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Witness: *Jeffrey Smith*
Sponsoring Party: *MoPSC Staff*
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Case No.: *GR-2019-0077*
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MISSOURI PUBLIC SERVICE COMMISSION

COMMISSION STAFF DIVISION

FINANCIAL ANALYSIS DEPARTMENT

REBUTTAL TESTIMONY

OF

JEFFREY SMITH

UNION ELECTRIC COMPANY,
d/b/a AMEREN MISSOURI

CASE NO. GR-2019-0077

Jefferson City, Missouri
June 2019

** Denotes Confidential Information **

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Q. Please state your name.

A. My name is Jeffrey Smith.

Q. Are you the same Jeffrey Smith who prepared the Rate-of-Return Section of Staff's Cost of Service Report ("Staff Report")?

A. Yes.

Q. What is the purpose of your Rebuttal Testimony?

A. The purpose of my rebuttal testimony is to respond to the direct testimonies of Union Electric Company, d/b/a Ameren Missouri's ("Ameren Missouri") witnesses Brenda I. Weber and Robert B. Hevert. Ms. Weber sponsors Ameren Missouri's recommended capital structure and its requested return on its debt capital and preferred stock. Mr. Hevert sponsors Ameren Missouri's requested allowed return on common equity ("ROE").

EXECUTIVE SUMMARY

Q. What are the main areas of disagreement you have with Ameren Missouri's witnesses as they relate to a fair and reasonable allowed ROR in this case?

A. Staff disagrees with the Company's recommended capital structure. Staff also disagrees with the Company's requested ROE. Ms. Weber's recommended capital structure for Ameren Missouri is at odds with Ameren Corporation's ("AEE") actual capital structure

and Ameren Illinois' agreed-to ratemaking capital structures for its electric and gas systems. Staff finds no justification for the differences in capitalization, particularly when considering Ameren Illinois' agreed-to equity cap, and the diverging trend between AEE's and Ameren Missouri's equity ratios. A more reasonable allowed capital structure for Ameren Missouri would be similar to Ameren Illinois, which caps the common equity ratio at 50%. The rationale for doing so for Illinois' utility rate cases was to recognize Illinois' lower business risk due to legislative changes. The same logic now applies to Missouri following passage of Senate Bill No. 564. Staff's review of various equity analysts' research reports proves that investors are placing a premium on Ameren's stock due to lower business risk at Ameren Missouri. Because it is the lower business risk of AEE's regulated utility operations that support its ability to issue holding company debt, it is fair and reasonable to ensure that Ameren Missouri's common equity ratio is set more consistent with that of AEE on a consolidated basis.

Mr. Hevert's cost of equity estimate ("COE") of 10.30%, which is the basis for his recommended allowed ROE, is grossly overstated and his model's inputs defy economic logic. Staff does not agree with Mr. Hevert's proxy group selection criteria, primarily with regard to his threshold for the amount of operating income that companies need to derive from regulated operations for inclusion in his proxy group. Also, Staff disagrees with many of the assumptions underlying the analysis presented in Mr. Hevert's COE estimation models. Below, Staff details the unreasonable nature of applying inflated and incongruent assumptions, which defy economic logic, to a proxy group which includes companies that derive a significant amount of operating income from non-regulated operations.

STAFF RESPONSE TO BRENDA I. WEBER'S RECOMMENDED ALLOWED CAPITAL STRUCTURE FOR AMEREN MISSOURI

Q. Does Staff agree with Ms. Weber's proposed capital structure?

A. No. Staff does not view the risk profiles of Ameren Missouri and Ameren Illinois as substantively different to justify a higher equity ratio for Ameren Missouri than that which Ms. Weber agreed to for Ameren Illinois utility operations in Illinois Commerce Commission Dockets 18-0463 and 18-0807.

