

**BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN**

Joint Application of Wisconsin Electric
Power Company and Wisconsin Gas LLC for
Authority to Adjust Electric, Natural Gas,
and Steam Rates

Docket No. 5-UR-110

**DIRECT TESTIMONY OF STEVE KIHM
ON BEHALF OF CITIZENS UTILITY BOARD**

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1 **I. INTRODUCTION**

2 **Q. Please state your name, business address, and occupation.**

3 A. My name is Steve Kihm and my business address is the Citizens Utility Board (CUB), 625
4 North Segoe Rd, Suite 101, Madison, Wisconsin 53705. I am employed by CUB as
5 Regulatory Strategist.

6 **Q. Please describe your professional experience.**

7 A. My work in the field of utility regulation spans the past 42 years, including 21 years on the
8 staff of the Wisconsin Public Service Commission. I have also worked for Slipstream
9 Group, MSB Energy Associates, and since September of last year the Citizens Utility Board
10 of Wisconsin (CUB). In my career I have served in the roles of Principal, Chief Economist,
11 Research Director, and Financial Economist, in addition to my current Regulatory Strategist
12 position. I have testified before regulatory bodies in the District of Columbia, Georgia,

1 Hawaii, Illinois, Maine, Michigan, Pennsylvania, and Wisconsin. The Oregon Department
2 of Justice also retained me to represent it before the Oregon Tax Court as an expert witness
3 on the impact of cost of equity estimates on utility market valuations. In my work with
4 Lawrence Berkeley National Laboratory I developed utility stock pricing models for the
5 U.S. Department of Energy. I also am a member of the advisory board for Berkeley Lab's
6 Future Electric Utility Regulation research project, and I am an invited contributor to the
7 Federal Reserve Bank of Philadelphia's macroeconomic forecasting project.

8 In addition to my role as regulatory strategist at CUB, I am also Senior Fellow-
9 Finance at Michigan State University's Institute of Public Utilities. In that role, in addition
10 to providing training to commissioners, their staffs, utility managers, federal policy analysts,
11 and advocates from across the country, I am responsible for content development for the
12 courses, which includes cost of equity, capital structure, utility stock valuation, and risk
13 assessment. I have conducted that training annually since 2005. Since 2013 I have also been
14 the finance instructor for the Wisconsin Public Utility Institute's Energy Utility Basics
15 course where I focus on issues related to utility stock price formation, risk, and investor
16 return requirements. I have also provided custom in-house finance training to regulators in
17 Hawaii, Michigan, Minnesota, and Wisconsin.

18 **Q. Please describe your educational background and professional credentials.**

19 A. I hold a Doctor of Business Administration degree with concentrations in applied corporate
20 finance and business strategy from the University of Wisconsin-Whitewater, a Master of
21 Business Administration degree in finance and a Master of Science degree in quantitative
22 analysis from the University of Wisconsin-Madison, and a Bachelor of Science degree in
23 economics with highest honor from the University of Wisconsin-La Crosse. Since 1992 I

1 have held the Chartered Financial Analyst (CFA) credential. I have published professional
2 peer reviewed articles in the *Journal of Applied Corporate Finance*, *Managerial Finance*,
3 the *Energy Law Journal*, and the *Electricity Journal*, as well as policy analyses in *Public*
4 *Utilities Fortnightly*. I co-authored the text *Risk Principles for Public Utility Regulators* with
5 Dr. Janice Beecher, Executive Director of the Michigan State University Institute of Public
6 Utilities.¹

7 **Q. On whose behalf are you appearing in this proceeding?**

8 A. I am testifying on behalf of CUB.

9 **II. THE NEED FOR A HISTORICAL REVIEW OF THE ROLE OF CAPITAL MARKETS**

10 **Q. What topics do you address in this testimony?**

11 A. I discuss issues related to the returns utilities earn, those their investors require, and utility
12 stock prices, and then how the interaction between those three items allows capital to flow to
13 utilities. But before I dive into definitions and technical discussions, I would like to start
14 with a true story, a piece of utility history.

15 **Q. What is the purpose of the historical review?**

16 A. I will show that the ROE a utility earns has no effect on its ability to raise capital, and that
17 utilities can easily raise capital even when their ROEs are lower than the returns investors
18 require. This condition can hold for extended periods (a decade in the historical example)
19 and capital will still flow freely to utilities. We will see that this is in fact exactly what
20 finance principles suggest should happen—attracting capital never has been and never will

¹ Janice Beecher and Steve Kihm. 2016. *Risk Principles for Public Utility Regulators*. East Lansing, MI: Michigan State University Press.

1 be a problem for utilities, regardless of the ROEs they earn (as long as they're not
2 permanently negative).

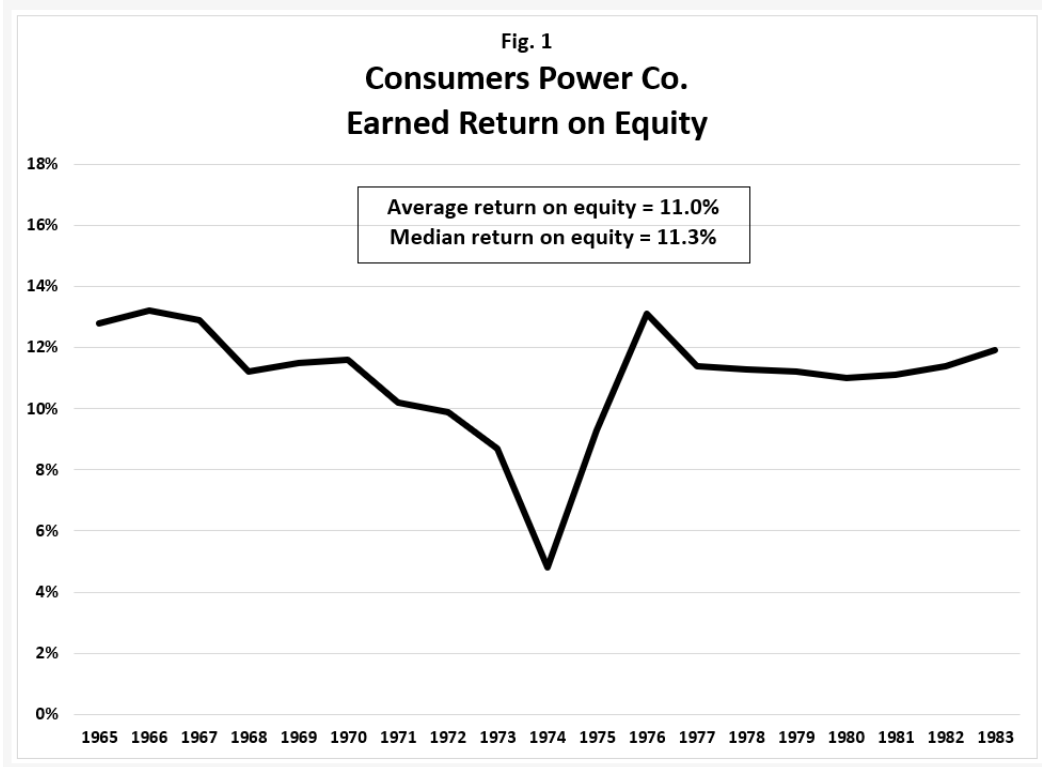
3 Attracting capital depends on expectations that manifest in the form of utility costs
4 of equity, not ROEs. The difference between these returns is explained later in the
5 testimony. Investors will willingly provide capital to utilities under almost any
6 circumstances, even dire ones, and will expect to earn reasonable returns even if the utility
7 does not. This expectation of reasonable investor returns is evidence-based. Though this is
8 nothing more than conventional corporate finance, it turns less-sophisticated conventional
9 regulatory views of financial issues on their heads, which is why this is so important to
10 understand. To set forth the theory is one thing; to demonstrate that it works is quite another.

11 **III. THE ILLUSTRATIVE CASE OF CONSUMERS POWER: 1965 TO 1983**

12 **Q. Please set the stage for your historical narrative**

13 A. I examine the experience of Consumers Power Company of Michigan (“Consumers
14 Power”) during the period 1965 to 1983, which was a particularly challenging period for all
15 utilities, especially during the second half of that time span. Let me start with what the utility
16 earned on its equity capital (ROE). The following figure shows Consumers Power’s ROEs
17 earned in each year of this period. The dip in the middle of the time span relates to the
18 impact of the 1973 OPEC oil embargo.²

² The utility data in this example comes from Charles Phillips, Jr., 1988, *The Regulation of Public Utilities*, Vienna, VA: Public Utilities Reports.



1

2

Notice that there was a slight end-to-end downward trend in Consumers Power’s ROEs, starting at 12.8% in 1965 and ending at 11.9% in 1981.

3

4 **Q. What is the next piece of the puzzle?**

5

A. Consider what was happening in the financial markets during this period. The following figure shows the yield on the 10-year U.S. Treasury note, which many investment analysts consider to be a foundational figure for determining the return investors require (cost of equity). Here we see a much different situation—a significant upward trend in that figure, starting at less than 5.0% in 1965 and reaching a peak of 14.0% in 1981, which is an increase of more than 900 basis points overall. End to end, the increase is over 700 basis points.

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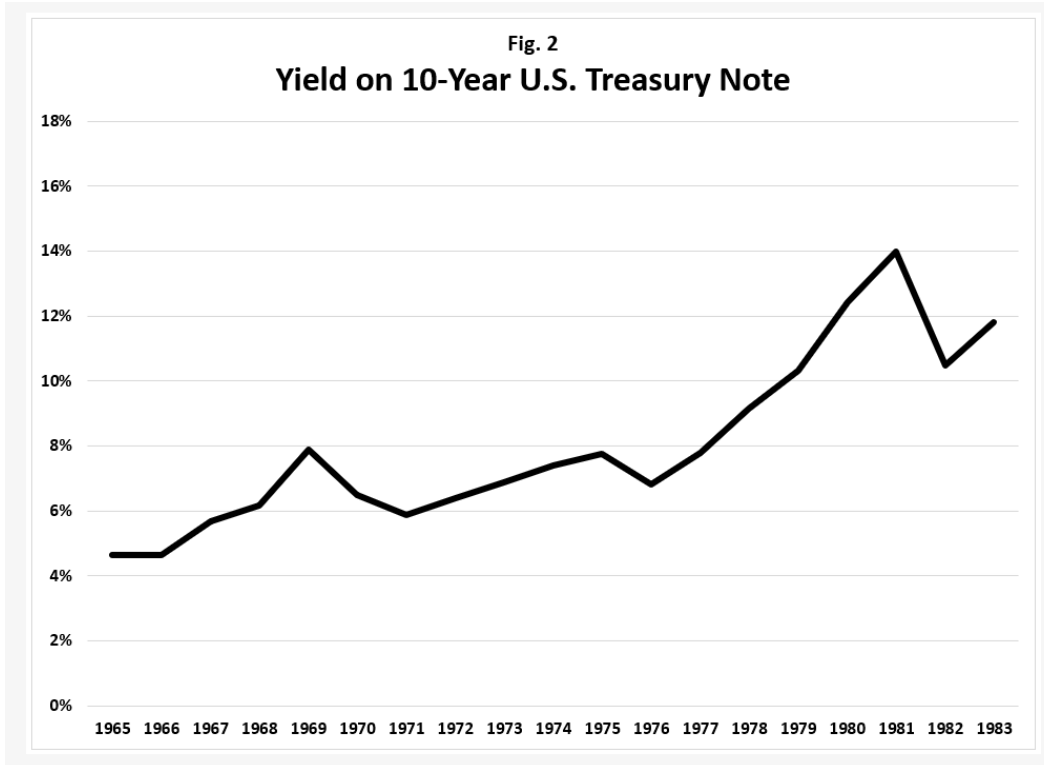
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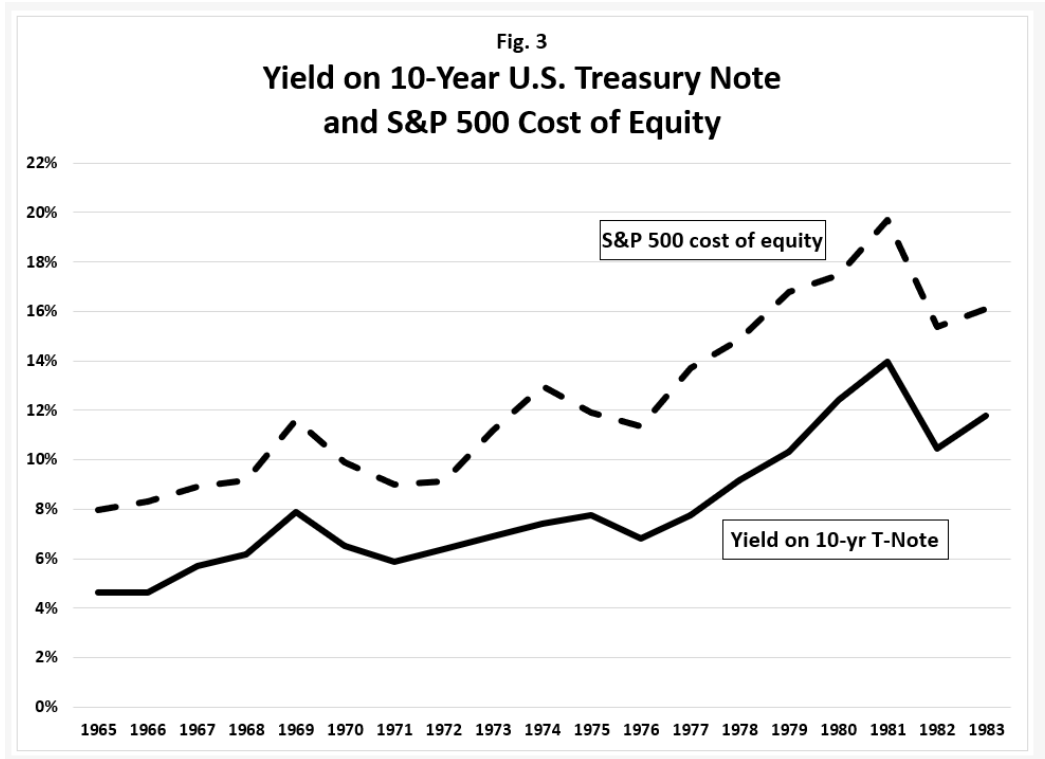
Recall that, in contrast, the utility’s ROE was not increasing over this period but was slightly declining. Note that by the early 1980s investors could earn more on a risk-free Treasury Note than the ROEs Consumers Power earned. This did not augur well for those who had purchased the company’s stock in the early part of the period and held it through the remaining years.

Q. What is the next piece of relevant information?

A. We need to convert the risk-free Treasury Note yield into the cost of equity, that is, the investors’ expected/required return on utility stocks. Professor Aswath Damodaran of New York University reports forward-looking cost of equity estimates for the S&P 500 from 1960 to present, which moves us toward the utility cost of equity.³ Adding the relevant years of that data to the figure we see the following.

³ Source: Damodaran online. <https://pages.stern.nyu.edu/~adamodar/>

1



2

3

4

The situation looks even worse now that we see that investors were pricing stocks in general to produce expected returns as high as 20% in the early 1980s.

5

Q. Can we estimate the cost of equity for utilities over the same period?

6

A. Yes. We can convert that broad market cost of equity into a utility cost of equity using the CAPM.

7

8

$$\text{Utility Cost of Equity} = \text{Treasury Yield} + \text{Beta}(\text{S\&P 500 Cost of Equity} - \text{Treasury Yield})$$

9

I use a beta coefficient of 0.75. The model shows how much utility costs of equity changed over this period.

10

11

1965

12

$$\text{utility cost of equity} = 4.7\% + 0.75(8.0\% - 4.7\%) = 7.1\%$$

13

14

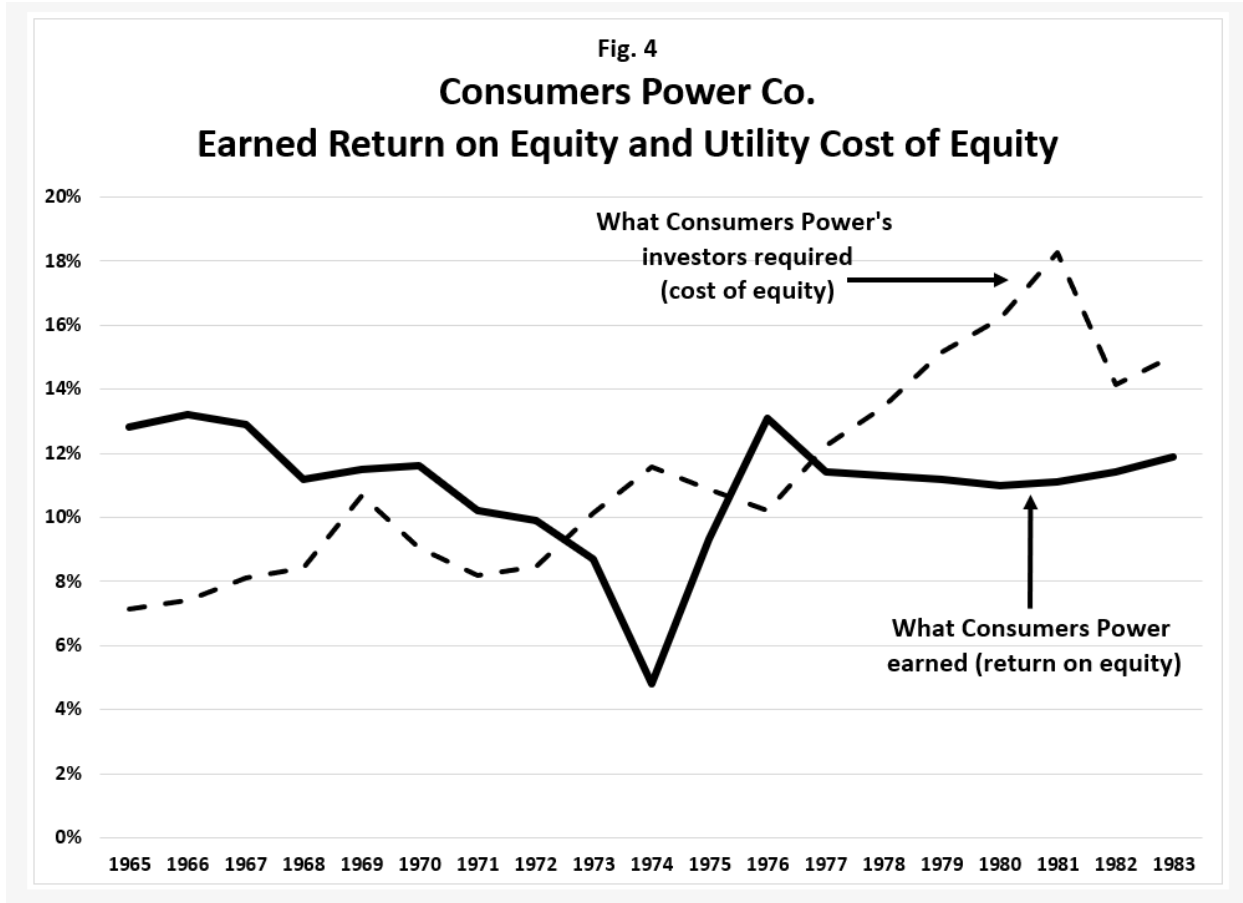
1981

15

$$\text{utility cost of equity} = 14.0\% + 0.75(19.7\% - 14.0\%) = 18.3\%$$

16

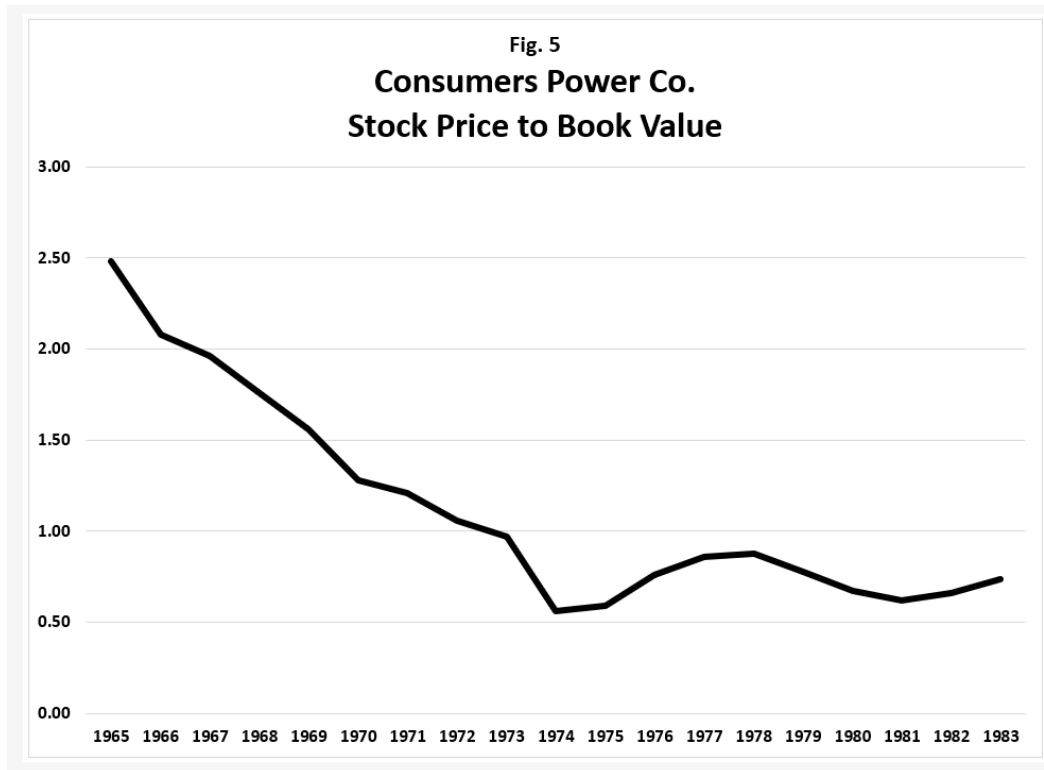
1 The utility cost of equity for the end of the period (1983) was 15.0%. So while the utility's
 2 ROEs were slightly declining from 12.8% to 11.9% over the entire period, the cost of equity
 3 was increasing by 800 basis points. In most years during the second half of the period under
 4 review, the ROE the utility earned was noticeably below the return investors expected to
 5 earn on utility stocks.



