	15.00%	12.99%	2.01%
9/10/1981	14.50%	13.09%	1.41%
9/11/1981	16.00%	13.10%	2.90%
9/16/1981	16.00%	13.13%	2.87%
9/17/1981	16.50%	13.14%	3.36%
9/23/1981	15.85%	13.18%	2.67%
9/28/1981	15.50%	13.21%	2.29%
10/9/1981	15.75%	13.30%	2.45%
10/16/1981	15.50%	13.34%	2.16%
10/16/1981	16.50%	13.34%	3.16%
10/19/1981	14.25%	13.36%	0.89%
10/20/1981	15.25%	13.37%	1.88%
10/20/1981	17.00%	13.37%	3.63%
10/23/1981	16.00%	13.41%	2.59%
10/27/1981	10.00%	13.44%	-3.44%
10/29/1981	14.75%	13.47%	1.28%
10/29/1981	16.50%	13.47%	3.03%
11/3/1981	15.17%	13.50%	1.67%
11/5/1981	16.60%	13.52%	3.08%
11/6/1981	15.17%	13.53%	1.64%
11/24/1981	15.50%	13.58%	1.92%
11/25/1981	15.25%	13.58%	1.67%
11/25/1981	16.10%	13.58%	2.52%
11/25/1981	16.10%	13.58%	2.52%
12/1/1981	15.70%	13.59%	2.11%
12/1/1981	16.00%	13.59%	2.41%
12/1/1981	16.49%	13.59%	2.90%
12/1/1981	16.50%	13.59%	2.91%
12/4/1981	16.00%	13.59%	2.41%
12/11/1981	16.25%	13.60%	2.65%
12/14/1981	14.00%	13.61%	0.39%
12/15/1981	15.81%	13.61%	2.20%
12/15/1981	16.00%	13.61%	2.39%
12/16/1981	15.25%	13.61%	1.64%
12/17/1981	16.50%	13.62%	2.88%
12/18/1981	15.45%	13.62%	1.83%
12/30/1981	14.25%	13.64%	0.61%
12/30/1981	16.00%	13.64%	2.36%
12/30/1981	16.25%	13.64%	2.61%
12/31/1981	16.15%	13.65%	2.50%
1/4/1982	15.50%	13.65%	1.85%
1/11/1982	14.50%	13.69%	0.81%
1/11/1982	17.00%	13.69%	3.31%
1/13/1982	14.75%	13.71%	1.04%
1/14/1982	15.75%	13.72%	2.03%
1/15/1982	15.00%	13.73%	1.27%
1/15/1982	16.50%	13.73%	2.77%
1/22/1982	16.25%	13.77%	2.48%
1/27/1982	16.84%	13.79%	3.05%
1/28/1982	13.00%	13.79%	-0.79%
1/29/1982	15.50%	13.80%	1.70%
2/1/1982	15.85%	13.81%	2.04%
2/3/1982	16.44%	13.82%	2.62%
2/8/1982	15.50%	13.84%	1.66%
2/11/1982	16.00%	13.86%	2.14%
2/11/1982	16.20%	13.86%	2.34%
2/19/1982	15.17%	13.88%	1.29%
2/26/1982	15.25%	13.89%	1.36%
3/1/1982	15.03%	13.89%	1.14%
3/1/1982	16.00%	13.89%	2.11%
3/3/1982	15.00%	13.88%	1.12%
3/8/1982	17.10%	13.88%	3.22%
3/12/1982	16.25%	13.87%	2.38%
3/17/1982	17.30%	13.87%	3.43%
3/22/1982	15.10%	13.87%	1.23%
3/27/1982	15.40%	13.87%	1.53%
3/30/1982	15.50%	13.88%	1.62%

3/31/1982	17.00%	13.88%	3.12%
4/1/1982	14.70%	13.89%	0.81%
4/1/1982	16.50%	13.89%	2.61%
4/5/1982	15.50%	13.89%	1.61%
4/8/1982	16.40%	13.90%	2.50%
4/13/1982	14.50%	13.91%	0.59%
4/23/1982	15.75%	13.92%	1.83%
4/27/1982	15.00%	13.92%	1.08%
4/28/1982	15.75%	13.93%	1.82%
4/30/1982	14.70%	13.93%	0.77%
4/30/1982	15.50%	13.93%	1.57%
5/3/1982	16.60%	13.93%	2.67%
5/4/1982	16.00%	13.93%	2.07%
5/14/1982	15.50%	13.92%	1.58%
5/18/1982	15.42%	13.91%	1.51%
5/19/1982	14.69%	13.91%	0.78%
5/20/1982	15.00%	13.91%	1.09%
5/20/1982	15.10%	13.91%	1.19%
5/20/1982	15.50%	13.91%	1.59%
5/20/1982	16.30%	13.91%	2.39%
5/21/1982	17.75%	13.91%	3.84%
5/27/1982	15.00%	13.90%	1.10%
5/28/1982	15.50%	13.89%	1.61%
5/28/1982	17.00%	13.89%	3.11%
6/1/1982	13.75%	13.89%	-0.14%
6/1/1982	16.60%	13.89%	2.71%
6/9/1982	17.86%	13.88%	3.98%
6/14/1982	15.75%	13.88%	1.87%
6/15/1982	14.85%	13.88%	0.97%
6/18/1982	15.50%	13.88%	1.62%
6/21/1982	14.90%	13.88%	1.02%
6/23/1982	16.00%	13.88%	2.12%
6/24/1982	14.85%	13.88%	0.97%
6/25/1982	14.70%	13.88%	0.82%
7/1/1982	16.00%	13.87%	2.13%
7/2/1982	15.62%	13.86%	1.76%
7/2/1982	17.00%	13.86%	3.14%
7/13/1982	16.80%	13.83%	2.97%
7/14/1982	15.76%	13.83%	1.93%
7/14/1982	16.02%	13.83%	2.19%
7/22/1982	14.50%	13.80%	0.70%
7/22/1982	17.00%	13.80%	3.20%
7/27/1982	16.75%	13.78%	2.97%
7/29/1982	16.50%	13.76%	2.74%
8/11/1982	17.50%	13.70%	3.80%
8/18/1982	17.07%	13.66%	3.41%
8/20/1982	15.73%	13.63%	2.10%
8/25/1982	16.00%	13.59%	2.41%
8/26/1982	15.50%	13.58%	1.92%
8/30/1982	15.00%	13.56%	1.44%
9/8/1982	15.00%	13.51%	1.49%
9/15/1982	13.08%	13.49%	-0.41%
9/15/1982	16.25%	13.49%	2.76%
9/16/1982	16.00%	13.49%	2.51%
9/17/1982	15.25%	13.48%	1.77%
9/24/1982	14.50%	13.46%	1.04%
9/27/1982	15.25%	13.45%	1.80%
10/1/1982	15.50%	13.42%	2.08%
10/15/1982	15.90%	13.33%	2.57%
10/22/1982	15.75%	13.26%	2.49%
10/29/1982	15.54%	13.19%	2.35%
11/1/1982	15.50%	13.18%	2.32%
11/3/1982	17.20%	13.16%	4.04%
11/5/1982	16.20%	13.12%	3.08%
11/9/1982	16.00%	13.08%	2.92%
11/23/1982	15.50%	12.92%	2.58%
11/23/1982	15.85%	12.92%	2.93%
11/30/1982	16.50%	12.85%	3.65%
12/1/1982	17.04%	12.83%	4.21%
12/6/1982	15.00%	12.77%	2.23%
12/6/1982	16.35%	12.77%	3.58%
12/10/1982	15.50%	12.69%	2.81%
12/13/1982	16.00%	12.67%	3.33%
12/14/1982	15.30%	12.66%	2.64%
12/14/1982	16.40%	12.66%	3.74%
12/20/1982	16.00%	12.60%	3.40%
12/21/1982	14.75%	12.58%	2.17%
12/21/1982	15.85%	12.58%	3.27%
12/22/1982	16.58%	12.56%	4.02%
12/22/1982	16.75%	12.56%	4.19%
12/29/1982	14.90%	12.51%	2.39%
12/29/1982	16.25%	12.51%	3.74%