STAFF RESPONSE TO ROBERT B. HEVERT'S RECOMMENDED ALLOWED ROE FOR AMEREN MISSOURI

Q. Does Staff agree with the selection criteria Mr. Hevert uses in selecting his proxy group of companies?

A. No. Staff does not agree with Mr. Hevert's threshold for criteria related to the amount of operating income companies must derive from regulated operations for inclusion in his proxy group, or his lack of an asset criterion. Ameren Missouri's gas operations are rate regulated, which allows for the pass-through of commodity costs and the setting of rates based on the cost of service; therefore, it is important to select proxy companies that have a business risk profile as consistent with a rate-regulated monopoly as possible. Staff attempts to balance companies' exposure to non-regulated operations with the need to have a sufficient number of natural gas distribution proxy companies in the proxy group by requiring that at least 80% of income be generated from U.S. regulated operations, and that at least 80% of assets be regulated. Mr. Hevert's proxy group criteria does not stipulate an asset requirement, and only requires that 60% of operating income be derived from regulated natural gas utility operations. Excluding the asset requirement and lowering the operating income threshold introduces an additional three companies that Staff excluded from its proxy group:

Chesapeake Utilities Corporation ("CPK"), New Jersey Resources Corporation ("NJR"), and South Jersey Industries, Inc. ("SJI").

Staff cautions against the use of the above-mentioned companies in the proxy group because of risks, which are readily evident in credit ratings. Mr. Hevert has already acknowledged that CPK does not have credit ratings from at least two of the three major credit rating agencies. The other two, NJR and SJI have recently been downgraded by S&P. SJI was lowered to "BBB" from "BBB+" in July, 2018 due to issues related to increased leverage from acquisitions. NJR's downgrade is reflected in S&P's downgrade of its core subsidiary, New Jersey Natural Gas Co., to "BBB+" from "A" in August, 2018. An excerpt from the S&P report describing S&P's rational for the downgrade provides a poignant reminder of the effect unregulated operations have on regulated utilities:

> The downgrade on NJNG reflects weakening financial measures at parent New Jersey Resources Corp. (NJR). We assess NJNG as core to NJR because we believe that NJNG is highly unlikely to be sold, remains integral to the overall group strategy, has a strong, long-term commitment from NJR's management, is a significant contributor to the group (about 60% EBITDA), operates as a key profit center for the group, and is closely linked to NJR's name and reputation.
>
> NJR's financial measures have materially weakened from historical levels, with year-end 2017 adjusted FFO to debt at about 15.5%. In addition, FFO to debt for the 12 months ended June 2018 was 16.2%--both figures below our previous downgrade threshold of 23%. Over the next two years, we expect only modest improvement in financial measures, with consolidated FFO to debt of approximately 17%-18%.
>
> The negative outlook reflects NJR's business mix that incorporates a higher percentage of nonutility businesses compared to peers. NJR's EBITDA contributions consist of **60% regulated utility and 40% nonutility. The higher-risk, nonutility businesses increase the consolidated company's exposure to commodity risk, volumetric risk, volatility in earnings, and counterparty risk. Given the relative size of**

> **its nonutility operations, these risks could further weaken our assessment of NJR's business risk profile.**[1] [Emphasis added.]

Inclusion of CPK, NJR, and SJI into a proxy group intended to represent the growth and risk profile of Ameren Missouri's regulated gas utility operations is inappropriate and may lead to upwardly biased COE estimates. For example, CPK, NJR, and SJI account for three of the four highest growth rates and betas in Mr. Hevert's DCF and CAPM analyses, respectively. Excluding those three companies reduces the average of Mr. Hevert's 30-day, 90-day, and 180-day median low and median high Discounted Cash Flow Model ("DCF") results to an ROE of 9.55%.

Q. Please provide a summary of how Mr. Hevert developed his recommended allowed ROE of 10.30%?

A. Mr. Hevert developed his ROE recommendation by modeling the COE for his proxy group using a DCF, and a Capital Asset Pricing Model ("CAPM"). He also performed a statistical analysis, involving regression of the log of 30-year Treasury yields on his defined risk premium,[2] to derive his Bond Yield Plus Risk Premium ("Risk Premium") approach. Mr. Hevert's DCF analysis rendered COE results ranging from a low of 7.80% to a high of 12.75%. His CAPM analysis rendered COE results ranging from a low of 10.50% to a high of 12.73%. His Risk Premium approach rendered COE results ranging from a low of 9.88% to a high of 10.17%.