6

7 **Q. What happened to Consumers Power's stock price over this period?**

8 A. Not surprisingly, as the ROEs the utility earned failed to keep pace with, and then eventually
 9 fell behind, the returns investors expected when they invested in utility stocks, there was
 10 substantial market value destruction for Consumers Power's investors. See the following
 11 figure, which presents the data as a relative measure (stock price to book value).



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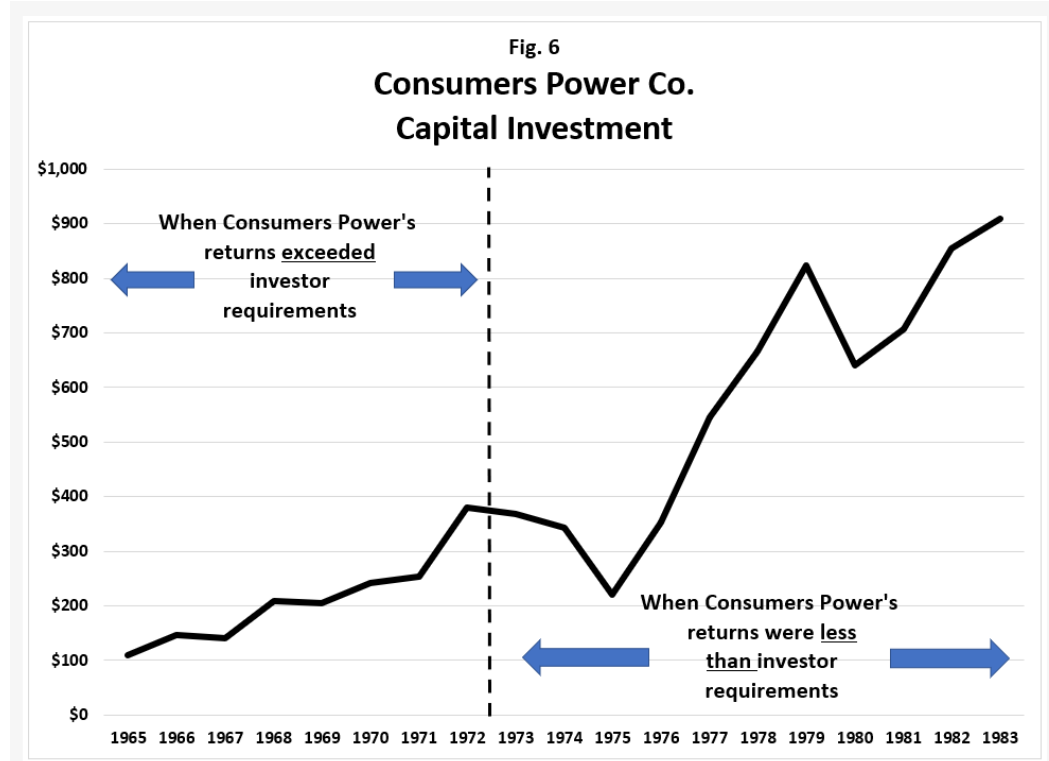
2 **Q. How should we interpret this figure?**

3 A. We see that the difference between the ROE and the cost of equity had a major influence on
 4 the utility's stock price. When the ROE exceeded the cost of equity (first half of the period),
 5 the utility stock price traded above book value; when the ROE was below the cost of equity
 6 (second half of the period), the stock price was less than book value.

7 **Q. Is that all we should take away from this figure?**

8 A. There is an even more crucial point. Once market participants had considered the difference
 9 between the ROE the utility earned on its books and the return investors expected to earn on
 10 utility stocks of similar risk (the cost of equity), they saw value in owning Consumers Power
 11 Company shares—the price was positive, not zero. This suggests that Consumers Power
 12 could have raised capital from rational, willing investors by selling new shares of stock in
 13 the market.

1 And it did. The following figure shows in fact that Consumers Power raised and
 2 invested \$5 billion when its ROEs were lower than the returns investors required, three
 3 times as much as it did when the opposite relationship held. This analysis provides
 4 overwhelming evidence that the ROE does not affect the ability of the utility to raise capital.
 5 We must stop saying that it does, because that is simply untrue.



6
 7 **Q. But why were rational investors willingly providing capital to the utility when the**
 8 **ROEs it earned were well below the returns those very investors required?**

9 **A.** That question contains an incorrect implied assumption. When they buy a utility stock,
 10 investors do not expect to earn the ROE the utility earns.⁴ Consumers Power's relatively low
 11 ROE did not prevent capital from flowing to it because the financial markets price stocks to
 12 produce costs of equity, not ROEs. And the cost of equity is by definition the return the

⁴ The only exception being if the utility stock trades add book value.

1 investors expect/require. Equilibrium is achieved in the financial market and capital flows to
2 the utility. The utility continues to struggle, but investors can reasonably expect to earn
3 sufficient returns when they buy the utility stock. In the historical example, this seemingly
4 paradoxical result is explained by noticing how little investors had to pay to purchase
5 Consumers Power stock.

6 **Q. Please explain.**

7 A. The utility earns ROEs based on its book value. The investor expects to earn the cost of
8 equity based on the prevailing market value (stock price). Since in the latter part of the
9 period investors could buy Consumers Power's stock at a discount to book value, the
10 investors would expect to make more on the stock than the utility did on its books.

11 **Q. Can you step through the mathematics to show how the investors' expected return on**
12 **the stock differed from the ROE the utility earned?**

13 A. Yes. Think about this as buying utility assets on sale—Consumers Power was selling a *pro*
14 *rata* share of its equity balance at less than cost (book value) because that was the only way
15 it could attract new capital. In the latter half of the period under review, new capital
16 providers were able to buy a claim on Consumers Power's book equity balances at \$0.60 on
17 the dollar. Doing some initial simplified analysis for illustrative purposes,⁵ if the utility
18 earned 11% on equity and investors had to pay \$1.00 to obtain \$1.00 of book value they
19 would expect to earn:

20
$$\text{expected investor stock return} = \frac{\text{book equity} \times \text{ROE}}{\text{price investor pays}} = \frac{\$1.00 \times 11\%}{\$1.00} = 11\%$$

⁵ This analysis assumes the utility pays out all earnings as dividends. The same qualitative conclusion can be reached with more complicated models that allow for earnings reinvestment rather than 100% dividend payout.

1 In 1981, an 11% return was too low because investors could expect to earn 18% returns on
2 stocks of similar risk. Consumers Power was in the middle of big construction projects, and
3 financial market conditions were unfavorable. Consumers Power needed capital—a lot of
4 it—so its stock price declined to attract investors. It settled in at about \$0.60 on the dollar.
5 The utility continued to earn 11% ROEs on every dollar of equity capital, but the new
6 investors had to pay only \$0.60 to obtain a claim on that \$1.00 of equity investment. This
7 changed the investors' expected stock return dramatically.

$$8 \quad \text{expected investor stock return} = \frac{\text{book equity} \times \text{ROE}}{\text{price investor pays}} = \frac{\$1.00 \times 11\%}{\$0.60} = 18\%$$

9 Through the seeming alchemy of market pricing, investors converted an 11% ROE to an
10 18% expected market return on Consumers Power's stock (cost of equity). This was
11 sufficient to attract capital. Again: the low ROE did not prevent capital from flowing to the
12 utility because the financial markets price stocks to produce costs of equity, not ROEs.

13 The utility made 11% (ROE) on its books; its investors expected to earn 18% on the
14 company's stock (cost of equity). This was all made possible by a utility stock trading at
15 \$0.60 on the dollar. This is how capital markets work, and this is why capital flows to
16 utilities in almost any circumstance.

17 **Q. What does this imply?**

18 A. This shows why a concern about capital attraction is actually a non-issue when determining
19 the just and reasonable ROEs for Applicants. Setting those returns is critically important for
20 all parties, but this isn't the issue the Commission should be concerned about. If the
21 Commission wonders whether Applicants will be able to attract capital, we can rest assured
22 that given essentially any ROE that the Commission might authorize in this case, WEC
23 Energy Group's stock price will adjust to allow it to raise capital. In fact, it can attract just as

1 much capital at lower ROEs as it could at higher ROEs because the financial markets price
2 stocks to produce costs of equity, not ROEs, as we just saw with the Consumers Power
3 example.

4 **Q. Why are we first hearing about this now?**

5 A. We aren't. Kahn pointed this out in 1970 in the context of a higher ROE, but it also works
6 with a lower ROE—in all cases, whether the ROE is raised or lowered, new investors expect
7 to earn the same return, the one that manifests in the financial markets, not the rate of return
8 the utility earns on its books. Regulators who attempt to offer new capital providers (new
9 purchasers to use Kahn's term) a return other than the cost of equity will fail because the
10 financial markets, which regulators do not control, will not allow this to occur.

11 Any attempt of a regulatory commission, persuaded by the comparable
12 earnings argument, to permit investors the higher return would only be self-
13 defeating. Investors would respond to the higher earnings per share by
14 bidding up the prices of securities to the point at which new purchasers
15 would earn only the old cost of capital on their investments. The only
16 beneficiaries would be those who happen to own the stock at the time the
17 policy change was announced or anticipated.⁶

18
19 This is a central theme of my testimony. Higher or lower ROEs can help or hurt only those
20 who already own the stock. They can never help or hurt investors who will be providing
21 capital when the utility goes to market.

22 As such, new investors who will be offering capital do not see ROEs higher than the
23 cost of equity as attractive, nor do they see ROEs less than the cost of equity as a deterrent.
24 They will expect to earn the same return they would have before and after any ROE change.
25 This results because new capital providers never expect to earn ROEs—at all times they
26 expect to earn costs of equity. Yet today, most regulators set ROEs based on the incorrect

⁶ Alfred Kahn, 1970, *The Economics of Regulation: Principles and Institutions*, Cambridge, MA: MIT Press, p. 52(n).

1 notion that higher ROEs attract more capital than lower ROEs, and if the ROE is too low the
2 utility will not be able to attract capital. Neither is true now nor have they ever been true.

3 That is not how capital markets work. Stock market pricing prevents either from occurring.

4 **Q. What implications does this have for regulatory financial policy?**

5 A. If we do not understand this fundamental aspect of corporate finance, and instead accept the
6 myth that higher ROEs make it easier for companies to attract capital we have essentially
7 rejected the entire corporate finance framework. That is guaranteed to lead to poor
8 regulatory finance policies and ROEs that are higher than necessary. No matter where the
9 Commission sets the ROEs in this case it need not have any concerns about the utilities
10 attracting capital because prospective investors will expect to earn the same return on the
11 company's stock if the ROEs are set at 8% or 12%. The company's stock price will be much
12 different under these two ROEs, but the return new capital providers expect will be the
13 same.

14 **Q. What then is the issue in this regard?**

15 A. By focusing on attracting capital from prospective investors when determining the proper
16 ROE, we make two mistakes: (1) we focus on the wrong group of investors, and (2) we
17 believe that the Commission must play the role of the financial markets. Both are
18 fundamentally incorrect.

19 There is an investor group that we need to think about, and that is the present
20 investors, those who already own WEC Energy Group's stock. They are exposed to any
21 ROE changes, up or down, that are unexpected because those changes affect the company's
22 stock price, creating either capital gains or capital losses for the present investors. This, not

1 concerns about attracting capital from new investors, is where all the investor tension is as it
2 relates to setting the ROE.

3 We see from the Consumers Power example that it easily attracted capital at ROEs
4 that were relatively low at the time, but its present investors were pummeled in the process,
5 absorbing massive capital losses along the way. Wall Street investment banks can always
6 raise capital, but they will not and do not promise the companies issuing the securities that
7 they will like the price they get when they sell their securities.

8 **Q. Are the present investors the ones that have rights that must be considered by**
9 **regulators?**

10 A. Yes. When the U.S. Supreme Court spoke about balancing consumer and investor interests,
11 it was referring to the present investors, not prospective investors who aren't even identified
12 at this point. The Commission cannot confiscate capital from investors who haven't
13 provided any yet. The Court's concerns are about the present investors who have
14 constitutional rights and deserve to be treated fairly. The capital attraction issue is a
15 distraction because it is never a problem. The reason it is never a problem is because the
16 present investors absorb the capital losses to make it work.

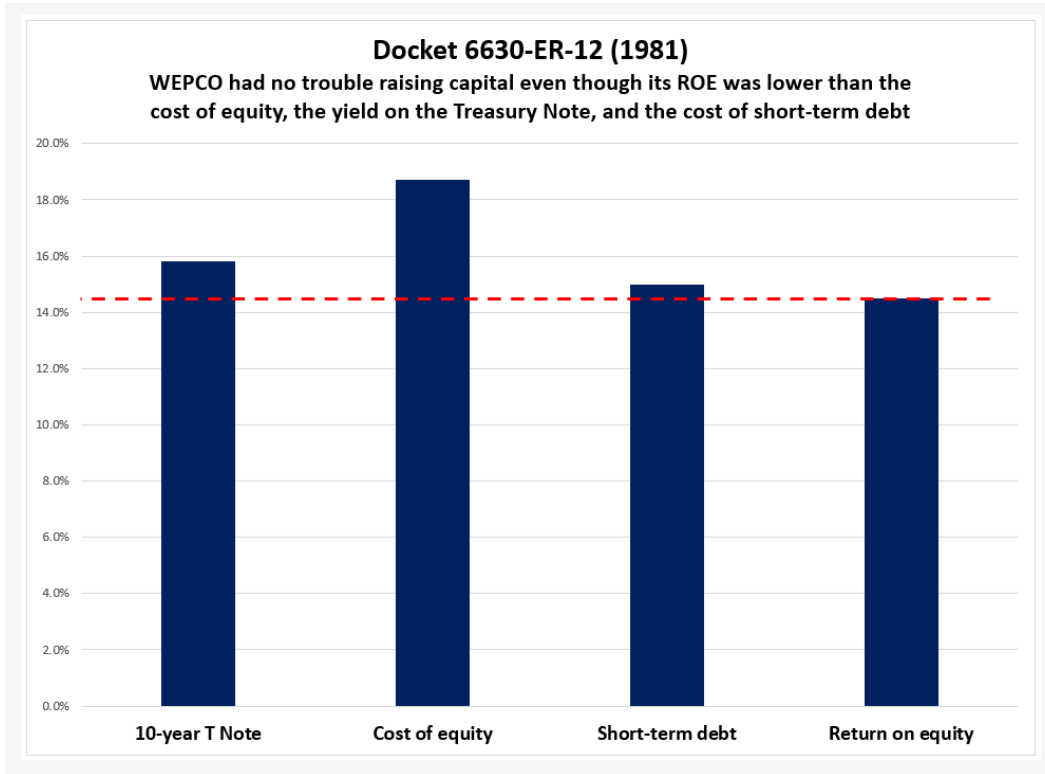
17 That is not to say that the Commission must preserve market value for present
18 investors, but it is to say that it cannot abuse those investors. The Commission must find a
19 balance between the interests of present investors and consumers. We can ignore the
20 prospective investors because the capital markets will take care of them.

21 **IV. WISCONSIN ELECTRIC'S EXPERIENCE DURING THE HISTORICAL PERIOD**

22 **Q. Did Wisconsin utilities face similar circumstances during the period under review?**

1 A. Yes. Though the Consumers Power situation was more challenging than most faced, all
2 investor-owned utilities across the nation experienced similar conditions to some extent.

3 Consider the following data from the Commission’s 1981 order in Docket 6630-ER-12.⁷



4
5 We see that the ROE was not only 420 basis points below the cost of equity, it was 50 basis
6 points below the cost of short-term debt. To put this in perspective, it would be like setting
7 Applicants ROEs today at about 3.0%. Yet capital flowed then and it would today.

8 **Q. How would that be possible?**

9 A. WEC Energy Group’s stock price would drop to well below book value. If the stock price
10 drops enough, new capital providers will eventually see a value proposition. That was
11 precisely what happened to Consumers Power. To be clear, I don’t think such a result is fair
12 in any way, but I want to show that utilities, with their obligation to serve, need to go to the

⁷ The cost of equity was not reported in the order, but it was calculated using Professor Damodaran’s S&P 500 cost of equity estimate for 1981 as applied in the CAPM.

1 capital markets even if conditions are adverse. We see that Consumers Power raised \$5
2 billion of capital during horrible financial conditions but it needed to do so to keep its
3 construction projects on track. The new capital providers weren't harmed; it did that on the
4 backs of its present investors.

5 **Q. Returning to the 1981 order, what did the Commission conclude about WEPCO's**
6 **ability to attract capital with such an ROE?**

7 A. The Commission concluded that a reasonable ROE would:

8 Allow sales of common stock at a reasonable relationship to underlying book
9 value, permit additional issuances of all forms of capital at reasonable costs
10 and maintain the financial integrity of the utility.⁸

11
12 It set the ROE at 14.5%, which it suggested met those conditions. At that time the notion of
13 a stock price trading at a reasonable relationship to its book value meant a market to book
14 ratio close to, but still less than 1.0. In the early-1980s, to achieve market to book ratios of
15 1.0, regulators would have had to set ROEs at 18% to 20%. That was simply too high.
16 Regulators could not find that to be reasonable given the rate increases it would cause for
17 utility customers so the present investors had to bear capital losses.

18 As a result, no utility stocks traded above book value in the late-1970s and early-
19 1980s and many did not trade above book value for a decade or more. Nevertheless, this was
20 a stable environment in terms of capital flows. Utility investors did not expect regulators to
21 set ROEs at the cost of equity, but rather to set them below that level. Investors then simply
22 adjusted utility stock prices to produce required market returns and continued to provide
23 capital (see how market pricing converted Consumers Power's 11% ROE into a 18%
24 expected market return (cost of equity) for new capital providers). To enable the utility to

⁸ Public Service Commission of Wisconsin, September 10, 1981, *Findings of Fact and Order, Application of Wisconsin Electric Power Company for Authority to Increase Its Electric Rates*, Docket 6630-ER-12.

1 attract capital Consumers Power's present investors lost about 75% of their market value,
2 which would be even greater if we adjusted for inflation.

3 Under these conditions, Wisconsin Electric's stock price would have traded at about
4 \$0.80 on the dollar relative to its book value (better than Consumers Power's relative stock
5 price), but this discounted stock pricing is precisely what allowed capital to flow. If the
6 stock price falls low enough capital will be forthcoming. That is how capital markets work.
7 Capital will always be available. The question is how much pain the present investors can
8 reasonably be expected to endure to ensure that this continues. The utilities are in a
9 predicament here because they have an obligation to serve, so they cannot simply stop
10 selling stock during challenging financial situations. This means that the Commission must
11 play the arbiter, balancing present investor and consumer interests.