12/30/1982	16.00%	12.49%	3.51%
12/30/1982	16.35%	12.49%	3.86%
12/30/1982	16.77%	12.49%	4.28%
1/5/1983	17.33%	12.43%	4.90%
1/11/1983	15.90%	12.37%	3.53%
1/12/1983	15.50%	12.36%	3.14%
1/20/1983	17.75%	12.27%	5.48%
1/21/1983	15.00%	12.26%	2.74%
1/24/1983	14.50%	12.24%	2.26%
1/24/1983	15.50%	12.24%	3.26%
1/25/1983	15.85%	12.23%	3.62%
1/27/1983	16.14%	12.20%	3.94%
2/1/1983	18.50%	12.16%	6.34%
2/4/1983	14.00%	12.13%	1.87%
2/10/1983	15.00%	12.08%	2.92%
2/21/1983	15.50%	12.02%	3.48%
2/22/1983	15.50%	12.01%	3.49%
2/23/1983	15.10%	11.99%	3.11%
2/23/1983	16.00%	11.99%	4.01%
3/2/1983	15.25%	11.92%	3.33%
3/9/1983	15.20%	11.86%	3.34%
3/15/1983	13.00%	11.81%	1.19%
3/18/1983	15.25%	11.77%	3.48%
3/23/1983	15.40%	11.73%	3.67%
3/24/1983	15.00%	11.72%	3.28%
3/29/1983	15.50%	11.68%	3.82%
3/31/1983	15.00%	11.65%	3.35%
4/4/1983	15.20%	11.63%	3.57%
4/8/1983	15.50%	11.57%	3.93%
4/11/1983	14.81%	11.55%	3.26%
4/19/1983	14.50%	11.44%	3.06%
4/20/1983	16.00%	11.43%	4.57%
4/29/1983	16.00%	11.30%	4.70%
5/1/1983	14.50%	11.30%	3.20%
5/9/1983	15.50%	11.21%	4.29%
5/11/1983	16.46%	11.18%	5.28%
5/12/1983	14.14%	11.16%	2.98%
5/18/1983	15.00%	11.11%	3.89%
5/23/1983	15.50%	11.07%	4.43%
5/25/1983	15.50%	11.04%	4.46%
5/27/1983	15.00%	11.02%	3.98%
5/31/1983	14.00%	11.00%	3.00%
5/31/1983	15.50%	11.00%	4.50%
6/2/1983	14.50%	10.98%	3.52%
6/17/1983	15.03%	10.88%	4.15%
7/1/1983	14.80%	10.81%	3.99%
7/1/1983	14.90%	10.81%	4.09%
7/8/1983	16.25%	10.79%	5.46%
7/13/1983	13.20%	10.78%	2.42%
7/19/1983	15.00%	10.77%	4.23%
7/19/1983	15.10%	10.77%	4.33%
7/25/1983	16.25%	10.76%	5.49%
7/28/1983	15.90%	10.76%	5.14%
8/3/1983	16.34%	10.76%	5.58%
8/3/1983	16.50%	10.76%	5.74%
8/22/1983	15.50%	10.81%	4.69%
8/22/1983	16.40%	10.81%	5.59%
8/31/1983	14.75%	10.83%	3.92%
9/16/1983	15.00%	10.90%	4.10%
9/19/1983	14.50%	10.90%	3.60%
9/20/1983	16.50%	10.91%	5.59%
9/28/1983	14.50%	10.93%	3.57%
9/29/1983	15.50%	10.94%	4.56%
9/30/1983	15.25%	10.94%	4.31%
9/30/1983	16.15%	10.94%	5.21%
10/4/1983	14.80%	10.95%	3.85%
10/7/1983	16.00%	10.96%	5.04%
10/13/1983	15.52%	10.97%	4.55%
10/17/1983	15.50%	10.98%	4.52%
10/18/1983	14.50%	10.99%	3.51%
10/19/1983	16.25%	10.99%	5.26%
10/19/1983	16.50%	10.99%	5.51%
10/26/1983	15.00%	11.02%	3.98%
10/27/1983	15.20%	11.03%	4.17%
11/9/1983	14.90%	11.08%	3.82%
11/23/1983	16.15%	11.12%	5.03%
11/30/1983	15.00%	11.14%	3.86%
12/5/1983	15.25%	11.15%	4.10%
12/6/1983	15.07%	11.15%	3.92%
12/8/1983	15.90%	11.16%	4.74%
12/9/1983	14.75%	11.16%	3.59%
12/12/1983	14.50%	11.17%	3.33%