Q. Why are Mr. Hevert's COE estimates much higher than your COE estimates?

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[1] S&P Global Ratings, New Jersey Natural Gas Co. Rating Lowered to 'BBB+' from 'A'; Outlook Negative, August 13, 2018, pg. 2.

[2] Defined "as the difference between the authorized ROE and the then-prevailing level of long-term (*i.e.*, 30-year) Treasury yield." Hevert Direct, pg. 44, ll. 16.

A. Mr. Hevert uses much too high growth rates in his DCF analysis; his estimated equity market risk premiums for his CAPM analysis are not rational or consistent with those used by institutional investors nor AEE itself when making investment decisions; and while his Risk Premium approach ignores the statistical tenet of stationarity and is incorrectly interpreted, it's largest fallacy is that it assumes that allowed ROEs are equivalent to the COE.

Q. Is it clear what implied costs of equity Mr. Hevert gives more weight to in arriving at his final estimate?

A. Footnote 17, on page 17, of Mr. Hevert's Direct Testimony states that Mr. Hevert places more emphasis on the median results of his DCF analysis. The average of his 30-day, 90-day, and 180-day median low and median high results is 10.26%, near Mr. Hevert's point recommendation of 10.30%.

Q. Are the assumptions in Mr. Hevert's DCF analysis reasonable?

A. No. Mr. Hevert's long-term growth inputs, for his proxy group, range from a group median low of 5.75% to a group median high of 9.25%. Mr. Hevert himself implicitly acknowledges that unreasonable long-term growth rates should be given little weight. In footnote 17, described above, Mr. Hevert states that his reason for placing more emphasis on the median results of his DCF is "because the mean results are affected by an anomalously high growth rate for Northwest Natural Gas Company of 30.50%."

It defies economic rationale to assume that any industry can perpetually sustain a long-term growth rate above the long-term growth rate of the economy in which it operates. Considering that forecasts for long-term GDP place future GDP growth below historic GDP growth, it is also illogical to assume that the utility industry will be able to perpetually sustain growth levels above historic levels. Making such assumptions equates to a belief that

eventually all U.S. GDP will be driven by the utility industry. Current estimates of nominal U.S. GDP growth are approximately 4.00% on a compound annual basis in the long-term.

For proof that Staff's analytical statement is conclusively verifiable, look to the United States Census Bureau's Service Annual Survey. From 2009 – 2017, the most recent data available, the average annual growth rate in earnings for the utility industry has been approximately 3.11%.[3] At most, long-term GDP growth estimates should be used as an upper bound for long-term perpetually sustainable growth.

Q. ** _____ _____ **

A. ** _____ _____ _____ _____ _____ _____

_____ [4] **

Q. Does Staff think the assumptions in Mr. Hevert's CAPM analysis are reasonable?

[3] The U.S. Census Bureau began collecting information for Utility Services in 2009.