12 **Q. Did Wisconsin Electric raise capital during the period under review?**

13 A. Yes, capital flowed to the company unabated. The troubling times in the utility industry
14 started in the mid-1970s. By 1981 Wisconsin Electric had just completed the first unit at
15 Pleasant Prairie Power Plant (P4) under financing conditions similar to those faced by
16 Consumers Power and was in the process of completing the second unit. It ultimately cost
17 WEPCO \$753 million to build the facility, most of which was raised when its ROEs were
18 lower than investors' required returns. I worked as a Commission staff analyst on this rate
19 case and no one, including the utility, raised concerns about capital attraction in the rate
20 proceeding for one reason—there was no problem raising capital.

21 It is interesting to note that during my first stay at the Commission, 1980-1989,⁹
22 concerns about capital attraction were essentially non-existent. Such concerns have risen to

⁹ I rejoined the Commission in 1995, working there until the end of 2007.

1 prominence only in the last decade or so. Ironically, the period today is one in which utility
2 ROEs are well above investor return requirements. We need to understand that financial
3 markets are extremely resilient and will price securities so that capital flows to utilities under
4 nearly all circumstances. We never have to worry about capital attraction in all but the most
5 extreme circumstances. And if 1981 was not extreme, then it is hard to imagine what would
6 be.

8 **V. THE COURT'S CAPITAL ATTRACTION STANDARD**

9 **Q. But doesn't the US Supreme Court require that regulators set ROEs so as to maintain**
10 **the ability of the utilities to attract capital?**

11 A. Yes, and that is exactly what the Commission did in 1981. It knew that if it set the ROE at
12 14.5%, even though the cost of equity was above 18%, utilities would still have ready access
13 to capital, which they did. And this was not a single year issue, but rather existed for about a
14 decade.

15 The Court, when articulating the capital attraction standard, did not indicate how
16 easy or difficult it would be to achieve it. Capital will flow to utilities under nearly all
17 circumstances, so it's almost a given that any ROE will meet the capital attraction standard.
18 Again, the real issue is how much pain can the present investors endure to ensure that capital
19 flows to the utility if the regulator sets the ROE too low and how much pain consumers can
20 endure if it sets the ROE too high.

21 **Q. But at any given point in time wouldn't the utilities that have higher ROEs be more**
22 **attractive to investors than those that earn lower ROEs?**

1 A. No. If we think that through, we will see why that would never be the case. This is basic
2 corporate finance. The reason is the same as that which we observed for Consumers Power;
3 stock market pricing will ensure that capital flows freely to all utilities regardless of their
4 ROEs. If the risks the investors face by buying the stocks are the same then the expected
5 return on those stocks (cost of equity) will also be the same even if the ROEs are different.

6 As explained in *Analysis for Financial Management*, market pricing of common
7 stocks will eliminate any market gains to prospective investors associated with high ROEs.

8 It is not enough for investors to find companies capable of generating high
9 ROEs; these companies must be unknown to others, because once they are
10 known, the possibilities of high returns to investors will melt away in higher
11 stock prices.¹⁰ Emphasis added.

12
13 **Q. Do you have a numerical example of that?**

14 A. Yes. Several. Let me start with a two-stock example and then move to a broader portfolio
15 analysis. We might think that WEC Energy Group with its expected holding company ROE
16 of 12.5% (see *Value Line Investment Survey*) would attract more interest from investors than
17 would Portland General with its expected ROE of 8.5%. Proportionally, the former earns an
18 ROE that is 47% higher than the latter. The apparent shine on WEC Energy Group stock is
19 dulled substantially (completely), however, when we realize we have to pay 82% more per
20 dollar of book value to buy its stock than we would to buy Portland General's. The precise
21 expected return on the stocks depends on more than just the difference between ROEs and
22 relative stock prices, but we should see that it is not clear on its face that WEC Energy
23 Group stock is more attractive than Portland General's. It very well may be that Portland
24 General offers the better deal for investors today, or at least many of them might think so.

¹⁰ Robert C. Higgins, Jennifer L. Koski, and Todd Mitton, 2019, *Analysis for Financial Management*, New York: McGraw-Hill Education, p. 56.

1 This is the sort of melting away of the return advantage that high ROE companies
2 would at first seem to offer, as referred to in the quote from *Analysis for Financial*
3 *Management*. In efficient capital markets the only thing that matters in terms of the
4 investors' expected return is the risk that investors face when they buy the stock. If two
5 companies have approximately the same risk, then regardless of the ROEs they earn on their
6 books their investors will expect to earn the same return on their stocks.

7 **Q. Can you provide additional evidence of this?**

8 A. Yes. We can see that by examining the capital asset pricing model (CAPM). It provides us
9 with an estimate of the expected return on stocks. Where does the ROE that a company
10 earns enter that model? It does not because it is irrelevant when developing expected return
11 estimates.

12 The key driver of that expected or required return on a stock is the beta coefficient.
13 Per *Value Line*, WEC Energy Group, Xcel Energy, and IDACORP all have common stock
14 beta coefficients equal to 0.80. Therefore investors will require the same return on all three
15 stocks, and market pricing will push the expected returns to those levels, even though the
16 three utilities have noticeably different projected ROEs at 12.5%, 10.5%, and 9.0%,
17 respectively. They are priced at 2.9, 2.6, and 2.1 times book value, respectively. This is the
18 melting away of the ROE advantage that finance principles teach us about.

19 **Q. Is there an analogy that might be illustrative here?**

20 A. I think so. BMWs are generally assumed to be better cars than Kia's. But Kia attracted
21 340,000 more automobile buyers than BMW in the U.S. in 2021.¹¹ We know why. Over the

¹¹ Source: CarPro.com

1 range of Kia models the median list price is about \$25,000; that figure for BMW is about
2 \$75,000.

3 A utility that generates a high ROE is like a high-quality automobile. The stock price
4 is like the sticker price that the buyer must pay to purchase it.

5 **Q. Can you provide more detail on that?**

6 A. Yes. If we rank the companies in Ms. Bulkley's proxy portfolio by ROEs, we can form two
7 sub-portfolios, those earning lower than average ROEs (on the left) and those earning higher
8 than average ROEs (on the right).

Investors Must Pay Much More for the Stocks
of High Return on Equity Companies

LOW ROE COMPANIES	MEDIAN ROE	P/B	HIGH ROE COMPANIES	MEDIAN ROE	P/B
Edison International	5.5%	1.68	Black Hills Corporation	9.1%	1.68
Duke Energy	7.1%	1.75	IDACORP Inc	9.4%	1.99
Avista Corp	7.3%	1.40	NiSource	9.7%	2.16
Evergy Inc	7.5%	1.61	Ameren Corp	10.2%	2.33
ALLETE	7.7%	1.30	Xcel Energy	10.2%	2.44
Northwest Natural Gas	7.9%	1.78	NextEra Energy	10.2%	4.15
Spire Inc	8.1%	1.51	American Electric Power	10.3%	2.14
Portland General	8.5%	1.63	Alliant Energy	10.9%	2.43
ONE Gas	8.8%	2.25	Otter Tail Corp	11.1%	2.81
Eversource Energy	8.8%	1.97	Entergy Corp	12.1%	1.92
NorthWestern Corp	8.8%	1.32	New Jersey Resources	12.1%	2.56
Atmos Energy	8.9%	1.87	Southern Co	12.5%	2.75
South Jersey Industries	9.0%	2.00	CMS Energy	13.7%	2.99
MEDIAN	8.1%	1.68	MEDIAN	10.3%	2.43

9
10 **Q. What does this figure show us?**

11 A. At first blush we might seem to prefer the utilities on the right that earn ROEs 27% higher
12 than those on the left (10.3% versus 8.1%). That attractiveness fades away, however, when
13 we notice that to buy the stocks of the higher ROE companies, we must pay a 50% stock
14 price premium (2.43 times book value versus 1.68 times book value). That differential
15 dilutes the influence of the ROE for the high-return companies much more than it does the

1 influence of the ROE for the low-return companies. BMW is on the right; Kia is on the left,
2 but in the form of utility stocks.

3 Once we sort through all the mathematics to determine the investors' expected
4 returns on the two portfolios, we find that they are essentially the same. This must be the
5 case if these companies are of approximately the same risk, which Ms. Bulkley suggests
6 they are by using them as the proxy portfolio.

7 **Q. An increase in the ROE must help someone, isn't that correct?**

8 A. Yes. This takes us back to the investors who matter—those who currently hold the utility's
9 stock. They will absorb all gains and losses associated with changes in ROE. Notice that the
10 prospective investors can neither gain nor lose from those changes if they have not yet
11 purchased the stock of the company.

12 One point should be made clear. When we speak of prospective investors, we are not
13 talking about those who buy and sell the stock in the secondary market. That does not create
14 any capital flow for the utility. The prospective investors of interest are those that will buy
15 new shares of stock that the company issues when it needs additional capital. Higher ROEs
16 help investors who already own the stock, not those who are going to provide new capital
17 when the utility issues new shares. The new investors will have to pay the higher price to
18 purchase the stock. This is the melting away of the illusory higher return for new capital
19 providers.

20 **Q. So new capital is eventually provided by prospective investors, but the present
21 investors bear all the consequences of Commission ROE determinations?**

22 A. Yes. In this way increased ROEs are windfalls, because the existing investors do nothing to
23 earn them and they are earned *ex ante* because the value of the higher ROEs is impounded

1 in the stock price before the utility issues new shares. MIT finance professor Stewart Myers
2 explains this in his *Bell Journal of Economics and Management Science* article on applying
3 finance principles in utility regulation.

4 Note that an opportunity to invest in a project offering more than the cost of
5 capital generates an immediate capital gain for investors. This is a windfall
6 gain, since it is realized *ex ante*.¹²
7

8 Higher ROEs are not about creating attractive opportunities for new capital providers; they
9 are about making the present investors wealthier through capital gains. This is not unique to
10 the utility industry; it is how all investor-owned corporations operate and how they create
11 value for their present investors, whose interests management represents.¹³

12 **Q. So all the focus is on creating value for the present investors, not offering attractive**
13 **returns to prospective investors?**

14 A. That is correct. When companies raise new capital, the present investors and the prospective
15 investors have conflicting interests. In a securities issuance, the company operates at arm's
16 length from those who will provide new capital. The present investors want the new
17 investors to pay as much as possible for the new shares of stock; the prospective investors
18 want to pay as little as possible for those shares. Utility management can represent only one
19 of those groups, and its governance obligations require that it represent the present investors.

20 **Q. Returning to the Myers quote, if the ROE is lowered, that again affects only the**
21 **present investors?**

22 A. Yes. This cuts both ways—the present investors capture all the capital gains from any
23 increased ROEs, but they also incur all the capital losses from any lowered ROEs.¹⁴ Before

¹² Stewart C. Myers, 1972, The application of finance theory to public utility rate cases, *Bell Journal of Economics and Management Science*, 3(1), p. 80.

¹³ Myron Gordon, 1974, *The Cost of Capital to a Public Utility*, East Lansing, MI: MSU Public Utility Studies.

¹⁴ This assumes that any ROE changes were unanticipated and not already reflected in the company's stock price.

1 the utility issues new shares, stocks are repriced to reflect the ROE changes. Prospective
2 investors are unaffected in either case, which is why changes to ROE do not affect capital
3 attraction. This again is basic corporate finance. The group of investors that is exposed to
4 Commission changes in ROEs are not those who might at some point provide capital. They
5 can fend for themselves. The Commission must be cognizant of the fact that if it lowers the
6 ROE, the present investors, those who currently hold WEC Energy Group stock, will likely
7 suffer capital losses. The Commission has no obligation to prevent all capital losses—it
8 should set the ROE to strike a balance between investors and consumers—but in those
9 deliberations it should be aware of the degree to which a lower ROE might cause such stock
10 price declines.

11 This is truly about finding balanced solutions. Higher ROEs help present investors
12 and hurt consumers; lower ROEs hurt present investors and help consumers. Neither party's
13 rights are superior to the other's.

14 VI. FOUNDATIONAL CONCEPTS

15 **Q. Are there any other preliminary points you would like to make before you discuss the**
16 **body of your testimony?**

17 A. Yes. Some of these definitions might have been inferred from the discussion of the historical
18 data, but to be complete I will provide a description of all key terms. There are four returns
19 that come up in discussion of utility financial issues. Rates of return (return on equity,
20 overall rate of return) relate to what the utility earns on its books. Costs of capital (cost of
21 equity, overall cost of capital) relate to what investors require or expect to earn on utility
22 securities, not what the firms themselves earn. See Alfred Kahn in *The Economics of*
23 *Regulation*. He describes the cost of capital as follows.

1 [It] is what investors could obtain by buying the *securities* of other
2 companies in the open market—not what the companies themselves earn on
3 a dollar of additional investment.¹⁵ (Emphasis in original.)
4

5 **Q. Does this mean that the cost of equity and the cost of capital do not appear on**
6 **company's financial statements?**

7 A. This is correct, and understanding that point is crucial to understanding modern corporate
8 finance. One can never find a company's cost of equity or cost of capital by looking at its
9 financial statements. And the Commission cannot set the cost of equity or the cost of capital,
10 because they are determined in the financial markets. The Commission sets the return on
11 equity (ROE) and the rate of return (ROR).

12 Yet in regulatory discussions we often hear parties talking about the cost of equity
13 the utility will earn. Utilities don't earn costs of equity; they earn ROEs. See the Consumers
14 Power example. This is more than semantics. All else equal, a higher ROE increases the
15 value of the utility stock. A higher cost of equity decreases that stock price. Consider the
16 following stock pricing model, referred to as the residual income model.

$$17 \text{ stock price} = \text{book value} + \frac{(\text{ROE} - \text{cost of equity}) \times \text{book value}}{(\text{cost of equity} - \text{sustainable growth})}$$

18 Examine the second term on the right side of the equation. We see that not only are the ROE
19 and the cost of equity not the same variable, they work in opposition to each other in terms
20 of value creation. If we confuse these two returns the entire financial analysis becomes
21 muddy.

22 **Q. Explain the differences between these four returns.**

23 A. The cost of equity and the cost of capital are different returns in that the latter is the
24 weighted average expected return on the company's debt and equity securities, not just the

¹⁵ Alfred Kahn, *supra*, p. 52.

1 equity portion. The companion accounting return, the one analogous to ROE, is the return
 2 on invested capital, which in regulation often simply goes by the name rate of return (ROR).

3 This can be explained with the following graphic.

Capital Type	Alternative Rate of Return Constructs	
	ACCOUNTING RETURN the UTILITY Earns on the Capital Balances on Its FINANCIAL STATEMENTS	MARKET RETURN INVESTORS Expect to Earn When Holding the UTILITY'S SECURITIES
Equity Only	<i>ROE</i>	<i>cost of equity</i>
Debt and Equity	<i>ROR</i>	<i>cost of capital</i>

4
 5 These are four distinct returns. There are additional differences between these returns that do
 6 not meet the eye. In contrast to the book value weights that are used to determine the ROR,
 7 the cost of capital relies on market values of debt and equity. The key point to note is that if
 8 the ROE is greater than the cost of equity, or the ROR is greater than the cost of capital, then
 9 the firm is earning returns that exceed those that its investors require.

10 **Q. Are these returns treated as distinct in regulatory proceedings?**

11 A. In most cases they are not. Many people see only two distinct returns, not four, treating ROE
 12 (a book return) and cost of equity (a market return) as one set of synonyms, and ROR (a
 13 book return) and cost of capital (a market return) as another set of labels for the same
 14 return.¹⁶ Both are contrary to basic finance principles as explained by Ezra Solomon, one of
 15 the pioneers of modern corporate finance, writing about the returns discussed in utility
 16 regulation.

17 Understanding that book rate measures [ROE] and DCF rate measures [cost
 18 of equity] are not different estimates of the same thing but rather estimates of

¹⁶ Or conflating the ROR and the cost of capital.

1 different things should eliminate at least part of the confusion surrounding
2 ‘rates of return’ on investment.”¹⁷ (Emphasis in original.)
3

4 If we do not make this distinction, then we are not applying modern corporate finance
5 principles and techniques.

6 **Q. Which of these returns do you focus on in your testimony?**

7 A. I focus primarily on two of these returns, the ROE and the cost of equity. Once I present my
8 estimate of the cost of equity, I then discuss ROE recommendations for Applicants
9 Wisconsin Electric Power Company (WEPCO) and Wisconsin Gas Company (Wisconsin
10 Gas) developed in collaboration with Mr. Corey Singletary, CUB’s Director of Regulatory
11 Affairs. Those figures, when set appropriately, require consideration of both investor and
12 consumer interests, as per the U.S. Supreme Court.¹⁸ Mr. Singletary looks more closely at
13 the consumer side. Under our proposal utilities that do not do a good job in serving their
14 customers deserve a lower ROE than those who do an exemplary job. I explain that in more
15 detail at the end of the testimony.

16 **Q. Is there an overarching theme in this testimony?**

17 A. Yes. I present evidence that, in contrast to the period reviewed earlier, for approximately the
18 past four decades regulators have systematically set ROEs in excess of the returns investors
19 require. In some cases that may be appropriate, especially when utilities have performed
20 well in terms of providing social or customer benefits. The problem is that all utilities,
21 regardless of performance, have been receiving authorized ROEs in excess of investor
22 required returns for several decades.

23 **Q. Who else shares the concerns about flaws in the regulatory process?**

¹⁷ Ezra Solomon, 1970, Alternative rate of return concepts and their implications for utility regulation, *Bell Journal of Economics and Management Science*, p. 121; 157.

¹⁸ *FPC v. Natural Gas Pipeline Co.*, 315 U.S. 575 (1942).

1 A. Numerous parties, as I discuss below, but let me begin with one particularly interesting
2 perspective. Leonard Hyman was for many years Merrill Lynch’s chief utility equity
3 analyst. In 2017, he and his colleague William Tilles wrote a blog piece entitled “The
4 Problem With U.S. Public Utility Regulation.” They discuss the great interest in moving
5 toward incentive-based regulation but suggest the need for a significant preliminary step.

6 We understand the appeal and novelty and the desire of regulators and
7 policymakers to try something different. So-called regulatory innovation
8 always has a built in, supportive clientele of likely beneficiaries—an
9 economic eco-system of sorts. But for the regulators, perhaps doing the job
10 they presently have better would be a good start.¹⁹ Emphasis added.

11
12 What may be surprising to learn is that Hyman, the former utility equity analyst, and his
13 colleague think not that utility ROEs have been set too low, but rather that they have been
14 set too high and not just in recent years but in general. They continue.

15 Financial theory tells us that when a company’s stock sells at a price above
16 book value (based on accounting costs), that company is earning more than
17 its cost of capital...Utility law in the U.S. generally calls somewhat
18 ambiguously for regulators to set a "fair" rate of return, which most define
19 today as cost of capital...For most of our recent history, utility stocks have
20 sold at prices far above book value. Successful companies should earn
21 something in excess of their cost of capital, as a precautionary matter. But
22 how much more? And just as important, given long term utility stock price
23 behavior, have regulators become excessively generous at the expense of
24 consumers?²⁰

25
26 **Q. What is your view on Hyman’s criticism?**

27 A. I agree with him and his colleague that there is a problem and that we cannot fix this
28 problem if we do not first fix the framework. And the fix is rather straightforward and need
29 not be done in any special investigation; this is a rate case issue. In these proceedings we

¹⁹ Leonard Hyman and William Tilles, November 27, 2017, The Problem With U.S. Public Utility Regulation, *Oil Price.com*.

²⁰ *Id.*

1 must recognize where finance models are relevant and where they are not. Where they can
2 guide us, we must apply them in ways consistent with fundamental finance principles.

3 In docket 5-EI-158, CUB raised the issue of ROE reform. This testimony, along
4 with that of Mr. Singletary, sets forth our proposal. This will require a fresh look at some
5 ideas and practices that have become automatic or instinctual, referred to in the decision
6 sciences literature as default thinking.

7 **Q. What is the problem with the existing framework?**

8 A. The conventional but mistaken wisdom in regulation is that ROE and cost of equity are
9 either the same concept or that ROEs are numerically equal to costs of equity. The
10 Consumers Power example should have demonstrated that neither is true. The conventional
11 approach assumes that setting the just and reasonable ROE is strictly a financial modeling
12 problem instead of a public policy problem that has both financial and non-financial
13 components. To make matters worse, those finance models are then applied in ways that
14 violate basic notions of corporate finance as I discuss later in this testimony.