12/15/1983	15.56%	11.18%	4.38%
12/19/1983	14.80%	11.19%	3.61%
12/20/1983	16.00%	11.20%	4.80%
12/20/1983	16.25%	11.20%	5.05%
12/22/1983	14.75%	11.21%	3.54%
12/22/1983	15.75%	11.21%	4.54%
1/3/1984	14.75%	11.25%	3.50%
1/10/1984	15.90%	11.28%	4.62%
1/12/1984	15.60%	11.29%	4.31%
1/18/1984	13.75%	11.31%	2.44%
1/19/1984	15.90%	11.31%	4.59%
1/31/1984	15.25%	11.35%	3.90%
2/1/1984	14.80%	11.36%	3.44%
2/6/1984	13.75%	11.38%	2.37%
2/6/1984	14.75%	11.38%	3.37%
2/9/1984	15.25%	11.40%	3.85%
2/20/1984	15.00%	11.43%	3.57%
2/20/1984	15.00%	11.43%	3.57%
2/22/1984	14.75%	11.45%	3.30%
2/28/1984	14.50%	11.48%	3.02%
3/2/1984	14.25%	11.51%	2.74%
3/20/1984	16.00%	11.62%	4.38%
3/23/1984	15.50%	11.65%	3.85%
3/26/1984	14.71%	11.66%	3.05%
4/6/1984	14.74%	11.73%	3.01%
4/11/1984	15.72%	11.75%	3.97%
4/17/1984	15.00%	11.79%	3.21%
4/18/1984	16.20%	11.80%	4.40%
4/25/1984	14.64%	11.83%	2.81%
4/30/1984	14.40%	11.86%	2.54%
5/16/1984	14.69%	11.97%	2.72%
5/16/1984	15.00%	11.97%	3.03%
5/22/1984	14.40%	12.01%	2.39%
5/29/1984	15.10%	12.05%	3.05%
6/13/1984	15.25%	12.14%	3.11%
6/15/1984	15.60%	12.16%	3.44%
6/29/1984	15.25%	12.24%	3.01%
7/2/1984	13.35%	12.25%	1.10%
7/10/1984	16.00%	12.29%	3.71%
7/12/1984	16.50%	12.31%	4.19%
7/13/1984	16.25%	12.31%	3.94%
7/17/1984	14.14%	12.33%	1.81%
7/18/1984	15.30%	12.34%	2.96%
7/18/1984	15.50%	12.34%	3.16%
7/24/1984	16.79%	12.37%	4.42%
7/31/1984	16.00%	12.40%	3.60%
8/3/1984	14.25%	12.42%	1.83%
8/17/1984	14.30%	12.47%	1.83%
8/20/1984	15.00%	12.47%	2.53%
8/27/1984	16.30%	12.49%	3.81%
8/31/1984	15.55%	12.50%	3.05%
9/6/1984	16.00%	12.51%	3.49%
9/10/1984	14.75%	12.52%	2.23%
9/13/1984	15.00%	12.53%	2.47%
9/17/1984	17.38%	12.53%	4.85%
9/28/1984	16.25%	12.55%	3.70%
10/9/1984	14.75%	12.56%	2.19%
10/12/1984	15.60%	12.57%	3.03%
10/22/1984	15.00%	12.57%	2.43%
10/26/1984	16.40%	12.56%	3.84%
10/31/1984	16.25%	12.56%	3.69%
11/7/1984	15.60%	12.56%	3.04%
11/20/1984	15.25%	12.56%	2.69%
11/20/1984	15.92%	12.56%	3.36%
11/23/1984	15.00%	12.55%	2.45%
11/28/1984	16.15%	12.55%	3.60%
12/4/1984	16.50%	12.54%	3.96%
12/18/1984	16.40%	12.52%	3.88%
12/19/1984	14.75%	12.52%	2.23%
12/19/1984	15.00%	12.52%	2.48%
12/28/1984	16.00%	12.50%	3.50%
1/3/1985	14.75%	12.49%	2.26%
1/10/1985	15.75%	12.47%	3.28%
1/11/1985	16.30%	12.47%	3.83%
1/23/1985	15.80%	12.43%	3.37%
1/24/1985	15.82%	12.43%	3.39%
1/25/1985	16.75%	12.42%	4.33%
1/30/1985	14.90%	12.40%	2.50%
1/31/1985	14.75%	12.40%	2.35%
2/8/1985	14.47%	12.36%	2.11%
3/1/1985	13.84%	12.32%	1.52%
3/8/1985	16.85%	12.30%	4.55%

3/14/1985	15.50%	12.28%	3.22%
3/29/1985	15.62%	12.20%	3.42%
4/3/1985	14.60%	12.17%	2.43%
4/9/1985	15.50%	12.14%	3.36%
4/16/1985	15.70%	12.09%	3.61%
4/22/1985	14.00%	12.05%	1.95%
4/26/1985	15.50%	12.01%	3.49%
4/29/1985	15.00%	12.00%	3.00%
5/2/1985	14.68%	11.97%	2.71%
5/8/1985	15.62%	11.93%	3.69%
7/9/1985	15.00%	11.47%	3.53%
7/16/1985	14.50%	11.42%	3.08%
7/26/1985	14.50%	11.35%	3.15%
8/2/1985	14.80%	11.31%	3.49%
8/7/1985	15.00%	11.29%	3.71%
8/28/1985	14.25%	11.17%	3.08%
8/28/1985	15.50%	11.17%	4.33%
8/29/1985	14.50%	11.16%	3.34%
9/9/1985	14.60%	11.12%	3.48%
9/17/1985	14.90%	11.10%	3.80%
9/23/1985	15.00%	11.08%	3.92%
9/27/1985	15.50%	11.05%	4.45%
9/27/1985	15.80%	11.05%	4.75%
10/2/1985	14.00%	11.04%	2.96%
10/2/1985	14.75%	11.04%	3.71%
10/3/1985	15.25%	11.04%	4.21%
10/24/1985	15.40%	10.97%	4.43%
10/24/1985	15.82%	10.97%	4.85%
10/24/1985	15.85%	10.97%	4.88%
10/29/1985	16.65%	10.95%	5.70%
11/4/1985	14.50%	10.93%	3.57%
11/8/1985	14.30%	10.91%	3.39%
12/12/1985	14.75%	10.74%	4.01%
12/18/1985	15.00%	10.71%	4.29%
12/20/1985	14.50%	10.69%	3.81%
12/20/1985	14.50%	10.69%	3.81%
12/20/1985	15.00%	10.69%	4.31%
1/24/1986	15.40%	10.44%	4.96%
1/31/1986	15.00%	10.38%	4.62%
2/5/1986	15.00%	10.35%	4.65%
2/10/1986	13.30%	10.31%	2.99%
2/11/1986	12.50%	10.30%	2.20%
2/14/1986	14.40%	10.27%	4.13%
2/18/1986	16.00%	10.26%	5.74%
2/24/1986	14.50%	10.21%	4.29%
2/26/1986	14.00%	10.18%	3.82%
3/11/1986	14.50%	10.04%	4.46%
3/12/1986	13.50%	10.03%	3.47%
3/27/1986	14.10%	9.87%	4.23%
3/31/1986	13.50%	9.85%	3.65%
4/1/1986	14.00%	9.84%	4.16%
4/2/1986	15.50%	9.82%	5.68%
4/4/1986	15.00%	9.80%	5.20%
4/14/1986	13.40%	9.71%	3.69%
4/23/1986	15.00%	9.60%	5.40%
5/16/1986	14.50%	9.35%	5.15%
5/29/1986	13.90%	9.23%	4.67%
5/30/1986	15.10%	9.22%	5.88%
6/2/1986	12.81%	9.20%	3.61%
6/11/1986	14.00%	9.11%	4.89%
6/24/1986	16.63%	8.97%	7.66%
6/26/1986	12.00%	8.94%	3.06%
6/26/1986	14.75%	8.94%	5.81%
6/30/1986	13.00%	8.91%	4.09%
7/10/1986	14.34%	8.79%	5.55%
7/11/1986	12.75%	8.78%	3.97%
7/14/1986	12.60%	8.76%	3.84%
7/17/1986	12.40%	8.71%	3.69%
7/25/1986	14.25%	8.61%	5.64%
8/6/1986	13.50%	8.49%	5.01%
8/14/1986	13.50%	8.40%	5.10%
9/19/1986	13.25%	8.08%	5.17%
10/1/1986	14.00%	7.99%	6.01%
10/3/1986	13.40%	7.97%	5.43%
10/31/1986	13.50%	7.82%	5.68%
11/5/1986	13.00%	7.79%	5.21%
12/3/1986	12.90%	7.62%	5.28%
12/4/1986	14.44%	7.61%	6.83%
12/22/1986	13.80%	7.52%	6.28%
12/30/1986	13.00%	7.50%	5.50%
1/2/1987	13.00%	7.50%	5.50%
1/12/1987	12.40%	7.48%	4.92%

1/27/1987	12.71%	7.46%	5.25%
3/2/1987	12.47%	7.47%	5.00%
3/3/1987	13.60%	7.47%	6.13%
3/4/1987	12.38%	7.47%	4.91%
3/10/1987	13.50%	7.47%	6.03%
3/13/1987	13.00%	7.47%	5.53%
4/14/1987	12.50%	7.49%	5.01%
4/16/1987	14.50%	7.50%	7.00%
4/27/1987	12.00%	7.53%	4.47%
5/5/1987	12.85%	7.57%	5.28%
5/12/1987	12.65%	7.61%	5.04%
5/28/1987	13.50%	7.69%	5.81%
6/15/1987	13.20%	7.77%	5.43%
6/29/1987	15.00%	7.83%	7.17%
6/30/1987	12.50%	7.83%	4.67%
7/8/1987	12.00%	7.85%	4.15%
7/10/1987	12.90%	7.86%	5.04%
7/15/1987	13.50%	7.87%	5.63%
7/16/1987	13.50%	7.88%	5.62%
7/16/1987	15.00%	7.88%	7.12%
7/27/1987	13.00%	7.91%	5.09%
7/27/1987	13.40%	7.91%	5.49%
7/27/1987	13.50%	7.91%	5.59%
7/31/1987	12.98%	7.94%	5.04%
8/26/1987	12.63%	8.04%	4.59%
8/26/1987	12.75%	8.04%	4.71%
9/9/1987	13.00%	8.12%	4.88%
9/30/1987	13.00%	8.28%	4.72%
10/2/1987	11.50%	8.31%	3.19%
11/2/1987	13.00%	8.52%	4.48%
11/19/1987	13.00%	8.61%	4.39%
11/30/1987	12.00%	8.65%	3.35%
12/3/1987	14.20%	8.68%	5.52%
12/15/1987	13.25%	8.74%	4.51%
12/16/1987	13.50%	8.75%	4.75%
12/16/1987	13.72%	8.75%	4.97%
12/21/1987	12.01%	8.77%	3.24%
12/22/1987	12.00%	8.78%	3.22%
12/22/1987	12.00%	8.78%	3.22%
12/22/1987	12.75%	8.78%	3.97%
1/20/1988	13.80%	8.91%	4.89%
1/29/1988	13.20%	8.93%	4.27%
2/4/1988	12.60%	8.94%	3.66%
3/1/1988	11.56%	8.94%	2.62%
3/23/1988	12.87%	8.91%	3.96%
3/24/1988	11.24%	8.92%	2.32%
4/1/1988	12.50%	8.92%	3.58%
4/7/1988	13.25%	8.92%	4.33%
4/25/1988	10.96%	8.94%	2.02%
5/3/1988	12.91%	8.96%	3.95%
5/11/1988	13.50%	8.98%	4.52%
6/30/1988	12.75%	9.01%	3.74%
7/1/1988	12.75%	9.01%	3.74%
7/20/1988	13.40%	8.98%	4.42%
8/5/1988	12.75%	8.95%	3.80%
8/29/1988	12.75%	8.94%	3.81%
10/13/1988	13.10%	8.94%	4.16%
12/19/1988	13.00%	9.00%	4.00%
12/20/1988	12.25%	9.00%	3.25%
12/20/1988	13.00%	9.00%	4.00%
12/21/1988	12.90%	9.01%	3.89%
12/28/1988	13.10%	9.02%	4.08%
1/27/1989	13.00%	9.05%	3.95%
1/31/1989	13.00%	9.05%	3.95%
2/20/1989	12.40%	9.05%	3.35%
3/1/1989	12.76%	9.05%	3.71%
3/30/1989	14.00%	9.05%	4.95%
4/18/1989	13.00%	9.05%	3.95%
5/5/1989	12.40%	9.05%	3.35%
6/2/1989	13.20%	9.01%	4.19%
6/8/1989	13.50%	8.99%	4.51%
6/27/1989	13.25%	8.92%	4.33%
6/30/1989	13.00%	8.90%	4.10%
8/14/1989	12.50%	8.77%	3.73%
9/28/1989	12.25%	8.64%	3.61%
10/24/1989	12.50%	8.55%	3.95%
11/9/1989	13.00%	8.49%	4.51%
12/15/1989	13.00%	8.36%	4.64%
12/20/1989	12.90%	8.34%	4.56%
12/21/1989	12.90%	8.33%	4.57%
12/27/1989	12.50%	8.32%	4.18%
1/10/1990	12.80%	8.26%	4.54%

1/11/1990	12.90%	8.26%	4.64%
1/17/1990	12.80%	8.24%	4.56%
2/9/1990	12.10%	8.19%	3.91%
2/24/1990	12.86%	8.17%	4.69%
3/30/1990	12.90%	8.16%	4.74%
4/4/1990	15.76%	8.17%	7.59%
4/12/1990	12.52%	8.18%	4.34%
4/19/1990	12.75%	8.19%	4.56%
5/21/1990	12.10%	8.28%	3.82%
5/31/1990	12.00%	8.30%	3.70%
6/6/1990	12.25%	8.30%	3.95%
6/15/1990	13.20%	8.31%	4.89%
6/20/1990	12.92%	8.32%	4.60%
6/27/1990	12.90%	8.33%	4.57%
6/29/1990	12.50%	8.33%	4.17%
7/6/1990	12.10%	8.34%	3.76%
7/6/1990	12.35%	8.34%	4.01%
8/10/1990	12.55%	8.40%	4.15%
8/16/1990	13.21%	8.41%	4.80%
8/22/1990	13.10%	8.43%	4.67%
8/24/1990	13.00%	8.45%	4.55%
10/2/1990	13.00%	8.59%	4.41%
10/5/1990	12.84%	8.61%	4.23%
10/25/1990	12.30%	8.67%	3.63%
12/13/1990	12.30%	8.67%	3.63%
12/17/1990	12.87%	8.67%	4.20%
12/18/1990	13.10%	8.66%	4.44%
12/21/1990	12.50%	8.66%	3.84%
1/2/1991	13.10%	8.65%	4.45%
1/4/1991	12.50%	8.65%	3.85%
1/15/1991	12.75%	8.64%	4.11%
1/25/1991	11.70%	8.63%	3.07%
2/7/1991	12.50%	8.60%	3.90%
2/14/1991	12.72%	8.57%	4.15%
3/6/1991	13.10%	8.53%	4.57%
3/8/1991	12.30%	8.53%	3.77%
3/8/1991	13.00%	8.53%	4.47%
4/22/1991	13.00%	8.49%	4.51%
5/7/1991	13.50%	8.47%	5.03%
5/13/1991	13.25%	8.47%	4.78%
5/30/1991	12.75%	8.45%	4.30%
6/12/1991	12.00%	8.42%	3.58%
6/25/1991	11.70%	8.40%	3.30%
7/1/1991	12.00%	8.39%	3.61%
7/19/1991	12.10%	8.35%	3.75%
8/1/1991	12.90%	8.33%	4.57%
8/16/1991	13.20%	8.30%	4.90%
10/17/1991	13.00%	8.21%	4.79%
10/23/1991	12.50%	8.20%	4.30%
10/31/1991	11.80%	8.19%	3.61%
11/1/1991	12.00%	8.19%	3.81%
11/5/1991	12.25%	8.19%	4.06%
11/12/1991	12.50%	8.18%	4.32%
11/12/1991	13.25%	8.18%	5.07%
11/25/1991	12.40%	8.17%	4.23%
11/26/1991	11.60%	8.17%	3.43%
11/26/1991	12.50%	8.17%	4.33%
11/27/1991	12.10%	8.17%	3.93%
12/18/1991	12.25%	8.15%	4.10%
12/19/1991	12.60%	8.15%	4.45%
12/19/1991	12.80%	8.15%	4.65%
12/20/1991	12.65%	8.14%	4.51%
1/9/1992	12.80%	8.09%	4.71%
1/27/1992	12.65%	8.06%	4.59%
1/31/1992	12.00%	8.05%	3.95%
2/11/1992	12.40%	8.03%	4.37%
2/25/1992	12.50%	8.02%	4.48%
3/16/1992	11.43%	7.99%	3.44%
3/18/1992	12.28%	7.99%	4.29%
4/2/1992	12.10%	7.96%	4.14%
4/9/1992	11.45%	7.95%	3.50%
4/10/1992	11.50%	7.95%	3.55%
5/5/1992	11.50%	7.91%	3.59%
5/12/1992	11.87%	7.89%	3.98%
5/12/1992	12.46%	7.89%	4.57%
6/1/1992	12.30%	7.87%	4.43%
6/12/1992	10.90%	7.86%	3.04%
6/26/1992	12.35%	7.85%	4.50%
6/29/1992	11.00%	7.85%	3.15%
6/30/1992	13.00%	7.85%	5.15%
7/13/1992	11.90%	7.84%	4.06%
7/22/1992	11.20%	7.83%	3.37%