15 **Q. How do you propose to remedy this situation?**

16 A. I set forth the proper process, one that has long been suggested by independent observers of
17 utility regulation, which better frames the Commission's determination of a just and
18 reasonable ROE. The ultimate goal of the ROE determination is a balancing of consumer
19 and investor interests. Even financial experts agree that financial models cannot spit out a
20 just and reasonable ROE.

21 **Q. Why do you say that finance experts agree that financial models cannot guide us to the**
22 **proper ROE?**

1 A. MIT finance professor Stewart Myers states in his *Bell Journal of Economics and*
2 *Management Science* article on applying finance theory to public utility rate cases:

3 Finance and economics are not very helpful when the problem of regulation
4 is framed as ‘consumers vs. investors.’²¹
5

6 But that of course is exactly how regulation is framed in the U.S. Supreme Court’s 1942
7 *Federal Power Commission v. Natural Gas Pipeline Co.* case:

8 The requirements of ‘just and reasonable’ embrace among other factors two
9 phases of the public interest: (1) the investor interest; (2) the consumer
10 interest.²²
11

12 Financial analysis can help us address only the first issue, investor interests.

13 . The point is that we can use finance models as inputs to the ROE determination, but
14 if we are relying solely on those models to select the final ROE we are probably doing it
15 incorrectly. Neither the field of finance nor law suggests that the determination of the just
16 and reasonable ROE is a strictly finance problem. Other factors need to be considered to set
17 the ROE appropriately.

18 **Q. How would you describe the general process of setting ROEs in recent decades?**

19 A. Regulators seem overly cautious when setting ROEs, not overtly recognizing that this
20 cautious approach is expensive for utility customers. The regulators’ approach is
21 imbalanced, as Hyman and his colleague suggest, not cautious. When we see that the ROE
22 level does not affect the ability of the utility to raise capital and that maintaining strong bond
23 ratings costs customers more, not less, when paying for capital (see my later testimony), this
24 opens the door for more appropriate balancing of consumer and investor interests when
25 setting the ROE.

²¹ Stewart C. Myers, 1972, The application of finance theory to public utility rate cases, *Bell Journal of Economics and Management Science*, 3(1), p. 80.

²² *FPC v. Natural Gas Pipeline Co.*, 315 U.S. 575 (1942), pp. 606-607.

1 **Q. How should the Commission determine that just and reasonable ROE?**

2 A. In the framework I propose, the cost of equity estimate (investors' required return on utility
3 stocks) that I develop is an input to, not the target for, the just and reasonable book ROE (a
4 different return). Mr. Singletary analyzes Applicants' performance in terms of meeting the
5 needs of their customers. He and I then jointly develop CUB's ROE recommendations for
6 WEPCO and Wisconsin Gas, combining my technical analysis of investor expected/required
7 stock returns and his analysis of Applicants' responsiveness to customers to reach those
8 recommended figures.

9 **VII. CORRECTING MISUNDERSTANDINGS ABOUT CORPORATE FINANCE**

10 **Q. You have discussed the fact that many people in regulation today believe that high**
11 **ROEs attract more capital than low ROEs (they don't) and that the ROE and the cost**
12 **of equity are the same return (they aren't). Why is there so much confusion about**
13 **corporate finance issues in regulation?**

14 A. Most people considering financial issues in regulatory proceedings believe that corporate
15 finance is just common sense. That is a dangerous assumption. As Harvard professor Mihir
16 Desai notes in his book *How Finance Works*: "The central intuitions of finance are
17 slippery."²³

18 Take the seemingly well-established concept that firms should maximize their
19 profits to best represent their investors. Finance principles teach us that such an approach is
20 folly.

21 **Q. Why do you say that?**

²³ Mihir Desai, 2019, *How Finance Works: The HBR Guide to Thinking Smart About the Numbers*, Boston: Harvard Business Review Press, p. 4.

1 A. Brealey, Myers, and Allen, in *Principles of Corporate Finance*, write that profit
2 maximization is not only an imperfect objective, it is also a nonsensical idea: “Profit
3 maximization makes no sense as a corporate objective.”²⁴

4 Those hoping to find support for profit maximization in economics will come up dry
5 there as well. First, the profits that economists refer to, appropriately named economic
6 profits, are measured differently from the way firms report them (firms report accounting
7 profits, not economic profits), so when managers think that economics teaches them to
8 maximize profits they are looking at the wrong measure of profits. In many cases firms
9 report positive accounting profits, but when we calculate economic profits we find that they
10 are negative.

11 And even if we measured them correctly, maximizing that refined version of profits
12 doesn't work. The profit maximizing behavior we all learned about in principles of
13 microeconomics applies under perfect competition, with perfect certainty, for a single
14 period, none of which applies in the real world. Varian wrote, in *Intermediate*
15 *Microeconomics*:

16 If there is uncertainty about a firm's stream of profits, then instructing
17 managers to maximize profits has no meaning.”²⁵

18
19 As strange as it may sound to those not familiar with the fields, pursuing a profit
20 maximization strategy is both nonsensical and meaningless in any real-world setting. It is a
21 failure to understand such counterintuitive aspects of finance and economics that leads to
22 regulatory frameworks that are inconsistent with even the most basic principles in those
23 fields. This is how regulation lost its way.

²⁴ Richard A. Brealey, Stewart C. Myer, and Franklin Allen, 2006, *Principles of Corporate Finance*, New York: McGraw-Hill Irwin, p. 24.

²⁵ Hal Varian, 2014, *Intermediate Microeconomics*, New York: W. W. Norton & Co, p. 366.

1 **Q. If profit maximization is not the objective of an investor-focused firm, what is?**

2 A. We can return to Varian:

3 In a world of uncertainty, maximizing stock market value still has meaning.
4 If the managers of a firm attempt to make the value of the firm shares as
5 large as possible then they make the firms owners—the shareholders—as
6 well off as possible. Thus maximizing stock market value gives a well-
7 defined objective function to the firm in nearly all economic environments.²⁶
8

9 **Q. Can you provide any real-world evidence to support the claim that profit
10 maximization is not consistent with stock price maximization?**

11 A. Yes. This is not just a theoretical position as utility investors know all too well. A Goldman
12 Sachs equity strategist writing in the *Financial Analysts Journal* reported that from 1969 to
13 1987, a period of almost two decades, the stocks of utilities that grew their profits (measured
14 as earnings-per-share) the fastest performed poorly and were in fact significantly
15 outperformed by the stocks of utilities that grew their profits the slowest.²⁷ Since few utility
16 CEOs' tenures last as long as 20 years, it is conceivable that many of those executives
17 heading companies during this period saw their profits rise every year through additional
18 capital investment and at the same time saw their stock prices fail to keep track with those of
19 their slower growing counterparts. This result makes perfect sense if we view it through a
20 financial lens instead of an accounting one.

21 **Q. Are there other common misconceptions manifest in regulation?**

22 A. Yes. Many people believe that a firm's cost of equity is a function of all the risks it faces.
23 Following this logic, if regulators take actions that increase utility risks, investors will

²⁶ *Id.*

²⁷ Robert C. Jones, 1990, Designing factor models for different types of stocks: what's good for the goose ain't always good for the gander, *Financial Analysts Journal*, 46(2), 25-30.

1 demand higher returns on utility stocks. As a general rule that is incorrect. As UCLA
2 finance professor Bradford Cornell states in his text *The Equity Risk Premium*:

3 Despite its fame, this risk return tradeoff is misleading. In fact, it is incorrect,
4 unless risk is precisely and properly defined.²⁸ Emphasis added.

5
6 **Q. How is risk properly defined?**

7 A. The risk that is relevant in this regard is that which investors face, not what the company
8 faces. Both academic and applied finance practitioners stress the point that most risks a
9 company faces do not affect its cost of capital because investors diversify away the effects
10 of most risks by holding stocks in portfolios. As per McKinsey & Co. management
11 consultants:

12 Investors will not demand a higher return for any risks that can be eliminated
13 through diversification. They require compensation only for risks they
14 cannot diversify away. The risks they cannot diversify away are those that
15 affect all companies—for example, exposure to economic cycles. However
16 since most of the risk that companies face are, in fact, diversifiable, most
17 risks don't affect a company's cost of capital.²⁹

18
19 **Q. Can you provide examples of risks that do not affect a company's cost of capital or
20 cost of equity?**

21 A. Yes. The McKinsey experts go on to explain that some of the biggest threats to individual
22 companies, such as technological obsolescence or competition, are never risks that affect the
23 cost of capital because these are about allocation of resources between firms, not about
24 increases or decreases in the size of the economic pie that drives markets broadly.

25 The unique risk that any company faces—say product obsolescence and new
26 competition—are not priced into the cost of capital.³⁰

²⁸ Bradford Cornell, 1999, *The Equity Risk Premium: The Long-Run Future of the Stock Market*, New York: John Wiley & Sons, p. 131.

²⁹ Tim Koller, Marc Goedhart, and David Wessels, 2020, *Valuation: Measuring and Managing the Value of Companies*, Hoboken, NJ: John Wiley & Sons, p. 58.

³⁰ *Id.*, p. 58.

1 **Q. Are the McKinsey consultants suggesting that such risks aren't important to firms?**

2 A. No. Those risks are very important to the firms who face them as they affect the value of
3 their companies' stocks. Those risks just aren't important to institutional investors who hold
4 the stocks of those companies in diversified portfolios because the random events that affect
5 individual firms do not have much effect on the value of those portfolios. The risk of a
6 portfolio can be lower than that of the least risky stock in the portfolio when the stocks are
7 viewed as stand-alone investments. See Ex.-Kihm-CUB-2.

8 When firms compete with each other, gains for some companies offset losses for
9 others. This is happening across the economy, and such reallocation of resources between
10 firms has little effect on the value of diversified investment portfolios. For example, an
11 investor who owns the stocks of both Target and Walmart does not care which of those
12 firms wins the competitive battle between them, although it matters greatly to the managers
13 of those companies, as it should. In contrast when we enter an economic recession, the value
14 of all companies, including both Target and Walmart, declines. Diversification provides no
15 safe haven, and in that case investors need compensation for exposure to that risk. The costs
16 of equity for Target and Walmart therefore depend on their sensitivity to recessions, not on
17 the competition between the two firms. That competition could greatly affect the value of
18 the individual stocks, but it is unlikely to have much of an effect on the value of a well-
19 diversified portfolio. Costs of equity depend on portfolio value, not on changes in the value
20 of the individual stocks.

21 **Q. And this is consistent with the academic finance literature?**

22 A. Yes. Brealey, Myers, and Allen in *Principles of Corporate Finance* state that the biggest
23 risks firms face, the ones that drive their stock prices the most, typically do not affect the

1 companies' costs of equity. They discuss the possibility that an oil company will
2 increasingly drill dry holes or that a pharmaceutical manufacturers blockbuster drug might
3 not get approved by the FDA. Note that these are the only products these firms sell, but
4 these risks will not affect their costs of equity. To say this is poorly understood outside of
5 corporate finance is an understatement.

6 The authors note that corporate executives typically increase their costs of equity for
7 such firm-specific risks by making ex post adjustments to cost of equity estimates, which
8 they call fudge factors. This is not only incorrect; it violates the core principle of modern
9 corporate finance. Those company-specific risks affect the cash flows that the companies are
10 expected to earn (which form the numerator of the stock valuation equation), not their costs
11 of equity (which form the denominator).

12 Managers often add fudge factors to discount rates to offset worries such as
13 these. This sort of adjustment makes us nervous. First, the bad outcomes we
14 cited appeared to reflect unique diversifiable risks that would not affect the
15 expected rate of return demanded by investors. Second the need for a
16 discount rate adjustment usually arises because managers fail to give bad
17 outcomes their due weight in cash flow forecasts. The managers then try to
18 offset that mistake by adding a fudge factor to the discount rate.³¹

19
20 Finance practitioners provide the same advice. Regarding accounting for firm-specific risk
21 factors, the McKinsey consultants recommend: "Create better forecasts, not *ad hoc* risk
22 premiums."³²

23 **Q. How does this relate to this proceeding?**

24 A. If the Commission were to find cost of equity estimates in the 6% to 7% range to be too low
25 because it felt that such returns did not reflect all the risks Applicants faced today, then they
26 would be adding those fudge factors to the figures, thereby overstating the cost of equity.

³¹ Richard, Myers, Allen, *supra*, p. 223.

³² Koller, Goedhart, and Wessels, *supra*, p. 59.

1 The cost of equity is not a catch-all for all risks the firm faces. It reflects only a company's
2 exposure to macroeconomic risks because those are the risk impacts that the institutional
3 investors who determine stock prices cannot diversify away. Those are the only risks that
4 matter to them in terms of developing required returns.

5 As a case in point, the threat of distributed energy resources in the utility sector does
6 not negatively affect Target, the New York Times, Procter & Gamble, and Visa. Then it
7 does not affect the cost of equity for WEC Energy Group either, although its stock price
8 may be reduced substantially by such threats. Again, the cost of equity does not depend on
9 whether a risk factor affects a company's stock price, but whether it affects the value of the
10 portfolio in which that stock is held. This concept has been the backbone of modern
11 corporate finance since the 1950s and has been borne out repeatedly by empirical studies.³³

12 **Q. So investor-focused firms should not maximize profits, most risks don't affect a**
13 **company's cost of equity, and as you showed at the outset the level of a firm's ROE**
14 **does not affect its ability to raise capital. How did we deviate so far from these finance**
15 **principles?**

16 A. Michael Mauboussin, head of consilience research³⁴ at Morgan Stanley, who formerly
17 served as chief equity strategist at Credit Suisse and Legg Mason and as chairman of the
18 board of the Santa Fe Institute,³⁵ has an answer. Rather than probing deeply in investigating
19 these issues, we rely on intuition and default thinking, which he describes in his book *Think*
20 *Twice: Harnessing the Power of Counterintuition:*

³³ Harry Markowitz, 1952, Portfolio selection, *Journal of Finance*, 7(1), 77-91.

³⁴ Consilience is defined as agreement between the approaches to a topic of different academic subjects, especially science and the humanities.

³⁵ From its website, "Founded in 1984, the Santa Fe Institute was the first research institute dedicated to the study of complex adaptive systems."

1 Smart people make poor decisions because they have the same factory
2 settings on their mental software as the rest of us, and that software isn't
3 designed to cope with many of today's problems. So our minds frequently
4 want to see the world one way—the default—while a better way to see the
5 world takes some mental effort... These beliefs prevent clear thinking. To
6 make good decisions, you frequently must think twice—and that's something
7 our minds would rather not do.³⁶
8

9 If we are to get back on track in this regard we need to ignore our instincts and think hard
10 about these critically important finance issues. That is, when setting the ROE we need to
11 think twice.

12 VIII. REGULATORY ROE POLICIES

13 **Q. Returning to the theme of utility ROEs exceeding costs of equity, have others stressed**
14 **this point?**

15 A. Yes. The problem, as pointed out by Alfred Kahn, who not only was an academic but who
16 also chaired the New York Public Service Commission, and many other researchers, is that
17 regulators implicitly treat all utilities as above-average performers in this regard, authorizing
18 ROEs that exceed rational cost of equity estimates. Kahn extends this discussion in *The*
19 *Economics of Regulation*:

20 Merely permitting all regulated companies as a matter of course to earn rates
21 of return in excess of the cost of capital does not supply the answer; there has
22 to be some means of seeing to it that those supernormal returns are *earned*,
23 some means, for example, of identifying the companies that have been
24 unusually enterprising or efficient and offering the higher profits to them
25 while denying them to others.³⁷ (Emphasis in original.)
26

27 Returns above the cost of equity are not about compensating investors for risk—the cost of
28 equity (investors' required return) completely addresses the risks investors face. The

³⁶ Michael Mauboussin, 2013, *Think Twice: Harnessing the Power of Counterintuition*, Boston, MA: Harvard Business Review Press, p. xv.

³⁷ Alfred Kahn, *supra*, p. 54.

1 magnitude of the return on equity premium above the cost of equity depends on how well
2 Applicants treat their customers.

3 **Q. How can we tell that utility ROEs have exceeded costs of equity (investor required**
4 **returns)?**

5 A. As Professor Damodaran explains, the relationship between a utility's stock price and its
6 book value tells us about the relationship between its ROE and its cost of equity.

7 The price-book value ratio of a stable firm is determined by the differential
8 between the return on equity and its cost of equity. If the return on equity
9 exceeds the cost of equity, the price will exceed the book value of equity; If
10 the return on equity is lower than the cost of equity, the price will be lower
11 than the book value of equity.³⁸
12

13 The only time there is parity between the ROE and the cost of equity is when there is parity
14 between the stock price and the book value. The power of this method is that both the stock
15 price and the book value are directly observable.

16 **Q. Have any regulators used the differences between stock prices and book values to**
17 **emphasize the distinction between ROEs and costs of equity?**

18 A. Yes. As the Federal Energy Regulatory Commission (FERC) explains, unless stocks happen
19 to be priced exactly at book value, ROEs will not be proxies for the cost of equity because
20 that latter figure represents returns investors could expect to capture only when they buy
21 marketable securities.

22 Investors cannot invest in an enterprise at book value and must instead pay
23 the prevailing market price for an enterprise's equity...the expected return
24 on a utility's book value [ROE] does not reflect 'returns on investments in
25 other enterprises' because book value does not reflect the value of any
26 investment that is available to an investor in the market, outside of the
27 unlikely situation in which market value and book value are exactly equal.³⁹
28

³⁸ Aswath Damodaran, 2012, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, Hoboken NJ: John Wiley & Sons, p. 515.

³⁹ Federal Energy Regulatory Commission, March 17, 2022, Decision in Docket No. ER16-2320-002, pp. 112-113.

1 **Q. What is the FERC getting at here?**

2 A. This is a critically important point. The only time ROEs reflect investor return requirements
3 is when utility stock prices are equal to book value, a situation that has not occurred in the
4 utility industry for decades. This is one of the reasons researchers suggest that in recent
5 decades utility ROEs have exceeded investor return requirements. We need look no further
6 than utility stock prices relative to their book values, both of which are directly observable.
7 The last time utility stocks as a whole traded at or below book value was during the Reagan
8 administration. Therefore any reference to ROEs as representing returns investors require is
9 invalid.

10 This means models that develop ROE estimates based on prior ROE decisions, such
11 as the risk premium model prevalent in regulation, do not tell us anything about the returns
12 investors require. They simply tell us what the ROEs have been, which is a circular piece of
13 evidence. If we're trying to understand investor return requirements, and we want to test the
14 reasonableness of prior ROE decisions, we need market data, not book returns.

15 **Q. What other evidence do you offer that regulators have systematically set ROEs in
16 excess of investors' required returns?**

17 A. In addition to decades of evidence showing utility stock prices in excess of book value,
18 numerous studies have reported that result. In discussing those studies, let me lead off with
19 one particularly comprehensive review conducted by David Rode and Paul Fischbeck of
20 Carnegie Mellon University. After studying four decades of authorized return decisions,
21 they concluded:

22 Based on a database of U.S. electric utility rate cases spanning nearly four
23 decades, the returns on equity [ROEs] authorized by regulators have
24 exhibited a large and growing premium over the riskless rate of return. This
25 growing premium does not appear to be explained by traditional asset-pricing

1 models, often in direct contrast to regulators' stated intent. We suggest
2 possible alternative explanations drawn from finance, public policy, public
3 choice, and the behavioral economics literature. However, absent some
4 normative justification for this premium, it would appear that regulators are
5 authorizing excessive returns on equity to utility investors and that these
6 excess returns translate into tangible profits for utility firms.⁴⁰
7

8 The key points to note in the preceding quote is that the researchers find that regulators are
9 not only authorizing excessive returns but also denying that the returns are excessive. When
10 the researchers apply finance principles, they find that there is a fundamental disconnect
11 between what regulators are saying and what they're actually doing.

12 In the end, we may observe simply that what regulators should do, what
13 regulators say they're doing, and what regulators actually do may be three
14 very different things.⁴¹ (Emphasis in original.)
15

16 **Q. Do you have an estimate of how much these excess returns cost utility consumers every**
17 **year?**

18 A. Yes. University of California-Berkeley researchers found similar systemic deviations
19 between authorized ROEs and the returns utility investors required. They also estimated the
20 impact on consumers.

21 We estimate that the current average return on equity is 0.5–4.0 percentage
22 points higher than historical relationships would suggest, and consumers pay
23 an average of \$2–8 billion per year more than they would otherwise.⁴²
24

25 This is far from an esoteric or trivial matter, and it requires close attention by the Commission.
26 If we are going to move to performance-based regulation in earnest, we must first fix this
27 chronic problem.