8/3/1992	12.00%	7.82%	4.18%
8/6/1992	12.50%	7.81%	4.69%
9/22/1992	12.00%	7.72%	4.28%
9/30/1992	11.75%	7.70%	4.05%
10/2/1992	13.00%	7.70%	5.30%
10/16/1992	13.16%	7.70%	5.46%
12/3/1992	11.85%	7.69%	4.16%
12/15/1992	11.00%	7.67%	3.33%
12/16/1992	11.90%	7.67%	4.23%
12/16/1992	12.40%	7.67%	4.73%
12/17/1992	12.00%	7.66%	4.34%
12/22/1992	12.30%	7.66%	4.64%
12/22/1992	12.40%	7.66%	4.74%
12/29/1992	12.25%	7.64%	4.61%
1/12/1993	12.00%	7.61%	4.39%
1/21/1993	11.25%	7.60%	3.65%
2/15/1993	12.30%	7.53%	4.77%
2/24/1993	11.90%	7.50%	4.40%
2/26/1993	11.80%	7.49%	4.31%
2/26/1993	12.20%	7.49%	4.71%
4/23/1993	11.75%	7.30%	4.45%
5/11/1993	11.75%	7.25%	4.50%
5/14/1993	11.50%	7.24%	4.26%
5/25/1993	11.50%	7.23%	4.27%
5/28/1993	11.00%	7.22%	3.78%
6/3/1993	12.00%	7.21%	4.79%
6/16/1993	11.50%	7.19%	4.31%
6/18/1993	12.10%	7.18%	4.92%
6/25/1993	11.67%	7.17%	4.50%
7/21/1993	11.38%	7.11%	4.27%
7/23/1993	10.46%	7.10%	3.36%
9/21/1993	10.50%	6.82%	3.68%
9/29/1993	11.47%	6.78%	4.69%
9/30/1993	11.60%	6.77%	4.83%
11/12/1993	12.00%	6.58%	5.42%
11/26/1993	11.00%	6.54%	4.46%
12/14/1993	10.55%	6.49%	4.06%
12/16/1993	10.60%	6.49%	4.11%
12/21/1993	11.30%	6.48%	4.82%
1/13/1994	11.00%	6.43%	4.57%
1/21/1994	11.00%	6.41%	4.59%
1/28/1994	11.35%	6.40%	4.95%
2/3/1994	11.40%	6.39%	5.01%
2/17/1994	10.60%	6.37%	4.23%
2/25/1994	12.00%	6.37%	5.63%
3/4/1994	11.00%	6.36%	4.64%
4/25/1994	11.00%	6.41%	4.59%
5/10/1994	11.75%	6.45%	5.30%
6/3/1994	11.00%	6.53%	4.47%
6/27/1994	11.40%	6.63%	4.77%
8/5/1994	12.75%	6.85%	5.90%
10/31/1994	10.00%	7.30%	2.70%
11/9/1994	10.85%	7.36%	3.49%
11/9/1994	10.85%	7.36%	3.49%
11/18/1994	11.20%	7.43%	3.77%
11/22/1994	11.60%	7.44%	4.16%
12/8/1994	11.50%	7.52%	3.98%
12/8/1994	11.70%	7.52%	4.18%
12/14/1994	10.95%	7.55%	3.40%
12/15/1994	11.50%	7.55%	3.95%
12/19/1994	11.50%	7.56%	3.94%
12/28/1994	12.15%	7.59%	4.56%
1/9/1995	12.28%	7.63%	4.65%
1/31/1995	11.00%	7.68%	3.32%
2/10/1995	12.60%	7.69%	4.91%
3/20/1995	12.00%	7.71%	4.29%
3/29/1995	11.60%	7.71%	3.89%
4/7/1995	11.00%	7.71%	3.29%
4/19/1995	11.00%	7.70%	3.30%
5/12/1995	11.63%	7.67%	3.96%
5/25/1995	11.20%	7.64%	3.56%
6/21/1995	12.25%	7.56%	4.69%
6/30/1995	11.10%	7.52%	3.58%
9/11/1995	11.30%	7.22%	4.08%
9/27/1995	11.30%	7.14%	4.16%
9/27/1995	11.50%	7.14%	4.36%
9/29/1995	11.00%	7.13%	3.87%
12/11/1995	11.40%	6.76%	4.64%
12/20/1995	11.60%	6.71%	4.89%
12/27/1995	12.00%	6.68%	5.32%
2/5/1996	12.25%	6.50%	5.75%
4/8/1996	11.00%	6.42%	4.58%

4/11/1996	12.59%	6.43%	6.16%
4/11/1996	12.59%	6.43%	6.16%
9/27/1996	11.00%	6.69%	4.31%
11/26/1996	11.30%	6.82%	4.48%
12/31/1996	11.50%	6.83%	4.67%
1/3/1997	10.70%	6.83%	3.87%
2/13/1997	11.80%	6.83%	4.97%
2/20/1997	11.80%	6.82%	4.98%
3/31/1997	10.02%	6.81%	3.21%
4/2/1997	11.65%	6.81%	4.84%
4/28/1997	11.50%	6.82%	4.68%
4/29/1997	11.70%	6.81%	4.89%
7/17/1997	12.00%	6.77%	5.23%
12/23/1997	11.12%	6.58%	4.54%
2/2/1998	12.75%	6.41%	6.34%
3/2/1998	11.25%	6.31%	4.94%
4/30/1998	12.20%	6.13%	6.07%
7/10/1998	11.40%	5.95%	5.45%
9/15/1998	11.90%	5.79%	6.11%
12/10/1998	12.20%	5.55%	6.65%
12/17/1998	12.10%	5.53%	6.57%
2/5/1999	10.30%	5.40%	4.90%
3/4/1999	10.50%	5.35%	5.15%
4/6/1999	10.94%	5.33%	5.61%
7/29/1999	10.75%	5.50%	5.25%
1/7/2000	11.50%	6.04%	5.46%
1/7/2000	11.50%	6.04%	5.46%
2/17/2000	10.60%	6.16%	4.44%
3/28/2000	11.25%	6.19%	5.06%
5/24/2000	11.00%	6.18%	4.82%
7/18/2000	12.20%	6.16%	6.04%
9/29/2000	11.16%	6.04%	5.12%
11/28/2000	12.90%	5.90%	7.00%
11/30/2000	12.10%	5.89%	6.21%
2/8/2001	11.50%	5.78%	5.72%
5/8/2001	10.75%	5.62%	5.13%
7/25/2001	11.02%	5.60%	5.42%
7/25/2001	11.02%	5.60%	5.42%
9/10/2001	11.00%	5.55%	5.45%
9/20/2001	10.00%	5.55%	4.45%
12/3/2001	12.88%	5.49%	7.39%
12/20/2001	12.50%	5.49%	7.01%
3/27/2002	10.10%	5.45%	4.65%
4/22/2002	11.80%	5.46%	6.34%
5/28/2002	10.17%	5.46%	4.71%
6/10/2002	12.00%	5.47%	6.53%
6/20/2002	12.30%	5.47%	6.83%
7/15/2002	11.00%	5.47%	5.53%
9/12/2002	12.30%	5.45%	6.85%
9/26/2002	10.45%	5.41%	5.04%
1/31/2003	12.45%	5.14%	7.31%
2/28/2003	12.30%	5.06%	7.24%
3/6/2003	10.75%	5.04%	5.71%
3/7/2003	9.96%	5.04%	4.92%
3/20/2003	12.00%	5.00%	7.00%
4/3/2003	12.00%	4.97%	7.03%
4/15/2003	11.15%	4.95%	6.20%
7/16/2003	9.75%	4.79%	4.96%
12/17/2003	9.85%	4.93%	4.92%
12/19/2003	12.00%	4.93%	7.07%
12/19/2003	12.00%	4.93%	7.07%
1/13/2004	12.00%	4.95%	7.05%
3/2/2004	10.75%	4.97%	5.78%
3/26/2004	10.25%	5.00%	5.25%
4/5/2004	11.25%	5.02%	6.23%
5/18/2004	10.50%	5.08%	5.42%
5/25/2004	10.25%	5.08%	5.17%
7/16/2004	11.60%	5.11%	6.49%
9/9/2004	10.40%	5.10%	5.30%
11/23/2004	11.00%	5.06%	5.94%
12/21/2004	11.50%	5.06%	6.44%
12/22/2004	10.70%	5.06%	5.64%
12/22/2004	11.50%	5.06%	6.44%
2/18/2005	10.30%	4.99%	5.31%
3/10/2005	11.00%	4.94%	6.06%
4/4/2005	10.00%	4.89%	5.11%
7/19/2005	11.50%	4.65%	6.85%
8/5/2005	11.75%	4.63%	7.12%
12/12/2005	11.00%	4.55%	6.45%
12/13/2005	10.75%	4.55%	6.20%
12/22/2005	11.00%	4.55%	6.45%
12/22/2005	11.15%	4.55%	6.60%

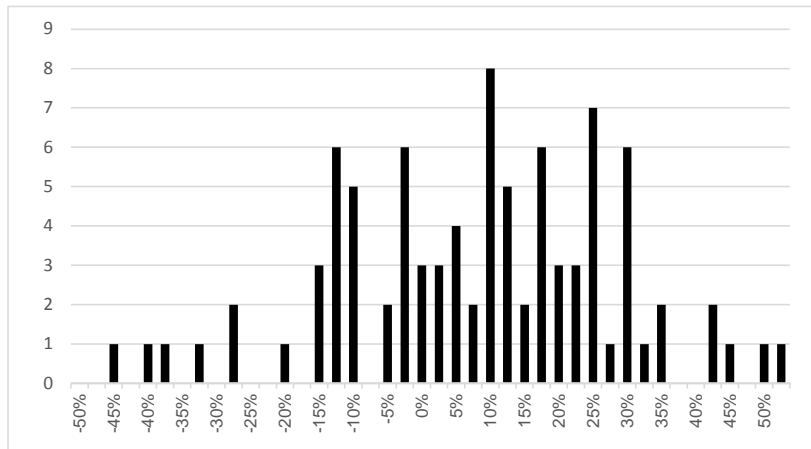
12/28/2005	10.00%	4.55%	5.45%
12/28/2005	10.00%	4.55%	5.45%
1/5/2006	11.00%	4.54%	6.46%
1/27/2006	9.75%	4.52%	5.23%
4/17/2006	10.20%	4.61%	5.59%
4/26/2006	10.60%	4.63%	5.97%
5/17/2006	11.60%	4.69%	6.91%
6/6/2006	10.00%	4.74%	5.26%
7/28/2006	10.05%	4.86%	5.19%
8/23/2006	9.55%	4.88%	4.67%
9/1/2006	10.54%	4.89%	5.65%
11/21/2006	10.08%	4.94%	5.14%
11/21/2006	10.08%	4.94%	5.14%
11/21/2006	10.12%	4.94%	5.18%
12/21/2006	10.90%	4.95%	5.95%
12/21/2006	11.25%	4.95%	6.30%
1/11/2007	10.10%	4.95%	5.15%
1/11/2007	10.10%	4.95%	5.15%
1/11/2007	10.90%	4.95%	5.95%
1/12/2007	10.10%	4.95%	5.15%
1/13/2007	10.40%	4.95%	5.45%
1/19/2007	10.80%	4.95%	5.85%
5/15/2007	10.00%	4.81%	5.19%
5/17/2007	10.25%	4.81%	5.44%
5/17/2007	10.25%	4.81%	5.44%
5/22/2007	10.20%	4.81%	5.39%
5/22/2007	10.50%	4.81%	5.69%
5/23/2007	10.70%	4.81%	5.89%
6/15/2007	9.90%	4.82%	5.08%
6/21/2007	10.20%	4.83%	5.37%
6/28/2007	10.75%	4.84%	5.91%
7/19/2007	10.00%	4.87%	5.13%
7/19/2007	10.00%	4.87%	5.13%
10/9/2007	10.00%	4.91%	5.09%
10/17/2007	9.10%	4.91%	4.19%
10/31/2007	9.96%	4.90%	5.06%
12/6/2007	10.75%	4.86%	5.89%
12/13/2007	9.96%	4.85%	5.11%
12/14/2007	10.80%	4.85%	5.95%
1/8/2008	10.75%	4.83%	5.92%
1/17/2008	10.75%	4.82%	5.93%
1/28/2008	9.40%	4.80%	4.60%
1/30/2008	10.00%	4.79%	5.21%
2/29/2008	10.25%	4.75%	5.50%
3/25/2008	9.10%	4.70%	4.40%
4/24/2008	10.10%	4.61%	5.49%
5/19/2008	11.00%	4.57%	6.43%
5/27/2008	10.00%	4.56%	5.44%
6/10/2008	10.70%	4.55%	6.15%
6/27/2008	11.04%	4.55%	6.49%
7/10/2008	10.43%	4.53%	5.90%
7/30/2008	10.80%	4.51%	6.29%
8/11/2008	10.25%	4.51%	5.74%
8/26/2008	10.18%	4.50%	5.68%
9/24/2008	10.65%	4.48%	6.17%
9/24/2008	10.65%	4.48%	6.17%
9/24/2008	10.65%	4.48%	6.17%
12/23/2008	11.00%	4.27%	6.73%
12/29/2008	10.00%	4.24%	5.76%
1/14/2009	10.50%	4.16%	6.34%
1/21/2009	10.50%	4.12%	6.38%
1/21/2009	10.50%	4.12%	6.38%
1/21/2009	10.50%	4.12%	6.38%
1/27/2009	10.76%	4.10%	6.66%
1/30/2009	10.50%	4.09%	6.41%
2/4/2009	8.75%	4.07%	4.68%
3/12/2009	11.50%	3.95%	7.55%
4/24/2009	10.00%	3.81%	6.19%
4/30/2009	11.25%	3.80%	7.45%
5/4/2009	10.74%	3.79%	6.95%
6/22/2009	10.00%	3.77%	6.23%
6/24/2009	10.80%	3.78%	7.02%
8/31/2009	10.25%	3.82%	6.43%
10/23/2009	10.88%	4.03%	6.85%
11/2/2009	10.70%	4.07%	6.63%
11/30/2009	10.35%	4.15%	6.20%
12/18/2009	10.40%	4.21%	6.19%
12/18/2009	10.40%	4.21%	6.19%
12/22/2009	10.20%	4.22%	5.98%
12/22/2009	10.40%	4.22%	6.18%
12/22/2009	10.40%	4.22%	6.18%
12/30/2009	10.00%	4.25%	5.75%