28 **Q. Have other researchers reached a similar conclusion?**

⁴⁰ David C. Rode and Paul S. Fischbeck, 2019, Regulated equity returns: A puzzle, *Energy Policy*, 133, p. 1.

⁴¹ *Id.*, p. 16.

⁴² Karl W. Dunkle Werner, 2021, Essays on Energy and Environmental Economics, Doctoral Dissertation, University of California-Berkeley. <https://escholarship.org/uc/item/8qr72677>.

1 A. Yes, MIT finance professor Stewart Myers and Lynda Borucki, writing in *Financial*
2 *Markets, Institutions and Investments*, reported their conclusion based on a review of a
3 regulator's use of finance principles and models to set ROEs:

4 There is no way to square these numbers with the standard view of the
5 objectives of rate of return regulation. Regulators are supposed to set
6 allowed returns equal to the cost of capital, perhaps with a regulatory lag to
7 give incentives for cost reduction, better management, etc. But this does not
8 allow an expectation of long-run profitability exceeding the cost of equity or
9 market-to-book ratios substantially above one for virtually all utilities.⁴³
10 Emphasis added.

11
12 **Q. Any others?**

13 A. Yes. Alfred Kahn writing in *The Economics of Regulation* raised similar concerns, this time
14 about internal inconsistencies in regulatory financial policies:

15 It [standard regulatory policy] assumes at one and the same time that the
16 Commission allows returns on equity (r) in excess of and equal to the cost of
17 capital (k).⁴⁴ (Emphasis added.)

18
19 **Q. Why does Kahn state that regulators assume that the ROE is both equal to and at the**
20 **same time greater than the cost of equity?**

21 A. Most regulatory decisions state that the ROE is being set at the cost of equity. If that is true,
22 however, then utilities cannot create value for their investors by investing capital. To create
23 such value the ROE must exceed the cost of equity. This is the problem utilities faced in the
24 1969 to 1987 period over which in many years the ROEs earned were lower than their costs
25 of equity (see Consumers Power case) so investing capital did not push their stock prices
26 higher.

⁴³ Stewart C. Myers and Lynda S. Borucki, 1994, Discounted cash flow estimates of the cost of equity capital, *Financial Markets, Institutions and Investments*.

⁴⁴ Kahn, *supra*, p. 50.

1 But in the past three decades or so everyone in the industry believes that investing
2 capital creates value for investors, and that appears to be the case. That means that ROEs
3 exceed the cost of equity. But regulators typically reject that assertion.

4 So which is it? ROEs are set equal to the cost of equity and therefore there is no
5 incentive for utilities to invest capital, or ROEs are set in excess of the cost of equity
6 creating an incentive to invest. We must pick one of these two possibilities. It is clear that it
7 is the latter which then leads us to the next topic. Estimating the cost of equity. Given
8 everything I've said so far, to be rational and consistent with finance principles, cost of
9 equity estimates must be hundreds of basis points lower than recently authorized ROEs.
10 They are.

11 IX. COST OF EQUITY ESTIMATES

12 **Q. Do you estimate costs of equity for Applicants?**

13 A. Yes.

14 **Q. How do you describe your approach?**

15 A. I prefer to get a general sense of the location of the cost of equity rather than a precise
16 estimate. Precision should not be confused with accuracy. I concur with Justice Stephen
17 Breyer who in his book *Regulation and Its Reform* states:

18 To spend hours of hearing time considering elaborate rate-of-return models
19 is of doubtful value, and suggestions of a proper rate, carried out to several
20 decimal places, gives an air of precision that must be false.⁴⁵
21

⁴⁵ Stephen Breyer, 1982, *Regulation and Its Reform*, Boston: Cambridge, MA: Harvard University Press, p. 47.

1 It is more precise, but not more accurate, to say that the cost of equity lies between 6.32%
2 and 7.51% than it is to say that the cost of equity is somewhere in the neighborhood of 6%
3 to 7%.

4 **Q. Before you proceed to your estimates, do finance experts find utility ROEs exceeding**
5 **costs of equity?**

6 A. Yes. Those who are in the business of valuing utility stocks treat the ROE and the cost of
7 equity as distinct returns because that is the only way we can explain utility stock prices
8 trading well above book value. Consider investment advisory service Morningstar's analysis
9 of WEC Energy Group's stock.

10 In Wisconsin, the company enjoys rates based on two-year forward test years
11 and an earnings-sharing mechanism over its allowed return on equity. Its
12 average allowed ROE tops 10% at the company's subsidiaries in the state
13 and is consistently above peers'...In our discounted cash flow valuation, we
14 use a 6.1% cost of capital based on a 7.5% cost of equity.⁴⁶ (Emphasis
15 added.)

16
17 The distinction between ROE and cost of equity could not be clearer.

18 Note that Morningstar has substantial gravitas in the financial community. The
19 Financial Industry Regulatory Authority (FINRA), the industry's self-regulating agency,
20 selected Morningstar to be the organization's official investment data source.⁴⁷

21 **Q. Do other financial experts suggest that utility costs of equity are well below Applicants'**
22 **ROEs?**

23 A. Yes. To launch this analysis, I gathered reported cost of equity estimates for the broad
24 market from McKinsey & Co., the largest management consulting firm in the world, Kroll
25 (formerly Duff & Phelps), the largest investment valuation firm in the world, and

⁴⁶ Andrew Bischof, May 4, 2022, *WEC Energy Group Stock Analysis*, Chicago, IL: Morningstar.

⁴⁷ George Smaragdis and Alexa Auerbach. July 1, 2013. FINRA Selects Morningstar for Re-Launch of Market Data Center.

1 BlackRock, the largest asset manager in the world. I also have gathered information from
 2 the Wells Fargo Investment Institute and Professor Damodaran. Morningstar also reports a
 3 cost of equity for the broad market in the report on WEC Energy Group. See the table
 4 below. Since utility stocks contribute less volatility to investment portfolios than does the
 5 typical S&P 500 company, these cost of equity estimates for stocks in general overstate the
 6 cost of equity for utilities.

7 **Broad Market Cost of Equity Estimates From Outside Experts**

Entity	S&P 500 Cost of Equity Estimate
McKinsey & Co ⁴⁸	9.2%
Kroll ⁴⁹	9.0%
Morningstar ⁵⁰	9.0%
Damodaran (NYU) ⁵¹	8.6%
Wells Fargo ⁵²	8.3%
BlackRock ⁵³	7.5%

8
 9 **Q. Did you prepare your own estimate of the S&P 500 cost of equity?**

⁴⁸ The McKinsey model is based on its study of forward-looking cost of equity estimates. The model uses an estimate of the long-run inflation rate as the base and adds 7.0 percentage points to obtain the S&P 500 cost of equity estimate. See Marc Goedhart, Tim Koller, and Zane D. Williams, October 1, 2002, The real cost of equity, *McKinsey on Finance*, <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-real-cost-of-equity>. The analysis was completed on July 15, 2022. At that time the yield on the 30-year U.S. conventional Treasury bond was 3.10% and the yield on the inflation-adjusted 30-year Treasury bond was 0.86%, yielding a net difference of 2.2%, which is an estimate of the market's long-run inflation expectation. The cost of equity for the S&P 500 is then 2.2% + 7.0% = 9.2%.

⁴⁹ Kroll reports a normalized yield on the 20-years U.S. Treasury and an equity risk premium relative to that yield. <https://www.kroll.com/en/insights/publications/cost-of-capital/recommended-us-equity-risk-premium-and-corresponding-risk-free-rates>.

⁵⁰ Bischof, *supra*.

⁵¹ Damodaran estimates the equity risk premium relative to the 10-year U.S. Treasury bond based on five different approaches for July 2022: (1) trailing 12-month adjusted payout, ERP = 5.69%; (2) trailing 12-month cash yield, ERP = 6.01%, (3) average cash flow yield last 10 years, ERP = 5.90%; (4) net cash yield, ERP = 5.66%; and (5) normalized earnings and payout, ERP = 4.27%. The median ERP is then 5.69%. The yield on the 10-year Treasury note on July 15, 2022 was 2.93%. The cost of equity for the S&P 500 is then: 2.93% + 5.69% = 8.62%. Source: <https://pages.stern.nyu.edu/~adamodar/>.

⁵² Wells Fargo reports expected market returns for the next 10 to 15 years. It builds its expected long-term return on equity using the inflation rate, a cash discount, the equity risk premium, the dividend yield, and qualitative adjustments. Wells Fargo Investment Institute, 2022, *2022 Capital Market Assumptions: The Building Block Approach*.

⁵³ BlackRock reports its estimate directly. It labels the estimate "U.S. equities." This is the 30-year projection. https://www.blackrock.com/institutions/en-axj/insights/capital-market-assumptions_AXJ. Their method is based on Yan Li, David T. Ng, Bhaskaran Swaminathan, 2013, Predicting market returns using aggregate implied cost of capital, *Journal of Financial Economics*, 110, 419-436.

1 A. Yes. I relied on a cash yield based discounted cash flow (DCF) model with long-run
2 sustainable growth equal to nominal GDP, one set forth in the literature.⁵⁴ The cash yield
3 considers all cash flows to investors. That includes dividend payments, which go to all of a
4 firm's investors, and stock repurchases, which go to those who choose to sell their stock
5 back to the company (the latter is typically not a factor when using this model to estimate
6 costs of equity for utilities because they rarely repurchase their stocks). As the level of stock
7 repurchases for the typical non-utility company grew to match and then eventually exceeded
8 dividend payments, ignoring repurchases tended to significantly understate the cash flows to
9 investors, in turn resulting in underestimates of the cost of equity. The cash yield approach is
10 now commonly applied in estimating that investor-required return for the broad market.⁵⁵

11
$$\text{cost of equity (market)} = \frac{\text{dividends}}{\text{stock price}} + \frac{\text{stock repurchases}}{\text{stock price}} + \text{real GDP growth} + \text{inflation rate}$$

12 All financial data I use is as of July 15, 2022.⁵⁶ The current dividend yield on the S&P 500
13 is 1.7%. Damodaran reports that in the 21st century stock repurchases have been 1.4 times as
14 large as dividends.⁵⁷ Assuming that relationship holds in the future, the repurchase yield is
15 then 1.7% X 1.4 = 2.4%. The inflation rate is that derived from the difference between the
16 30-year conventional Treasury bond yield (3.1%) and the yield on the 30-year inflation-
17 adjusted Treasury bond (0.9%), which produces an inflation estimate of 2.2%. Finally, the
18 Organization for Economic Cooperation and Development (OECD) predicts long-run real

⁵⁴ John L. Maginn, Donald L. Tuttle, Jerald E. Pinto, Dennis W. Mcleavy, 2007, *Managing Investment Portfolios: A Dynamic Approach*, Hoboken, NJ: John Wiley & Sons.

⁵⁵ Aswath Damodaran, 2022, Equity Risk Premiums (ERP): Determinants, Estimation, and Implications – The 2022 Edition, <https://pages.stern.nyu.edu/~adamodar/pdfiles/papers/ERP2022Formatted.pdf>

⁵⁶ It is common in regulation to average historical data to estimate model inputs. This too is bad practice. While it smooths input parameters, it actually makes them less accurate. All of the information in the prior prices is impounded in the current price, so to average historical prices double counts. See Steven G. Kihm, February 1, 1996, The superiority of spot yields in estimating cost of capital, *Fortnightly Magazine*.

⁵⁷ Damodaran online <https://pages.stern.nyu.edu/~adamodar/>

1 GDP growth of 1.6% for the U.S. out to the year 2060.⁵⁸ I round this to 2%. The rate of
 2 GDP growth matches almost exactly the rate of growth in S&P 500 earnings per share over
 3 the long run, which is the growth component of this discounted cash flow model. We now
 4 have all the components:

$$\text{cost of equity (market)} = 1.7\% + 2.4\% + 2.0\% + 2.2\% = 8.3\%$$

6 My estimate is in the neighborhood of those reported by the other organizations.

7 **Broad Market Cost of Equity Estimates From Outside Experts**
 8 **and the Citizens Utility Board**
 9

Entity	S&P 500 Cost of Equity Estimate
McKinsey & Co	9.2%
Kroll	9.0%
Morningstar	9.0%
Damodaran (NYU)	8.6%
CUB (Kihm)	8.3%
Wells Fargo	8.3%
BlackRock	7.5%
MEDIAN	8.6%

10
 11 **Q. Did Ms. Bulkley prepare an estimate of the cost of equity for the S&P 500?**

12 **A.** Yes. I have added her estimate to the table but do not consider it to be a reasonable estimate
 13 due to its extreme nature.⁵⁹

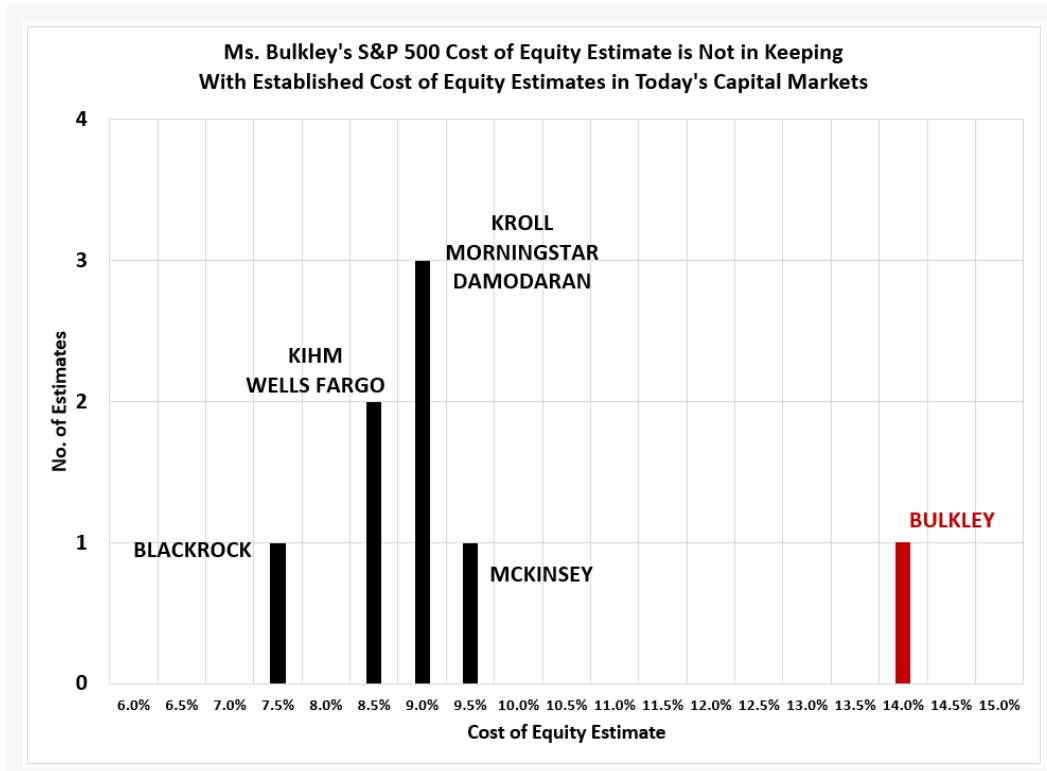
14 **Broad Market Cost of Equity Estimates From Outside Experts,**
 15 **the Citizens Utility Board, and Applicants**
 16

Entity	S&P 500 Cost of Equity Estimate
Applicants (Bulkley)	14.1%
McKinsey & Co	9.2%
Kroll	9.0%
Morningstar	9.0%
Damodaran (NYU)	8.6%
CUB (Kihm)	8.3%
Wells Fargo	8.3%
BlackRock	7.5%

⁵⁸ https://www.oecd-ilibrary.org/economics/data/oecd-economic-outlook-statistics-and-projections/long-term-baseline-projections-no-109-edition-2021_cbdb49e6-en

⁵⁹ If I did include her estimate, the median S&P 500 cost of equity estimate would only be slightly higher at 8.8%.

1 The gap between Ms. Bulkley's estimate and those of the other experts is even more
2 obvious when presented in visual form. See the figure below.



3

4 **Q. Do you have any comments on Ms. Bulkley's estimate?**

5 A. Yes. Clearly Ms. Bulkley is looking at a different world than the capital markets that
6 McKinsey and Co., Kroll, Morningstar, Damodaran, Wells Fargo, BlackRock, and I see.
7 The discrepancies within the group that I'm in are about reasonable people disagreeing on
8 details. But the gap between the estimates of the group I am in and Ms. Bulkley's estimate is
9 far too wide to include her in that group. Her estimate, over nine standard deviations higher
10 than the mean estimate of my group,⁶⁰ is an outlier. I have applied modern corporate
11 finance techniques to estimate the cost of equity for the S&P 500. It is not surprising then

⁶⁰ The mean and standard deviation of the estimates are 8.56% and 0.59%, respectively. Ms. Bulkley's estimate is 5.54 percentage points above that mean estimate: $5.54\%/0.59\% = 9.47$.

1 that well-established market participants, whose only incentive in this context is to be
2 accurate, arrive at similar estimates.

3 **Q. Why is Ms. Bulkley’s estimate so much higher than those of the other experts?**

4 A. We can attribute this to essentially one factor: she uses sell-side stock analyst growth rates
5 as long-run projections. Bulkley Direct at pp. 37 and 42. Unlike the equity strategists, who
6 strive to be accurate when estimating expected stock returns, sell-side analysts have strong
7 incentives to be overly optimistic. Finance principles argue strongly against using analysts’
8 forecasts as long-run projections in any financial analysis. First we return to Harvard finance
9 professor Mihir Desai in *How Finance Works*:

10 The incentives for the people at the center of the capital markets are
11 considerably more complicated than you might hope. It would be wonderful
12 if the only incentive for analysts was to work hard and do their job.
13 Unfortunately, that’s not the case—they tend to be positively biased and
14 some ‘herd’ by copying other analysts while others say extreme things.⁶¹

15
16 None of those descriptors should give us any confidence in the analyst growth forecasts. If
17 we needed a forecast for something that was critically important in our personal lives, would
18 we rely on experts who are overly optimistic and who tend to say the same thing rather than
19 providing independent information (except for the occasional iconoclast who says
20 something extremely different from anyone else)? Of course not. Yet in situations involving
21 hundreds of millions of dollars (many billions across the industry) of utility customers’
22 money, regulators do that all the time when they rely on cost of equity forecasts developed
23 using stock analyst growth rates as long-term projections. Even stock analysts themselves
24 don’t actually believe that these forecasts can be achieved in the long run.

25 **Q. Why do you say that?**

⁶¹ Desai, *supra*, p. 100.

1 A. Leonard Hyman, our former utility equity analyst at Merrill Lynch, wrote the following in
2 his *Energy Law Journal* article:

3 Simply put, do not build into expectations stock prices that grow faster than
4 the economy; do not bank on an additional revaluation of earnings; put a
5 lower valuation on reinvested earnings because corporations reinvest badly;
6 and do not believe Wall Street's optimistic estimates.⁶² (Emphasis added.)
7

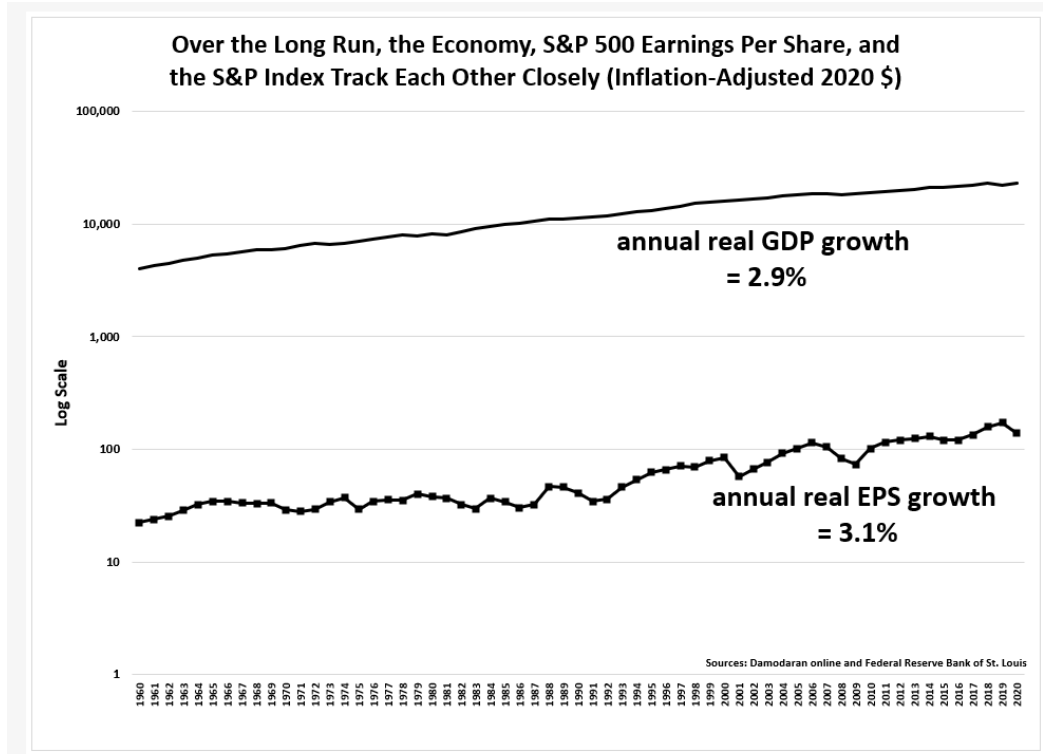
8 In some ways the criticism of the analysts is not quite fair because they do not suggest that
9 these are truly long-term forecasts but rather ones that apply over the next three to five
10 years. So there actually are no truly long-term forecasts coming from Wall Street, and the
11 ones that are labeled as such are far too high to apply to the indefinite future, which is what
12 is required when we estimate the cost of equity.