1/4/2010	10.80%	4.26%	6.54%
1/11/2010	11.00%	4.29%	6.71%
2/9/2010	9.80%	4.37%	5.43%
2/18/2010	10.60%	4.39%	6.21%
3/2/2010	9.63%	4.41%	5.22%
4/2/2010	10.10%	4.43%	5.67%
4/27/2010	10.00%	4.46%	5.54%
4/29/2010	9.90%	4.46%	5.44%
4/29/2010	10.06%	4.46%	5.60%
4/29/2010	10.26%	4.46%	5.80%
5/28/2010	10.10%	4.44%	5.66%
6/30/2010	9.40%	4.43%	4.97%
7/1/2010	10.25%	4.42%	5.83%
7/15/2010	10.53%	4.42%	6.11%
8/6/2010	9.83%	4.41%	5.42%
8/25/2010	9.90%	4.37%	5.53%
9/30/2010	9.75%	4.29%	5.46%
11/2/2010	10.38%	4.21%	6.17%
11/4/2010	10.70%	4.20%	6.50%
11/22/2010	10.00%	4.19%	5.81%
12/6/2010	9.86%	4.16%	5.70%
12/15/2010	10.44%	4.16%	6.28%
12/20/2010	10.60%	4.16%	6.44%
12/27/2010	9.90%	4.15%	5.75%
1/12/2011	10.30%	4.14%	6.16%
1/13/2011	10.30%	4.14%	6.16%
1/18/2011	10.00%	4.14%	5.86%
1/20/2011	9.30%	4.13%	5.17%
1/31/2011	9.60%	4.13%	5.47%
2/3/2011	10.00%	4.13%	5.87%
3/25/2011	9.80%	4.18%	5.62%
4/12/2011	10.00%	4.20%	5.80%
4/25/2011	10.74%	4.23%	6.51%
4/27/2011	10.40%	4.23%	6.17%
5/4/2011	10.00%	4.24%	5.76%
5/4/2011	10.00%	4.24%	5.76%
5/24/2011	10.50%	4.26%	6.24%
6/16/2011	9.20%	4.30%	4.90%
7/13/2011	10.20%	4.35%	5.85%
8/1/2011	9.20%	4.38%	4.82%
8/12/2011	10.35%	4.37%	5.98%
9/2/2011	12.88%	4.32%	8.56%
10/20/2011	10.50%	4.11%	6.39%
11/30/2011	10.90%	3.89%	7.01%
11/30/2011	10.90%	3.89%	7.01%
12/22/2011	9.90%	3.77%	6.13%
12/22/2011	10.40%	3.77%	6.63%
12/23/2011	10.19%	3.76%	6.43%
2/27/2012	10.25%	3.45%	6.80%
5/7/2012	9.80%	3.19%	6.61%
5/29/2012	10.05%	3.12%	6.93%
6/7/2012	10.30%	3.09%	7.21%
6/15/2012	10.40%	3.06%	7.34%
6/19/2012	9.25%	3.06%	6.19%
6/26/2012	10.10%	3.04%	7.06%
7/20/2012	9.31%	3.01%	6.30%
7/20/2012	9.81%	3.01%	6.80%
9/13/2012	9.80%	2.94%	6.86%
9/19/2012	10.05%	2.94%	7.11%
9/26/2012	9.50%	2.94%	6.56%
11/9/2012	10.30%	2.92%	7.38%
11/28/2012	10.40%	2.90%	7.50%
12/5/2012	9.71%	2.89%	6.82%
12/5/2012	10.40%	2.89%	7.51%
12/12/2012	9.80%	2.89%	6.91%
12/13/2012	9.50%	2.89%	6.61%

12/14/2012	10.40%	2.89%	7.51%
12/19/2012	9.71%	2.88%	6.83%
12/20/2012	10.30%	2.88%	7.42%
12/20/2012	10.40%	2.88%	7.52%
12/20/2012	10.45%	2.88%	7.57%
12/21/2012	10.20%	2.88%	7.32%
2/13/2013	10.20%	2.85%	7.35%
2/22/2013	9.75%	2.85%	6.90%
7/12/2013	9.36%	3.07%	6.29%
8/8/2013	9.83%	3.14%	6.69%
8/14/2013	9.15%	3.15%	6.00%
10/3/2013	9.65%	3.32%	6.33%
11/6/2013	10.20%	3.40%	6.80%
11/26/2013	10.00%	3.44%	6.56%
12/4/2013	9.50%	3.46%	6.04%
12/5/2013	10.20%	3.47%	6.73%
12/9/2013	8.72%	3.47%	5.25%
12/13/2013	9.75%	3.49%	6.26%
12/16/2013	10.12%	3.49%	6.63%
12/18/2013	8.72%	3.50%	5.22%
12/30/2013	9.50%	3.53%	5.97%
3/26/2014	9.40%	3.72%	5.68%
3/26/2014	9.96%	3.72%	6.24%
4/2/2014	9.70%	3.72%	5.98%
5/30/2014	9.70%	3.69%	6.01%
6/6/2014	10.40%	3.67%	6.73%
7/2/2014	9.62%	3.64%	5.98%
11/6/2014	9.56%	3.38%	6.18%
11/6/2014	10.20%	3.38%	6.82%
11/14/2014	10.20%	3.36%	6.84%
11/26/2014	9.70%	3.34%	6.36%
11/26/2014	10.20%	3.34%	6.86%
12/10/2014	9.25%	3.30%	5.95%
12/10/2014	9.25%	3.30%	5.95%
12/12/2014	10.20%	3.29%	6.91%
12/17/2014	9.17%	3.28%	5.89%
12/18/2014	9.83%	3.27%	6.56%
1/23/2015	9.50%	3.15%	6.35%
3/18/2015	9.75%	2.99%	6.76%
3/25/2015	9.50%	2.97%	6.53%
3/26/2015	9.72%	2.96%	6.76%
4/29/2015	9.53%	2.87%	6.66%
5/26/2015	9.75%	2.84%	6.91%
9/2/2015	9.50%	2.80%	6.70%
9/10/2015	9.30%	2.79%	6.51%
11/19/2015	10.00%	2.87%	7.13%
11/19/2015	10.30%	2.87%	7.43%
12/3/2015	10.00%	2.89%	7.11%
12/9/2015	9.14%	2.90%	6.24%
12/9/2015	9.14%	2.90%	6.24%
12/11/2015	10.30%	2.90%	7.40%
12/17/2015	9.70%	2.90%	6.80%
12/30/2015	9.50%	2.92%	6.58%
3/16/2016	9.85%	2.91%	6.94%
4/29/2016	9.80%	2.84%	6.96%
6/3/2016	9.75%	2.80%	6.95%
6/8/2016	9.48%	2.80%	6.68%
8/18/2016	9.50%	2.64%	6.86%
9/1/2016	9.50%	2.60%	6.90%
9/8/2016	10.00%	2.59%	7.41%
9/28/2016	9.58%	2.55%	7.03%
9/30/2016	9.90%	2.54%	7.36%
11/9/2016	9.80%	2.49%	7.31%
11/10/2016	9.50%	2.49%	7.01%
11/15/2016	9.55%	2.49%	7.06%