13 Either Ms. Bulkley is right about this or the rest of us are right. We can't both be
14 coming up with reasonable estimates. I stand by my estimate because it is developed using
15 finance principles and it matches the data.

16 **Q. Why do you say your estimate matches the data?**

17 A. The key issue is whether the long-run growth rate in earnings for the S&P 500 matches the
18 GDP growth rate (spoiler: it does) or is three times faster than the GDP growth rate, which is
19 what the stock analysts' 12% growth rate, which Ms. Bulkley uses, implies. Again, the
20 following image, like the table and figure above, speaks for itself. This is economic reality.

⁶² Leonard Hyman, 2003, Investing in the Plain Vanilla Utility, *Energy Law Journal*, 24(1), p. 4.



1

2 **Q. Is there another reason why her estimate is so high?**

3 A. Yes. She is trying to use a cost of equity model to estimate a different return.

4 **Q. What return is she trying to estimate?**

5 The ROE. She even labels her models “DCF ROE Model” and “CAPM ROE Model.” See
6 Bulkley Direct at p. 5. We can refer back to the Solomon article.

7 Unfortunately, two altogether distinct units are employed for measuring rate
8 of return: (1) book rate units [ROE] and (2) discounted cash flow units [cost
9 of equity]. Rarely will the two produce the same result, and the use of one
10 measure as a surrogate for the other may prove highly misleading.⁶³

11
12 Following Solomon's lead we must ask what these financial models measure. The DCF
13 model and the CAPM measure costs of equity, not ROEs. There are no ROE models in
14 finance because ROE is an accounting variable, not a finance metric.

15 **Q. Do you have any other comments on this issue?**

⁶³ Solomon, *supra*, p. 121.

1 A. Yes. Proper use of cost of equity models requires respecting natural limits to growth. As
2 professor Damodaran says in *Applied Corporate Finance*, relying on stock analyst growth
3 rates as the most important input in a financial analysis, that is as the long-term growth
4 projection, “is not prudent.”⁶⁴ The reason independent researchers are so critical of
5 regulation and its financial policies is that models using sell-side stock analyst growth rates
6 as long-run projections are commonly accepted in regulation as being reasonable. There is
7 no basis of support for that approach.

8 **Q. Do investors use those projections?**

9 A. They do not use the analysts’ growth rate estimates as reported, if they use them at all.
10 When developing long-run growth projections, investors remove the predictable forecast
11 errors from the analysts’ estimates before using them in valuation analyses. It is interesting
12 to note that analysts’ forecast errors are so systematic and consistently biased that they are
13 predictable.

14 We show that removing predictable errors from analyst forecasts leads to a
15 much stronger association between implied cost of equity estimates obtained
16 from adjusted forecasts and realized returns after controlling for cash flow
17 news and discount rate news...Future research using implied cost of equity
18 should remove predictable errors from implied cost of capital estimates.⁶⁵
19 Emphasis added.

20
21 The investors who dominate the trading in utility stocks are smart.⁶⁶ If they have had a
22 single course in finance or have worked in finance for a month or more they know that sell-
23 side stock analyst growth rates are highly unreliable and systematically biased to the high

⁶⁴ Aswath Damodaran, 2011, *Applied Corporate Finance*, Hoboken, NJ: John Wiley & Sons, p. 606.

⁶⁵ Partha Mohanram and Dan Gode, 2013, Removing predictable analyst forecast errors to improve implied cost of equity estimates, *Review of Accounting Studies*, 18, p. 443.

⁶⁶ We should assume that the investors who trade in volumes large enough to affect stock prices are diversified institutional investors. See Aswath Damodaran, 2011, *Applied Corporate Finance*, Hoboken, NJ: John Wiley & Sons.

1 side. Even many non-finance professionals know that. Desai's book quoted above is used to
2 teach finance to non-finance majors at Harvard.

3 **Q. Can you convert these S&P 500 cost of equity estimates to utility cost of equity**
4 **estimates?**

5 A. Yes, I can do so using the capital asset pricing model (CAPM), which I used in the
6 Consumers Power analysis.

$$7 \quad \text{Utility Cost of Equity} = \text{Treasury Yield} + \text{Beta}(\text{S\&P 500 Cost of Equity} - \text{Treasury Yield})$$

8 I used the current yield on the 10-year treasury note as the risk-free rate, and I applied a
9 utility stock beta of 0.75, a choice I discuss in a moment. For the S&P 500 cost of equity
10 figure, I use the median estimate of 8.6% based on the estimates developed by McKinsey
11 and Co., Kroll, Morningstar, Damodaran, Wells Fargo, BlackRock, and me.

$$12 \quad \text{Utility Cost of Equity} = 2.9\% + 0.75(8.6\% - 2.9\%) = 7.2\%$$

13 This is quite close to the 7.5% utility cost of equity estimate reported by Morningstar. We
14 now have additional evidence from reputable sources that Applicants' ROEs are hundreds of
15 basis points higher than the returns their investors require.

16 **Q. Ms. Bulkley suggests that forecasts of future interest rates should be used when**
17 **determining Applicants' ROEs. Do you agree?**

18 A. In principle yes, but we disagree on what that means. Professional forecasts of interest rates
19 are not useful in this regard.

20 **Q. Why do you say that professional forecasts of interest rates are not useful in predicting**
21 **the future direction of those rates?**

22 A. The research shows unequivocally that professional interest rate forecasts are much less
23 accurate than using the spot yield (current interest rate), referred to as the random walk
24 model. Financial markets look forward, and they do the heavy lifting for all of us in

1 forecasting the future—in other words they can see the future much more clearly than any of
2 us will ever be able to. The optimal forecast of future long-term interest rates is embedded in
3 the current rate. The market yield settles in at a point where there is a 50% chance that rates
4 will increase and a 50% chance that they will decrease. To use something else will only
5 make the forecast less accurate. The evidence overwhelmingly supports that assertion.

6 **Q. What evidence do you have suggesting that the experts are so inaccurate?**

7 A. Ex.-Kihm-CUB-1 is a study that my colleague Mikhaila Calice and I prepared for the
8 Hawaii Public Utilities Commission in 2019 and recently updated. It contains extensive
9 evidence as to why the professional forecasts should be avoided at all costs if accuracy is of
10 concern. I will present some of the highlights directly in the testimony as well.

11 **Q. Please describe the evidence.**

12 A. The research on interest rate forecasting in the last two decades of the 20th century shows
13 that the consensus professional interest rate forecast reported in the *Wall Street Journal*
14 predicted the direction of interest rate changes correctly only one third of the time, meaning
15 that the professionals could not even beat a coin flip. Some researchers writing in the
16 *Journal of Portfolio Management* suggested that the professionals' forecast contraindicate
17 the direction that interest rates are headed,⁶⁷ meaning that if the professionals predict that
18 they will rise there is a greater than 50% chance that they will fall.

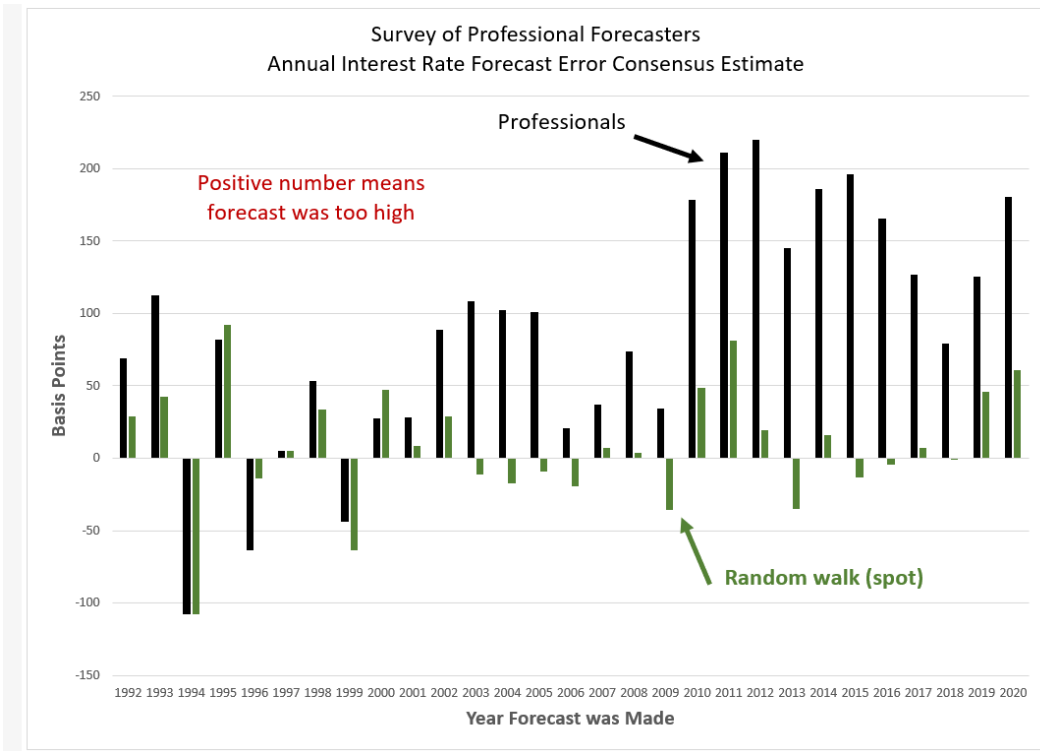
19 And the professionals' forecasting accuracy has, if anything, gotten worse in the 21st
20 century. Using data from the *Survey of Professional Forecasters*, from the year 2001 to
21 2021 the consensus forecast of the professionals was too high every year, that is, 20 years in

⁶⁷ Robert Brooks and J. Brian Gray, 2004, History of the forecasters, *Journal of Portfolio Management*, 3(1), 113-117.

1 a row. It sounds like I am being facetious here, but I am not. One would have to be trying to
2 be so inaccurate to make the same directional error 20 years in a row.

3 This is equivalent to flipping a coin and having it come up heads 20 times in a row.
4 What is likely occurring is a cognitive bias referred to as escalation of commitment.⁶⁸ That
5 is, rather than accepting that they are wrong and making an adjustment, the highly-paid,
6 highly-trained experts essentially double down on their previous bets, in this case hoping
7 that the market will finally see the world as they do. But as I've said several times, the
8 market is smarter than the experts.

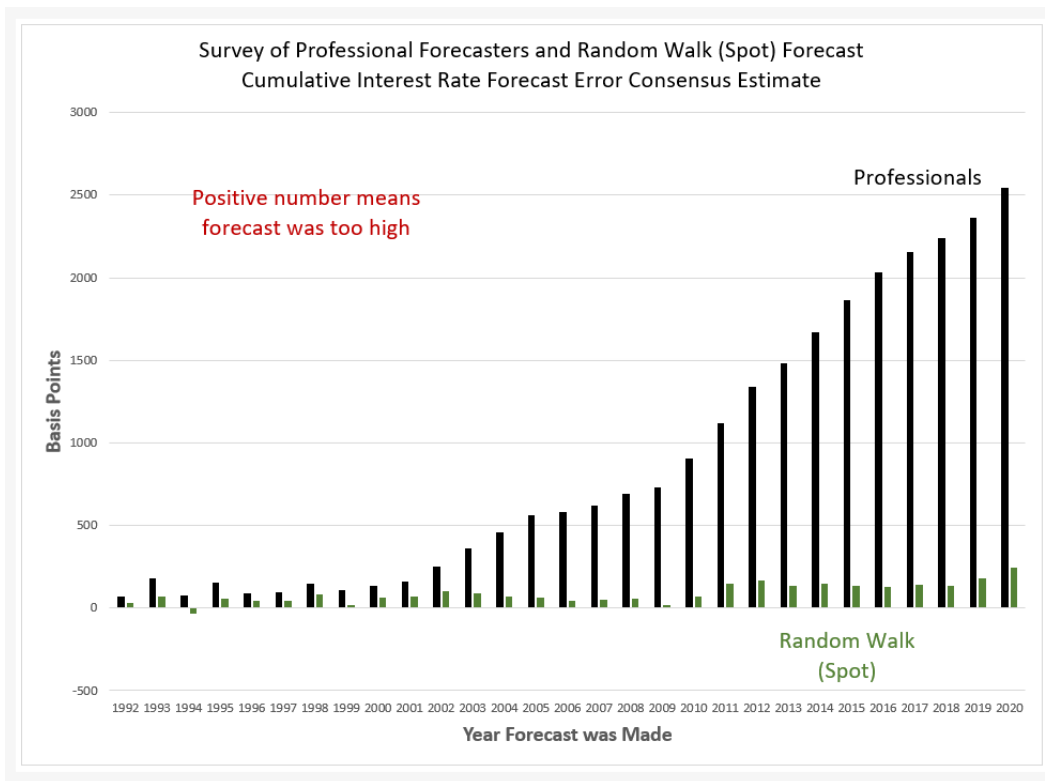
9 The following figure shows the forecast errors for the professionals over the past 28
10 years.



11

⁶⁸ Yu-En Lin, Whei-May Fan, and Hsiang-Hsuan Chih, 2014, Throwing good money after bad? The impact of the escalation of commitment of mutual fund managers on fund performance, *Journal of Behavioral Finance*, 15(1), 1-15.

1 We see that for the professionals, the black bars, starting in the year 2000, all lie in positive
2 territory, which means the forecast was always too high. The impacts of repeated errors in
3 the same direction build cumulatively over time. In contrast, the green bars, which are the
4 errors of the random walk model, oscillate between being too high and being too low. Over
5 time the influence of those errors will tend to cancel out. The cumulative errors of the two
6 forecast types are shown in the second chart. The consequences of failing to trust the market
7 in this regard led to massive cumulative errors.



8

9 **Q. What are the implications of this evidence for this proceeding?**

10 A. Most people intuitively believe that professionals must be fairly accurate at forecasting
11 interest rates. The only way we would know that they are not is to look at the literature or
12 analyze the data. The professionals themselves are not going to tell us. In fact, they
13 explicitly fail to accept responsibility for their errors. The evidence is that they have been

1 worse than a coin flip in terms of forecast accuracy for four decades. If we were making a
2 personal decision, would we ever rely on an expert that had been wrong for an entire career?

3 Nevertheless, in a classic example of motivated reasoning referred to as self-
4 attribution bias (“if I’m accurate that’s because I’m smart, but if I’m inaccurate that’s not my
5 fault”), we will hear phrases such as “nobody could have seen that coming” when the
6 professionals are forced to confront their forecast accuracy (inaccuracy).⁶⁹ But that they
7 couldn’t see things coming is actually the point. The future is uncertain. Don’t try to forecast
8 it better than the market. Professionals have not accurately forecasted interest rates for
9 decades. Why should we trust their forecasts now?

10 **Q. What makes for a good forecasting panel?**

11 A. The evidence on forecasting accuracy in general is that it is not in-depth knowledge of a
12 field that is important, but rather it is the need to have a large number of people with diverse
13 backgrounds.⁷⁰ The professional economist group fails on both fronts. The groups that
14 report their forecasts typically range in number from 50 to 100 people, which is far too
15 small—imagine how many more people are buying and selling bonds. And the professionals
16 all have essentially the same training, another shortcoming. That is a prescription for
17 inaccurate forecasts, and that’s exactly what we get.

18 **Q. What are the implications of regulators’ use of professional forecasts of interest rates**
19 **when setting ROEs?**

20 A. The tendency of regulators to use forecasted interest rates has cost consumers dearly
21 because in a cumulative sense the difference between the errors in the professionals’

⁶⁹ Philip Tetlock and Dan Gardner, 2015, *Superforecasting: The Art and Science of Prediction*, New York: Crown Publishers.

⁷⁰ James Surowiecki, 2005, *The Wisdom of Crowds*, New York: Anchor Books.

1 forecasts and the error using the market rate is over 2,000 basis points. Interest rate forecasts
2 that are too high in turn lead to ROEs that are too high, and utility customers pay those
3 ROEs.

4 **Q. Should the Commission then ignore the professional forecasts of interest rates?**

5 A. There are few absolutes in intellectual space, but there is one here, and it is one that anyone
6 who studied corporate finance knows.⁷¹ In fact, Mitchell and Pearce writing in the *Journal*
7 *of Macroeconomics* state that economists are trained never to let anyone see their interest
8 rate forecasts unless they want to be embarrassed by their inaccuracy: “Economists are
9 warned in graduate school to avoid making forecasts that can readily be evaluated.”⁷²

10 Researchers find that economists can forecast with some accuracy over short
11 horizons variables other than long-term interest rates, for example, new housing starts and
12 unemployment rates—items that are not traded in markets. In its self-evaluation of the
13 accuracy of its *Survey of Professional Forecasters*, the Federal Reserve Bank of
14 Philadelphia found economists can provide useful information about future levels for some
15 economic variables, but then only for the next quarter, but they have no predictive ability
16 over any period for long term interest rates, the item of interest here.

17 The survey’s projections easily outperform no-change forecasts for all
18 variables except long-term interest rates.⁷³ (Emphasis added.)

19 The no-change forecast is that which emerges from the random walk model.

21 **Q. Are you a member of the Philadelphia Fed’s macroeconomic forecasting panel?**

⁷¹ William Reichenstein, 2006, Rationality of Naive Forecasts of Long-Term Rates, *The Journal of Portfolio Management*.

⁷² Karlyn Mitchell and Douglas K. Pearce, 2007, Professional forecasts of interest rates and exchange rates: Evidence from the *Wall Street Journal’s* panel of economists, *Journal of Macroeconomics*, 29, p. 840.

⁷³ Tom Stark, 2010, *Realistic Evaluation of Real-Time Forecasts in the Survey of Professional Forecasters*, Philadelphia: Federal Reserve Bank of Philadelphia, p. 2.

1 A. Yes.

2 **Q. In that role, do you develop independent forecasts of long-term interest rates?**

3 A. I do prepare a forecast, but it is based on the random walk model for that variable. I prepare
4 my own independent forecasts of the other macroeconomic variables, those not directly
5 traded in the financial markets. As Brealey, Myers, and Allen tell us in *Principles of*
6 *Corporate Finance*, there is a simple overarching rule in that field: “Trust market prices.”⁷⁴ I
7 follow that advice when forecasting interest rates. I assume the market knows more than I
8 could ever know about that variable.

9 **Q. Why is the bond market so much more accurate than the professionals when**
10 **forecasting interest rates?**

11 A. It is a \$46 trillion juggernaut with depth and breadth of knowledge that taken together will
12 always contain more information than any individual or small group of individuals, no
13 matter how well-trained, could be expected to have. Even though it may be intuitive to think
14 that professionals can outperform the market, finance principles tell us they will not. The
15 empirical evidence shows they have not. If we are going to be serious about applying
16 finance principles we must reject these clearly inferior forecasts offered by investment
17 professionals and instead use the powerful forecast embedded in the current market interest
18 rate.

19 **Q. What about the 2000 basis point interest rate forecasting error that has accumulated**
20 **in the investors’ favor and to the detriment of consumers over the past two decades?**

21 A. The Commission could include a 100-basis point forecast-error downward adjustment to
22 ROE for all utilities for each of the next 20 years. That would only bring consumers back to

⁷⁴ Brealey, Myers, Allen, *supra*, p. 350.

1 break even. Or the Commission could simply start leaning in the customers' favor when
2 setting the just and reasonable ROE.

3 **Q. How do professional money managers consider market prices?**

4 A. Successful professional money managers respect those prices. They aren't naïve market
5 participants unaware of the sort of macroeconomic information Ms. Bulkley reports in her
6 testimony. That macroeconomic information, if it is relevant, is already impounded in the
7 bond prices that determine interest rates.⁷⁵ Successful managers focus on areas in which
8 there is no market, such as private equity, or where the market is not well developed.
9 Neither applies to interest rates.

10 Astute portfolio managers do not waste their time playing what Charles Ellis in his
11 classic article in the *Financial Analysts Journal* called the Loser's Game (trying to outguess
12 a party that has better information than you do).⁷⁶ His article is required reading for those
13 who sit for the CFA exam.

14 There is little extra money to be made over and above what the market delivers by
15 buying U.S. Treasury securities or investment grade corporate bonds. In such a hyper-
16 efficient market, the probability that a money manager; the Commission; or anyone
17 involved in rate proceedings before the Commission, including Ms. Bulkley and me, can
18 consistently outguess the bond market is essentially zero. As David Swensen, the highly
19 successful manager of the Yale Endowment Fund (he ranked in the top 1% of fund
20 managers over the long run), stated:

21 High-quality fixed income securities, arguably the most efficiently priced
22 asset in the world, trade in markets dominated by savvy financial institutions.
23 Since nobody, possibly excepting the Federal Reserve [which has private

⁷⁵ Mebane T. Faber and Eric W. Richardson, 2009, *The Ivy League Portfolio: How to Invest Like the Top Endowments and Avoid Bear Markets*, Hoboken, NJ: John Wiley & Sons.

⁷⁶ Charles D. Ellis, 1975, The loser's game, *Financial Analysts Journal*, 31(4), 19-26.

1 information], knows where interest rates will be, few managers employ
2 interest rate anticipation strategies.⁷⁷ Emphasis added.

3
4 Successful money managers prefer to trade in less liquid, less researched markets, such as
5 those associated with small stocks or private equity investments. In contrast, they take the
6 bond market at its word; so should the Commission.

7 **Q. You have discussed the bond market. What about the stock market?**

8 A. Swensen also states that just as active trading in fixed income securities is a loser's game, so
9 is investing in widely followed large capitalization equities, such as those included in Ms.
10 Bulkley's proxy portfolio. Again, any information that she or anyone else has that is relevant
11 is already impounded in utility stock prices.

12 **Q. And how have utility investors reacted to all of the information she sets forth in her**
13 **testimony?**

14 A. Interestingly, during these turbulent times in the equity markets, utility stocks have risen, not
15 declined, even though the general market has retreated. See the following figure, which
16 contrasts the Utility Select Sector SDPR ETF (symbol XLU), a passive portfolio of about 40
17 of the largest investor-owned utilities, with the market in general.⁷⁸

⁷⁷ David F. Swensen, 2009, *Pioneering Portfolio Management: An Unconventional Approach to Institutional Investment*, New York: Free Press, Chapter 7.

⁷⁸ Source: Big Charts.



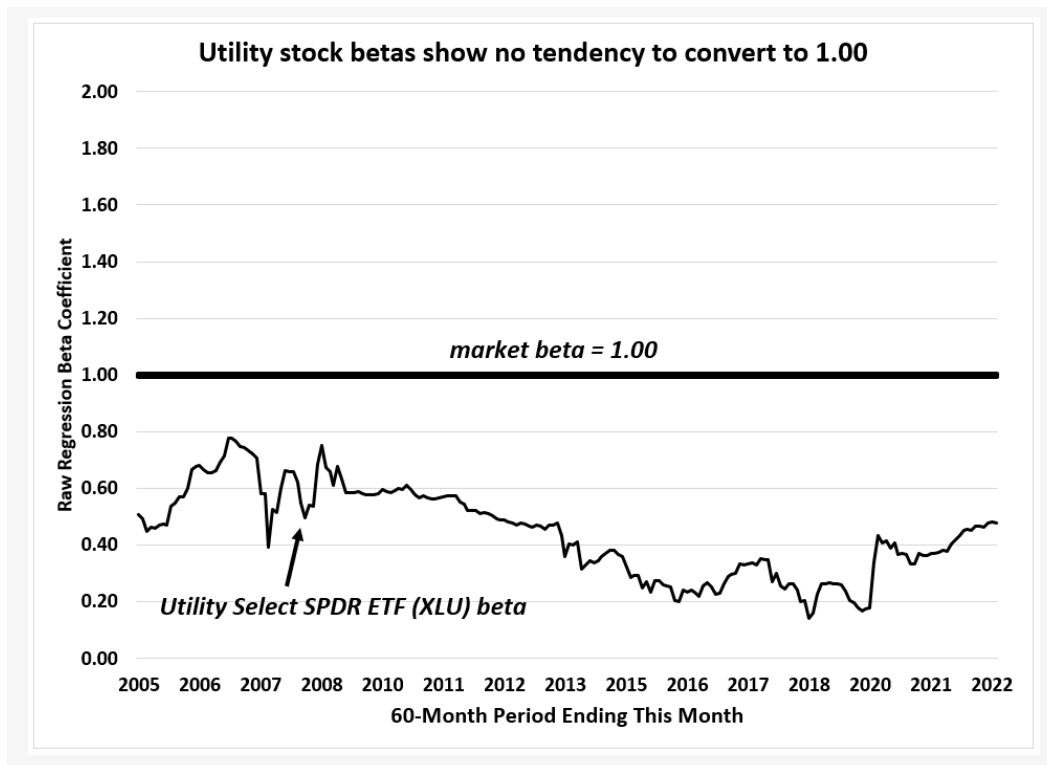
1
2 In contrast to the threatening-skies theme contained in Ms. Bulkley’s testimony, the reality
3 over the past year is that investors have moved out of the riskier S&P 500 stocks (down
4 13%) and into the safer utility stocks (up 11%). That produces a 27% net gain for utility
5 investors.⁷⁹ That, not the misdirected editorial comments of those watching the market, is
6 what the Commission should take notice of. Utility stocks have the advantage of being an
7 attenuator of changes in macroeconomic conditions. This creates a powerful diversification
8 effect, which is quite valuable to portfolio managers. That means that investors will require
9 relatively low returns (costs of equity) to hold utility stocks. That is what my cost of equity
10 model analysis suggests is the case.

11 **Q. Do you have any comments on Ms. Bulkley’s CAPM analysis?**

12 A. Yes. In her CAPM analysis Ms. Bulkley uses adjusted betas, reflecting the tendency of the
13 betas of many stocks to converge to a value of 1.00 over the long run. But the term “many”
14 is not a synonym for “all.”

⁷⁹ The net gain is calculated as follows: $(1 + \text{utility return}) / (1 + \text{S\&P 500 return}) - 1 = 1.11 / 0.87 - 1 = +0.27$

1 Professor Damodaran suggests that if the betas are going to converge to 1.00, that
2 result will eventually show up in the analysis. He suspects that betas will converge to 1.00
3 only for firms whose operations become more like those of typical companies over time.
4 But that does not describe utilities. Damodaran is right. See the following figure, which
5 shows the estimated beta coefficient for the XLU utility portfolio based on rolling 60-month
6 regressions.



7
8 **Q. How much difference does this make if we use these raw betas instead of the adjusted**
9 **betas?**

10 A. The formula for adjusting the beta is:

$$\text{adjusted beta} = 0.35 + 0.65 \times \text{raw beta}$$

12 The latest beta estimate for the XLU utility portfolio is 0.50, meaning the adjusted beta is:

$$\text{adjusted beta} = 0.35 + 0.65 \times 0.50 = 0.68$$

1 The difference is 0.18. If we apply the raw and adjusted betas to my equity risk premium of
2 570 basis points contained in my CAPM analysis shown earlier, moving from the raw to
3 adjusted beta adds about 100 basis points to the cost of equity estimate. But the empirical
4 evidence does not suggest using the adjusted betas.

5 Nevertheless, note that in my CAPM analysis presented earlier I gave the utilities a
6 significant benefit of the doubt by using a beta (0.75) that exceeds even the adjusted beta
7 shown here. Therefore, I am giving utilities substantial benefit of the doubt in my CAPM
8 analysis, rather than applying a strict application of the CAPM.

9 **Q. If you have so carefully analyzed the betas, why did you then use that higher beta**
10 **(0.75)?**

11 A. The key is represented by my phrase “strict application of the CAPM.” The model is not
12 without its shortcomings. The research suggests that it can understate the cost of equity for
13 companies with low betas.

14 But rather than doing a deep dive into the mathematics of the model, let us first
15 consider the assumptions behind it. Perold does a good job of that in his article in the
16 *Journal of Economic Perspectives*:

17 [Assumptions:] First, investors are risk averse and evaluate their investment
18 portfolios solely in terms of expected return and standard deviation of return
19 measured over the same single holding period. Second, capital markets are
20 perfect in several senses: all assets are infinitely divisible; there are no
21 transaction costs, short selling restrictions or taxes; information is costless
22 and available to everyone; and all investors can borrow and lend at the risk-
23 free rate. Third, investors all have access to the same investment
24 opportunities. Fourth, investors all make the same estimates of individual
25 asset expected returns, standard deviations of return and the correlations
26 among asset returns. These assumptions represent a highly simplified and
27 idealized world, but are needed to obtain the CAPM in its basic form.⁸⁰
28 (Emphasis added.)
29

⁸⁰ André F. Perold, 2004, The capital asset pricing model, *Journal of Economic Perspectives*, 18(3), pp. 15-16.

1 If I felt comfortable ignoring these concerns, which I do not, I would apply the basic CAPM
2 with the raw betas, producing a 5.8 % cost of equity estimate.

3 **Q. What other estimates could you obtain using the CAPM?**

4 A. I could employ the empirical CAPM, as Ms. Bulkley does. The equity risk premium (ERP)
5 is the difference between the cost of equity for the S&P 500 and the Treasury yield, which
6 per my estimates is 5.7% (8.6% - 2.9%). The formula is:

$$\text{Utility Cost of Equity} = \text{Treasury Yield} + 0.25 \times (\text{ERP}) + 0.75 \times \text{Beta} \times (\text{ERP})$$

8 If I use the raw beta coefficient in the empirical CAPM, I obtain the following:

$$\text{Utility Cost of Equity} = 2.9\% + 0.25 \times (5.7\%) + 0.75 \times 0.50 \times (5.7\%) = 6.5\%$$

10 **Q. Are there other estimates you could obtain using the CAPM?**

11 A. I could employ this empirical CAPM with adjusted betas for completeness sake.

$$\text{Utility Cost of Equity} = 2.9\% + 0.25 \times (5.7\%) + 0.75 \times 0.68 \times (5.7\%) = 7.2\%$$

13 This, largely by coincidence, is equal to the estimate I obtain using the shortcut approach,
14 which applies the standard CAPM with a beta of 0.75. This analysis suggests, however, that
15 I probably am overstating the utility cost of equity here.

16 **Q. Do you have any additional comments on the details of the CAPM analysis just
17 discussed?**

18 A. Yes. The CAPM review just discussed is merely fine tuning. The big issue in examining
19 CAPM results is that discussed earlier—Ms. Bulkley’s S&P 500 cost of equity estimate is
20 550 basis points higher than that suggested by the analysis from finance experts. She needs
21 to demonstrate that her approach makes rational economic sense. That many people in
22 regulatory circles use her approach is not an argument of merit; it is the logical fallacy of
23 appeal to tradition.⁸¹ Kolbe, Read, and Hall in *The Cost of Capital: Estimating the Rate of*

⁸¹ Tom Chatfield, 2022, *Critical Thinking*, London: Sage Publications.

1 *Return for Public Utilities* acknowledge that while popularity tells us which methods
2 regulators find to be useful, it does not bear on whether a method is reasonable or accurate.
3 That, in fact, is the problem I address in this testimony. If we are to do a better job of
4 estimating costs of equity than that observed in recent decades, we cannot simply rely on the
5 same practices as we have in the past.

6 [N]either acceptance of a method by regulators nor frequency of use is a test
7 of how well the method estimates the cost of capital.⁸² (Emphasis added.)
8

9 If we want to move to a more balanced situation, we need to improve upon past practices,
10 not embrace them.

11 **Q. You have presented a utility cost of equity estimate based on the CAPM. Did you**
12 **prepare an estimate based on the discounted cash flow (DCF) model?**

13 **A.** Yes. I used a mathematically equivalent, algebraic re-expression of that model, referred to as
14 the residual income model, which is often applied in the literature because it is a transparent
15 means of linking the two key variables under review here, the ROE and the cost of equity.
16 For a discussion of the mathematical equivalence of these models, see Fairfield's article in
17 the *Financial Analysts Journal*.⁸³

18 The model is expressed as follows:

$$19 \text{ cost of equity} = \left[\frac{\text{book value}}{\text{stock price}} \right] \text{ROE} + \left[1 - \frac{\text{book value}}{\text{stock price}} \right] (\text{retention rate}) \text{ROE}$$

20 The median price-to-book ratio for companies in Ms. Bulkley's proxy portfolio is 1.98 and
21 the median earned ROE is 9.1%. The typical utility has a 35% earnings retention rate.

22 Therefore:

⁸² A. Lawrence Kolbe, James A. Read, Jr., and George R. Hall, 1984, *The Cost of Capital: Estimating the Rate of Return for Public Utilities*, Cambridge, MA: MIT Press, p. 40.

⁸³ Patricia Fairfield, 1994, P/E, P/B and the Present Value of Future Dividends, *Financial Analysts Journal*, 50(4), 23-31.

1
$$\text{cost of equity} = \left[\frac{1.00}{1.98} \right] 9.1\% + \left[1 - \frac{1.00}{1.98} \right] (35\%)9.1\%$$

2
$$\text{cost of equity} = 4.6\% + 1.6\% = 6.2\%$$

3 To show that this is the same result we would obtain with the standard expression of the
4 DCF model (DPS = dividends per share; P = stock price).

5
$$\text{cost of equity} = \frac{\text{DPS}}{\text{P}} + \text{sustainable growth}$$

6 Replacing the DPS and growth variables with their fundamental drivers:

7
$$\text{cost of equity} = \frac{\text{BV}(\text{ROE})(100\% - \text{retention rate})}{\text{P}} + \text{retention rate}(\text{ROE})$$

8
$$\text{cost of equity} = \frac{\$1.00(9.1\%)(100\% - 35\%)}{1.98} + 35\%(9.1\%)$$

9
$$\text{cost of equity} = 3.0\% + 3.2\% = 6.2\%$$

10 **Q. Did you develop cost of equity estimates using other growth rates?**

11 A. Yes. The preceding analysis is based on the retention growth rate estimation method. We
12 could use other sustainable growth rates. At this point we can use the long-run expected
13 growth in GDP, which is about 4.2%. That is the maximum growth rate for any company in
14 the economy, and certainly an upper bound for a utility.

15
$$\text{cost of equity} = \left[\frac{\$1.00}{\$1.98} \right] 9.1\% + \left[1 - \frac{\$1.00}{\$1.98} \right] 4.2\% = 6.7\%$$

16 But utilities are not going to grow at the GDP growth rate over the long run. Historically
17 utilities have grown at about the rate of inflation. In this version I have averaged the long-
18 term GDP growth rate (4.2%) and the long-run inflation rate (2.2%) to develop a hybrid
19 long-run growth rate estimate (3.2%). The utility cost of equity estimate is then:

20
$$\text{cost of equity} = \left[\frac{\$1.00}{\$1.98} \right] 9.1\% + \left[1 - \frac{\$1.00}{\$1.98} \right] 3.2\% = 6.2\%$$

21 **Q. Please interpret these results for us.**

1 A. The typical utility earns an ROE of 9.1%. But its investors require a return of only 6.2% to
2 6.7%. If investors could buy the stock at book value they could expect to earn 9.1%. But that
3 return is far too high in terms of the return investors need today. All investors would want to
4 own this stock if they could buy it at book value.

5 So they immediately, and rapidly, bid the stock price up. Every dollar above book
6 value that they pay reduces the return that investors expect to earn on the stock. The bidding
7 stops when the stock price reaches 1.98 times book value, which then produces the investor
8 expected return of 6.2% to 6.7%, depending on the growth rate assumption.

9 Note that because Ms. Bulkley again uses stock analyst forecasts when applying the
10 DCF model to utility stocks, which exceed the GDP growth rate, as long-run growth rates
11 in her DCF model, we encounter the problem discussed earlier. Her DCF estimates then
12 overstate utility costs of equity because her assumed growth rates are not sustainable.

13 **Q. How much does the use of stock analyst growth rates overstate the cost of equity?**

14 A. See the following table. I replicated Ms. Bulkley's earlier analysis. Instead of extending the
15 analyst growth rates *ad infinitum* I used them for only the first five years and then switched
16 to the more achievable hybrid long-run growth rate (3.2%). This analysis suggests that using
17 the overly optimistic analyst growth rates as long-term projections inappropriately inflates
18 the cost of equity estimate by 240 basis points.

Effect of Trimming Analyst Growth After Year 5			
Company	Analyst Growth Forever	Analyst Growth Then Hybrid	Diff
Atmos Energy	10.21%	6.5%	3.70%
New Jersey Resources	9.22%	7.2%	1.99%
NiSource	10.33%	7.1%	3.24%
Northwest Natural Gas	9.84%	7.7%	2.10%
One Gas	7.91%	6.7%	1.26%
Spire	10.57%	8.0%	2.53%
ALLETE	9.59%	7.8%	1.81%
Alliant Energy	8.92%	6.5%	2.40%
Ameren Corp	9.94%	6.3%	3.69%
American Electric Power	9.56%	7.2%	2.37%
Avista Corp	9.40%	7.6%	1.76%
Black Hills Corp	8.95%	7.1%	1.84%
CMS Energy	9.88%	6.6%	3.25%
Duke Energy	10.29%	7.6%	2.65%
Edison International	9.41%	8.1%	1.29%
Energy Corp	7.13%	7.0%	0.11%
Eversource Energy	8.99%	6.4%	2.56%
Evergy	10.14%	7.4%	2.77%
IDACORP	7.11%	6.2%	0.92%
NextEra Energy	11.94%	6.1%	5.83%
Northwestern Corp	7.52%	7.5%	0.00%
Otter Tail Corp	11.28%	6.5%	4.73%
Portland General	11.54%	7.3%	4.23%
Southern Company	9.46%	7.6%	1.88%
Xcel Energy	9.22%	6.3%	2.89%
Median			2.40%

1

2 **Q. Please summarize your cost of equity model analysis.**

3 A. The CAPM and DCF analyses therefore suggest that the cost of equity for utilities today is
4 in the 6% to 7% range. A return in that neighborhood, if used as the ROE, could be expected

1 to drive utility stock prices toward book value, which is consistent with the definition of the
2 cost of equity concept.

3 **X. ADDITIONAL EVIDENCE ON THE UTILITY COST OF EQUITY**

4 **Q. Is there external evidence as to the cost of equity for a typical utility today?**

5 A. Yes. I examined individual utilities. One such example is Duke Energy.

6 **Q. What evidence do you have related to that company?**

7 A. Duke Energy is the second largest U.S. investor-owned electric utility as measured by equity
8 market capitalization (\$84 billion), dwarfing WEC Energy Group (\$33 billion). Examine the
9 following table.

Duke Energy			
	Year	ROE	P/B
	2012	5.2%	1.11
	2013	6.8%	1.20
	2014	7.2%	1.27
	2015	7.2%	1.30
	2016	6.2%	1.33
	2017	7.1%	1.39
	2018	6.7%	1.34
	2019	8.3%	1.46
	2020	6.3%	1.45
	2021	8.0%	1.62
	Median	7.0%	1.34

10
11 We see that for a decade Duke Energy's median ROE was only 7%, but its stock
12 nevertheless traded at a 30% premium to book value. This suggests that the investors'

1 required return on utility stocks, the ROE that would drive the stock price to book value, is
2 closer to 6% than 7%.

3 **Q. Was Duke Energy able to raise capital over this period?**

4 A. Yes. It expanded its capital base by \$12.8 billion, including \$4.2 billion of net equity
5 issuances.⁸⁴

6 **Q. Is there additional evidence that utilities do not need ROEs of 10.0% or higher to
7 function well?**

8 A. Yes. Fitch recently rated ComEd's first mortgage bonds "A." That puts it in the upper tier of
9 utility bond ratings. Note how low ComEd's ROE is:

10 The company will reduce distribution rates by \$14.0 million based upon an
11 ROE of 8.38% and 48.16% equity capitalization. ComEd filed its 2021
12 distribution formula rate update on April 16, requesting a \$51.2 million
13 increase to distribution rates based upon a 7.36% ROE and 48.70% equity
14 capitalization.⁸⁵

15
16 There is no discussion or manifestation of any kind of electric reliability issues in the
17 Chicago area. The L trains⁸⁶ still run, and the lights still shine on Michigan Ave.