# of Cases: 1,110  
Average: 4.24%

Frequency Distribution of Observed Market Risk Premia, 1926 - 2015



Sources: Morningstar, Inc., Ibbotson SBI 2016 Appendix A, at 3-5, 21-23.

Year	Large Company Stocks Total Returns	Long-Term Government Bond Income Returns	MRP
	Jan-Dec*	Jan-Dec*	
1926	0.1162	0.0373	0.0789
1927	0.3749	0.0341	0.3408
1928	0.4361	0.0322	0.4039
1929	-0.0842	0.0347	-0.1189
1930	-0.2490	0.0332	-0.2822
1931	-0.4334	0.0333	-0.4667
1932	-0.0819	0.0369	-0.1188
1933	0.5399	0.0312	0.5087
1934	-0.0144	0.0318	-0.0462
1935	0.4767	0.0281	0.4486
1936	0.3392	0.0277	0.3115
1937	-0.3503	0.0266	-0.3769
1938	0.3112	0.0264	0.2848
1939	-0.0041	0.0240	-0.0281
1940	-0.0978	0.0223	-0.1201
1941	-0.1159	0.0194	-0.1353
1942	0.2034	0.0246	0.1788
1943	0.2590	0.0244	0.2346
1944	0.1975	0.0246	0.1729
1945	0.3644	0.0234	0.3410
1946	-0.0807	0.0204	-0.1011
1947	0.0571	0.0213	0.0358
1948	0.0550	0.0240	0.0310
1949	0.1879	0.0225	0.1654
1950	0.3171	0.0212	0.2959
1951	0.2402	0.0238	0.2164
1952	0.1837	0.0266	0.1571
1953	-0.0099	0.0284	-0.0383
1954	0.5262	0.0279	0.4983
1955	0.3156	0.0275	0.2881
1956	0.0656	0.0299	0.0357
1957	-0.1078	0.0344	-0.1422
1958	0.4336	0.0327	0.4009
1959	0.1196	0.0401	0.0795
1960	0.0047	0.0426	-0.0379

1961	0.2689	0.0383	0.2306
1962	-0.0873	0.0400	-0.1273
1963	0.2280	0.0389	0.1891
1964	0.1648	0.0415	0.1233
1965	0.1245	0.0419	0.0826
1966	-0.1006	0.0449	-0.1455
1967	0.2398	0.0459	0.1939
1968	0.1106	0.0550	0.0556
1969	-0.0850	0.0595	-0.1445
1970	0.0386	0.0674	-0.0288
1971	0.1430	0.0632	0.0798
1972	0.1899	0.0587	0.1312
1973	-0.1469	0.0651	-0.2120
1974	-0.2647	0.0727	-0.3374
1975	0.3723	0.0799	0.2924
1976	0.2393	0.0789	0.1604
1977	-0.0716	0.0714	-0.1430
1978	0.0657	0.0790	-0.0133
1979	0.1861	0.0886	0.0975
1980	0.3250	0.0997	0.2253
1981	-0.0492	0.1155	-0.1647
1982	0.2155	0.1350	0.0805
1983	0.2256	0.1038	0.1218
1984	0.0627	0.1174	-0.0547
1985	0.3173	0.1125	0.2048
1986	0.1867	0.0898	0.0969
1987	0.0525	0.0792	-0.0267
1988	0.1661	0.0897	0.0764
1989	0.3169	0.0881	0.2288
1990	-0.0310	0.0819	-0.1129
1991	0.3047	0.0822	0.2225
1992	0.0762	0.0726	0.0036
1993	0.1008	0.0717	0.0291
1994	0.0132	0.0659	-0.0527
1995	0.3758	0.0760	0.2998
1996	0.2296	0.0618	0.1678
1997	0.3336	0.0664	0.2672
1998	0.2858	0.0583	0.2275
1999	0.2104	0.0557	0.1547
2000	-0.0910	0.0650	-0.1560
2001	-0.1189	0.0553	-0.1742
2002	-0.2210	0.0559	-0.2769
2003	0.2868	0.0480	0.2388
2004	0.1088	0.0502	0.0586
2005	0.0491	0.0469	0.0022
2006	0.1579	0.0468	0.1111
2007	0.0549	0.0486	0.0063
2008	-0.3700	0.0445	-0.4145
2009	0.2646	0.0347	0.2299
2010	0.1506	0.0425	0.1081
2011	0.0211	0.0390	-0.0179
2012	0.1600	0.0246	0.1354
2013	0.3239	0.0288	0.2951
2014	0.1369	0.0341	0.1028
2015	0.0138	0.0247	-0.0109
Average	0.1195	0.0505	0.0690
Std. Dev.	0.1999	0.0263	0.2008

Bin	Frequency	Cumulative %
-50.00%	0	0.000%
-47.50%	0	0.000%
-45.00%	1	1.111%
-42.50%	0	1.111%
-40.00%	1	2.222%
-37.50%	1	3.333%
-35.00%	0	3.333%
-32.50%	1	4.444%
-30.00%	0	4.444%
-27.50%	2	6.667%
-25.00%	0	6.667%
-22.50%	0	6.667%
-20.00%	1	7.778%
-17.50%	0	7.778%
-15.00%	3	11.111%
-12.50%	6	17.778%
-10.00%	5	23.333%
-7.50%	0	23.333%
-5.00%	2	25.556%
-2.50%	6	32.222%
0.00%	3	35.556%
2.50%	3	38.889%
5.00%	4	43.333%
7.50%	2	45.556%
10.00%	8	54.444%
12.50%	5	60.000%
15.00%	2	62.222%
17.50%	6	68.889%
20.00%	3	72.222%
22.50%	3	75.556%
25.00%	7	83.333%
27.50%	1	84.444%
30.00%	6	91.111%
32.50%	1	92.222%
35.00%	2	94.444%
37.50%	0	94.444%
40.00%	0	94.444%
42.50%	2	96.667%
45.00%	1	97.778%
47.50%	0	97.778%
50.00%	1	98.889%
51.00%	1	100.000%
Count:	90	

Average	Rank:
MRP	
11.10%	57.20%

Historical Market Return

Hevert	% Rank	Count
13.14%	48.9%	
13.75%	49.5%	45