18 **Q. What are the implications of this analysis for Applicants?**

19 A. Rather than seeing the Applicants teetering on some financial edge with ROEs of 10.0% and
20 10.2%, we should realize that they are in a financially flush position. Consider that WEC
21 Energy Group stock trades at over three times book value.

22 **XI. FROM THE COST OF EQUITY TO ROES**

⁸⁴ Source: Duke Energy financial statements presented by Morningstar.

⁸⁵ Fitch Ratings Press Release, August 5, 2021, Fitch Rates Commonwealth Edison's First Mortgage Bonds 'A'1.

⁸⁶ The Associated Press now recommends the use of "L" instead of the former "el" to refer to the elevated trains in Chicago. See Robert Feder, June 1, 2016, New AP Stylebook makes L of a change, *Chicago Daily Herald*.

1 **Q. Now that you have found the 6% to 7% cost of equity figure, does this mean the**
2 **Commission should set the ROE at that level?**

3 A. We must remember that the ROE and the cost of equity are distinct returns. The ROE could
4 be set equal to the cost of equity, but in many cases that might not be the best policy.

5 Carefully consider another opinion of Justice Stephen Breyer in his text *Regulation*
6 *and Its Reform*. Breyer does not challenge, and in fact reinforces the fact that if the ROE is
7 set equal to the cost of equity, the utility's stock price will be driven to its book value. That is
8 basic finance, and there is no way around that point. What Breyer tells us is that he does not
9 like that result, not that he disagrees with the financial principle—he in fact uses the finance
10 principle to show why in his opinion the result is unacceptable in a public policy setting.

11 All this assumes that one accepts the standard of giving the investor just the
12 return he insists upon to put up his investment [cost of equity or required
13 return] and no more. In fact, even if it were feasible, there is one very good
14 reason for not following the standard: it seeks to equate book and market
15 investment values. Should one succeed in practice in doing this the firm
16 would have no incentive to increase efficiency.⁸⁷

17
18 The debate among the experts therefore is not whether setting the ROE equal to the cost of
19 equity drives the stock price to book value; finance principles are clear on that. What is at
20 issue is whether that result is just and reasonable, which is a different question and in fact
21 the ultimate one in this context.

22 **Q. Does Breyer then suggest we use a different model to find the proper ROE?**

23 A. No, because as Breyer acknowledges there is no other finance model that can be applied
24 here. The only financial model that we can use in the context of setting the ROE is one that
25 finds a different variable, the cost of equity. Once we have found that cost of equity we

⁸⁷ Breyer, *supra*, p. 47.

1 know that setting the return equal to that will drive the utility stock price to book value. At
2 this point the financial analysis is finished. The determination of the proper ROE is not.

3 Charles Phillips in *The Regulation of Public Utilities* stresses this point, reminding
4 us that while cost of capital models have been useful innovations in regulation, they can
5 only provide us with an estimate of this minimum return.⁸⁸ There are no other finance
6 models for finding the just and reasonable ROE. The level of that variable should be
7 determined in the same manner that most other variables in regulation are, through
8 subjective judgment reflecting regulators' views on public policy matters, most notably in
9 this case how much burden the consumers should bear in supporting Applicants' capital.

10 **Q. This suggests that once we know the cost of equity or minimum threshold return,**
11 **setting the ROE is not a finance problem, is that what you are stating?**

12 A. That is exactly what I am stating, which is consistent with the views of finance experts.

13 **Q. Can the Commission take actions that reduce the value of WEC Energy Group's**
14 **stock?**

15 A. Yes. The U.S. Supreme Court addressed this issue in *Federal Power Commission v. Hope*
16 *Natural Gas Company*. Regulation is a state-sanctioned police power which gives the
17 Commission broad ability to affect change, within limits.

18 Ratemaking is indeed but one species of price-fixing. The fixing of prices,
19 like other applications of the police power, may reduce the value of the
20 property which is being regulated. But the fact that the value is reduced does
21 not mean that the regulation is invalid. It does, however, indicate that 'fair
22 value' is the end product of the process of ratemaking, not the starting point,
23 as the Circuit Court of Appeals held. The heart of the matter is that rates
24 cannot be made to depend upon 'fair value' when the value of the going
25 enterprise depends on earnings under whatever rates may be anticipated.
26

⁸⁸ Phillips, *supra*.

1 The Court has made it clear that the current market value of the utility does not drive
2 regulatory policies. Regulators make reasoned decisions and then the market revalues the
3 utility. In terms of required returns (%), the information flow is from the market to the
4 Commission, but in terms of aggregate value (\$), the information flow is from the
5 Commission to the market.

6 I expect that if the Commission set Applicants' ROEs at 9%, as I recommend, there
7 would be capital losses in WEC Energy Group's stock. But if the Commission does not
8 lower the ROEs sufficiently they simply require customers to continue to pay more than
9 necessary to support Applicants' capital. Once we get to this stage there is no win-win
10 solution for both parties.

11 **Q. If the cost of equity is so much lower (6% to 7%, as you suggest) why is your**
12 **recommendation to lower the ROE only to 9%?**

13 A. We propose a transition period from the conventional high ROE approach to the proposal in
14 this testimony under which we would start at those 6% to 7% cost of equity returns and then
15 build the ROE from there. But we cannot move in that direction overnight. There is a need
16 for gradualism, but in the past gradualism has been taken to mean moving ROEs by only 10
17 or 20 basis points. That's inertia, not gradualism. The gap between the ROE and the cost of
18 equity is so great that some substantial change needs to be made to move us to the position
19 where we can implement the framework that we've proposed.

20 **XII. FINANCIALLY "STRONG" UTILITIES ARE EXPENSIVE UTILITIES FROM A CUSTOMER**
21 **PERSPECTIVE**

22 **Q. We often hear that financially strong utilities benefit consumers. Is that true?**

1 A. In general it is not. This so-called financial strength often comes with high cost. Among all
2 firms with investment grade bond ratings (Baa or better),⁸⁹ companies with Aaa bond
3 ratings usually have the lowest cost of debt, the lowest cost of equity, but the highest overall
4 costs of capital. This is why economy wide there are so few remaining firms with Aaa bond
5 ratings—it does not make economic sense to maintain that rating.⁹⁰ See figure below.

6 **Q. What relevance does this have in this proceeding?**

7 A. Applicants want both higher than average ROEs and higher than average common equity
8 ratios. It is expensive for utility customers to support such financial arrangements.

9 The Commission should take notice of this trend outside of the utility industry.
10 Financially savvy firms move to capital structures consistent with lower bond ratings
11 because, ironically, in the end that makes it less expensive for the firm to raise capital
12 overall.

⁸⁹ Using the rating categories established by Moody's, the investment grade ratings are at the bottom Baa, A, Aa, and Aaa.

⁹⁰ Figure was published by Wall Street Insider, June 12, 2022.



Number of AAA-Rated Companies Since 1980

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Q. Can you show that reducing the ROE is not likely to hurt utility customers?

A. Yes. I can approximate the effect using Applicants' proposed capital structures and ROEs. The following is Applicants' proposal for Wisconsin Electric. The pretax column is the one that's important because customers have to pay not only the returns but also the taxes on any equity returns. I show the results under three scenarios: (1), Applicants' proposed case, (2) one in which the ROE is lowered to 9.0%, and (3) one in which that lowered ROE is accompanied by a 100 basis point increase in the cost of debt. The last scenario significantly overstates the impact of rising debt returns because it assumes that the utility immediately refinances all of its debt when the ROE is reduced. In reality the influence of higher debt costs would take many years to work their way through the system, manifesting only when old debt was retired and replaced with new debt. Meanwhile the ROE impact is immediate—in every year customers would get the 75 basis point reduction due to the lower ROE. The 100 basis point reduction in ROE that led to the 75 basis point reduction in ROR

1 would save customers \$66 million per year.⁹¹ Put another way, every 10 basis point
 2 reduction in ROE saves customers \$6.6 million.

WISCONSIN ELECTRIC RATE OF RETURN
1. As proposed

Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	54.57%	10.00%	5.46%	13.75%	7.50%
Preferred Stock	0.35%	3.95%	0.01%	5.43%	0.02%
Long-Term Debt	42.77%	4.24%	1.81%	4.24%	1.81%
Short-Term Debt	2.31%	2.48%	0.06%	2.48%	0.06%
Total Capital	100.00%		7.34%		9.39%

WISCONSIN ELECTRIC RATE OF RETURN
2. ROE lowered to 9.0%

Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	54.57%	9.00%	4.91%	12.37%	6.75%
Preferred Stock	0.35%	3.95%	0.01%	5.43%	0.02%
Long-Term Debt	42.77%	4.24%	1.81%	4.24%	1.81%
Short-Term Debt	2.31%	2.48%	0.06%	2.48%	0.06%
Total Capital	100.00%		6.80%		8.64%
Annual savings relative to proposed capital structure/rates of return					0.75%

WISCONSIN ELECTRIC RATE OF RETURN
3. ROE lowered to 9.0%; all debt rates increased by 100 basis points

Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	54.57%	9.00%	4.91%	12.37%	6.75%
Preferred Stock	0.35%	3.95%	0.01%	5.43%	0.02%
Long-Term Debt	42.77%	5.24%	2.24%	5.24%	2.24%
Short-Term Debt	2.31%	3.48%	0.08%	3.48%	0.08%
Total Capital	100.00%		7.25%		9.09%
Annual savings relative to proposed capital structure/rates of return					0.30%

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⁹¹ Zgonc-Ex-1 shows total capital for WEPCO of \$8.8 billion. \$8.8 billion x 0.0075 = \$66 million.

1 The powerful reduction in rates of return related to the lower ROE is difficult to eliminate
2 through higher debt costs. A bond rating downgrade is certainly not sufficient to offset the
3 customer savings from lower ROEs for many years, if ever.

4 **Q. Did you conduct a similar analysis for Wisconsin Gas?**

5 A. Yes. We see similar results, below. The reduction in ROE dominates any increased debt
6 costs, even if we again assume the entire debt capitalization is immediately refinanced at a
7 higher rate, which substantially overstates the impact of the rising debt cost. The lower ROE
8 generates that additional tax savings that debt costs do not have.

9 The 120 basis point reduction in ROE that led to the 69 basis point reduction in
10 ROR would save customers \$14 million per year.⁹² Put another way, every 10 basis point
11 reduction in ROE saves customers \$1.3 million.

12

⁹² Zgonc-Ex-1 shows total capital for WG of \$2.2 billion. $\$2.2 \text{ billion} \times 0.0069 = \14 million .

WISCONSIN GAS RATE OF RETURN
1. As proposed

Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	52.71%	10.20%	5.38%	14.01%	7.39%
Preferred Stock	0.00%	0.00%	0.00%	0.00%	0.00%
Long-Term Debt	43.47%	3.62%	1.57%	3.62%	1.57%
Short-Term Debt	3.82%	2.92%	0.11%	2.92%	0.11%
Total Capital	100.00%		7.06%		9.07%

WISCONSIN GAS RATE OF RETURN
2. ROE lowered to 9.0%

Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	54.57%	9.00%	4.91%	12.36%	6.75%
Preferred Stock	0.35%	3.95%	0.01%	5.20%	0.02%
Long-Term Debt	42.77%	3.62%	1.55%	3.62%	1.55%
Short-Term Debt	2.31%	2.92%	0.07%	2.92%	0.07%
Total Capital	100.00%		6.54%		8.38%

Annual savings relative to proposed capital structure/rates of return 0.69%

WISCONSIN GAS RATE OF RETURN
3. ROE lowered to 9.0%; all debt rates increased by 100 basis points

Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	54.57%	9.00%	4.91%	12.36%	6.75%
Preferred Stock	0.35%	3.95%	0.01%	5.20%	0.02%
Long-Term Debt	42.77%	4.62%	1.98%	4.62%	1.98%
Short-Term Debt	2.31%	3.92%	0.09%	3.92%	0.09%
Total Capital	100.00%		6.99%		8.83%

Annual savings relative to proposed capital structure/rates of return 0.24%

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2 **Q. Did you conduct a capital structure analysis?**

3 A. Yes. Shifting capital structure components have smaller impacts because we move only
 4 small portions of capital from one source to another as opposed to changing the ROE, which
 5 affects the entire equity base. But since the effects are smaller, so is the feedback. Let's start
 6 by assuming no feedback if we lower the common equity ratio by two percentage points.
 7 For Wisconsin Electric we see the following:

WISCONSIN ELECTRIC RATE OF RETURN
1. As proposed

Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	54.57%	10.00%	5.46%	13.75%	7.50%
Preferred Stock	0.35%	3.95%	0.01%	5.43%	0.02%
Long-Term Debt	42.77%	4.24%	1.81%	4.24%	1.81%
Short-Term Debt	2.31%	2.48%	0.06%	2.48%	0.06%
Total Capital	100.00%		7.34%		9.39%

WISCONSIN ELECTRIC RATE OF RETURN
2. Common equity ratio lowered by two percentage points

Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	52.57%	10.00%	5.26%	13.75%	7.23%
Preferred Stock	0.35%	3.95%	0.01%	5.43%	0.02%
Long-Term Debt	44.77%	4.24%	1.90%	4.24%	1.90%
Short-Term Debt	2.31%	2.48%	0.06%	2.48%	0.06%
Total Capital	100.00%		7.23%		9.20%
Annual savings relative to proposed capital structure/rates of return					0.19%

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Recall that lowering the return on equity by 100 basis points saves customers 75 basis points per year in terms of overall rate of return the initial scenario. Lowering the common equity ratio by two percentage points saves only 19 basis points. The analysis for Wisconsin Gas shows a similar result. The ROE reduction saved 69 basis points; the capital structure shift saves 25 basis points. Of course bigger changes in capital structure would generate bigger initial changes, but they would also invite greater feedback in terms of higher interest rates.

WISCONSIN GAS RATE OF RETURN					
1. As proposed					
Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	52.71%	10.20%	5.38%	14.01%	7.39%
Preferred Stock	0.00%	0.00%	0.00%	0.00%	0.00%
Long-Term Debt	43.47%	3.62%	1.57%	3.62%	1.57%
Short-Term Debt	3.82%	2.92%	0.11%	2.92%	0.11%
Total Capital	100.00%		7.06%		9.07%

WISCONSIN GAS RATE OF RETURN					
2. Common equity ratio lowered by two percentage points					
Capital Type	% of Capital	Rate of Return	Weighted Rate of Return	Pre-Tax Rate of Return	Weighted Pre-Tax Rate of Return
Adjusted Common Stock Equity	50.71%	10.20%	5.17%	14.01%	7.10%
Preferred Stock	0.35%	0.00%	0.00%	0.00%	0.00%
Long-Term Debt	45.47%	3.62%	1.65%	3.62%	1.65%
Short-Term Debt	2.31%	2.92%	0.07%	2.92%	0.07%
Total Capital	98.84%		6.89%		8.82%
Annual savings relative to proposed capital structure/rates of return					0.25%

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This does not mean that there are no customer savings from lowering the common equity ratio. It just suggests that the analysis is a little more complicated. On the other hand we can be sure that if the Commission lowered Applicants' ROEs to 9.0% consumers would save substantial amounts of money not only in the near term but in the long term as well.

Q. What is your overarching conclusion in this regard?

A. The notion that a financially strong utility helps customers is a canard. High ROEs and equity heavy capital structures are expensive for customers to maintain. Such positions can lower both the cost of debt and the cost of equity for utilities but raise the overall rate of return that customers pay. This counter-intuitive result manifests because there are five variables, not two, that determine the weighted average return that customers must pay: (1) % of equity in the capital structure, (2) ROE, (3) % of debt in the capital structure, (4) return on debt, and (5) the corporate tax rate. And notice that the cost of debt and the cost of equity

1 are not among the five. As noted earlier, those two variables reflect market reactions to
2 Commission decisions, they are not set by the Commission.

3 **Q. Does the fact that Wisconsin Gas is on negative credit watch have any bearing on this**
4 **analysis?**

5 A. No. From the customers' perspective any upward pressure on the ROR customers pay
6 associated with a bond rating downgrade for Wisconsin Gas or Wisconsin Electric would
7 pale in comparison to the savings associated with a 100-basis point reduction in their
8 authorized ROEs. For consumers, it's not what Applicants pay for debt that matters; it's
9 what consumers pay for overall rate of return. This is the five-variable problem. Again,
10 neither the cost of debt nor the cost of equity is among those five variables.

11 This takes us back to Solomon. The ROE is not the same thing as the cost of equity;
12 the rate of return is not same thing as the cost of capital. If we fail to make these distinctions
13 between these four rates of return we will never see the utility financial landscape clearly,
14 and regulatory decisions will be distorted.

15 **XIII. SETTING THE JUST AND REASONABLE RETURN ON EQUITY**

16 **Q. What does this mean in terms of balancing consumer and investor interest?**

17 A. There are three potentially affected groups: (1) Applicants' customers, (2) Applicant's
18 present investors, and (3) prospective future capital providers. Prospective investors need no
19 protection from the Commission because if they cannot obtain a reasonable investment
20 opportunity they do not have to provide capital. Note that both customers and the present
21 investors in Applicants' stock are vulnerable to Commission ROE decisions. While this is
22 true, the investors have more flexibility in responding to changes in ROEs that are not in

1 their favor by selling the stock (although in that case it may be too late to help them avoid
2 the associated losses). The customers have even less flexibility—they are truly captive.

3 This testimony shows we must shift the focus away from attracting capital from
4 prospective investors because that capital always flows to the utility regardless of the ROE.
5 We must instead focus on the tension between the groups who bear the consequences of
6 changes in ROEs, the present investors and the customers. Setting the ROE is a zero-sum
7 proposition for those two groups. Higher ROEs help these investors and hurt customers.
8 Lower ROEs hurt investors and help customers. This is the balance at the Commission must
9 strike.

10 **Q. How should the Commission then set Applicants' ROEs?**

11 A. We suggest that the Commission eventually implement the return on equity process as it
12 was originally designed before it was overrun with inappropriate financial models. The
13 process should combine information about investors' required returns, addressed here, with
14 information about Applicants' ability to serve their customers, which Mr. Singletary
15 discusses.

16 We follow Kahn's guidance. He supports the idea that strong performers, utilities
17 that stand out from the customers' perspective, should earn supernormal returns, that is,
18 returns in excess of investor return requirements. Such returns are rewards for delivering
19 exceptional benefits for customers. The extra returns have nothing to do with meeting the
20 needs of investors—the required return does that. Investors are fully compensated at an
21 ROE equal to the cost of equity.

22 **Q. What are the steps in the ROE determination process?**

23 A. The steps are:

- 1 1. Estimate the cost of equity, the figure that if the regulator were to use as the
2 ROE would drive a utility's stock price to book value. That is all financial
3 models can tell us. Today that return appears to be about 6% to 7%.
- 4 2. Reward performance.
- 5 a. Poor Performer: If the utility has a poor customer service record, is not
6 innovative, and has not contributed in some other social way, then the
7 ROE could eventually be driven toward that minimum rate.
- 8 b. Average Performer: For utilities that perform well in some but not all
9 aspects in terms of serving their customers, then an ROE premium could
10 be authorized. Most utilities would likely be in this category. Providing
11 some return over the cost of equity provides what Kahn called an
12 incentive to participate in the dynamic progress of the economy.⁹³
- 13 c. Excellent Performer: For a utility that performs very well in multiple
14 ways, innovates, and takes actions that greatly increase customer
15 benefits, then a larger ROE premium could be authorized. If the
16 performance is spectacular, the ROE could be higher than those currently
17 authorized.
- 18 **Q. What role do finance models play in the ROE determination?**
- 19 A. As noted above, and following Breyer, Kahn, and Phillips, only the first return, the cost of
20 equity, can be estimated using financial models. Once we have that minimum return, the
21 financial analysis is complete. All of the ROE premiums associated with item two have
22 nothing to do with finance, and nothing to do with risk. An ROE equal to the cost of equity

⁹³ Kahn, *supra*, p. 44.

1 fully compensates investors for the risks they cannot diversify away, which are the ones that
2 matter to them. The investors determine the cost of equity. The ROE premium has
3 everything to do with how well the utility treats its customers.

4 **Q. Does this conclude your direct testimony?**

5 A. Yes.

6