[4] ** _____ **

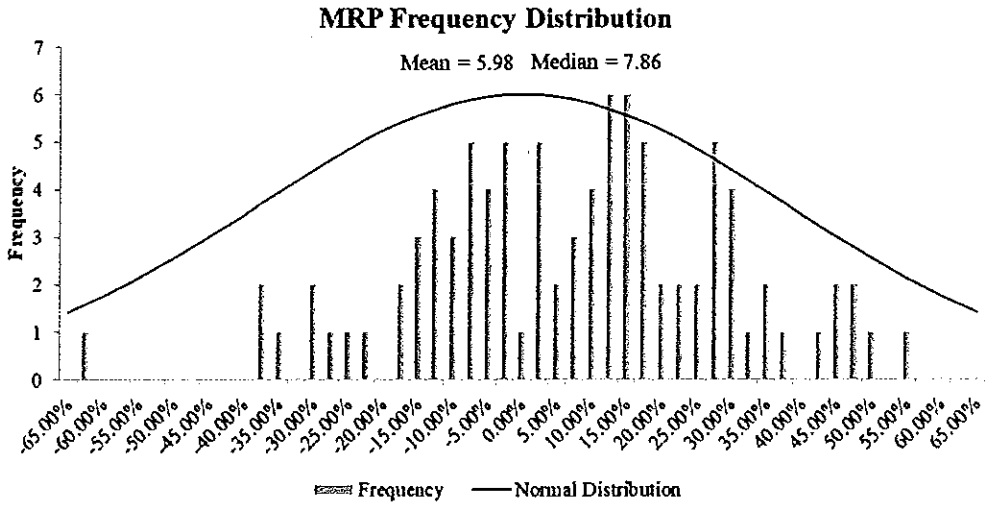
A. No. Mr. Hevert's market risk premium ("MRP") estimates are unreasonably high, and his use of projected 30-year Treasury rates defies basic market efficiency principles. Mr. Hevert's MRPs of 12.10% and 13.52% are two to three times higher than Staff's MRPs of 4.50% and 6.00%, ** _____ _____ . **[5] Mr. Hevert points to his calculated historical MRPs to justify the average of his portended MRPs. Specifically he states, "MRPs in the range of 12.81 percent (the average of my MRP estimates) and higher occurred quite often."[6] According to Mr. Hevert's calculations, MRPs of 12.81% or higher occurred approximately 40% of the time. Negative MRPs also occurred quite often, approximately 35% of the time. Staff is skeptical that any ROR witness would find it reasonable to recommend negative MRPs when they occur, possibly leading to model outputs showing negative COE estimates, implying that investors would pay companies to invest in them. Similarly, Staff does not view the occurrence of high MRPs as reasonable. Mr. Hevert calculated his historical earned MRPs by subtracting the income return from long-term government bonds from the total return of large cap stocks.

Staff does not agree with Mr. Hevert's calculations of historical MRPs. An apple-to-apple calculation for MRP should subtract total returns from total returns; that is, total returns from long-term government bonds should be subtracted from the total return of large cap stocks. Ignoring total returns to long-term government bonds is like ignoring the capital appreciation or depreciation component of large cap stocks and simply focusing on the dividend component. Below is a histogram of historical MRPs, from 1926 – 2018, using

[5] ** _____ **

[6] Hevert Direct, pg. 42, ll. 11-12.

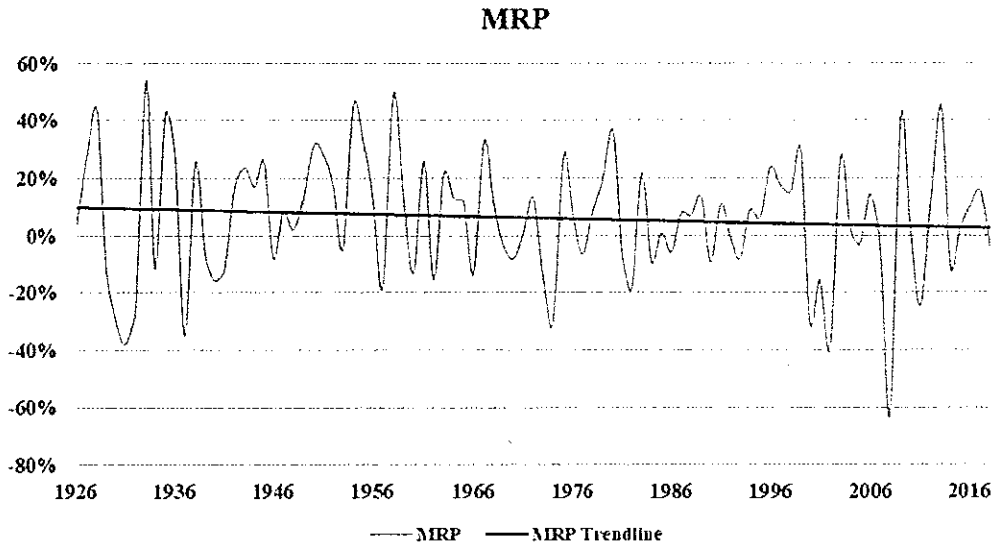
Staff's calculation: subtracting total return on long-term government bonds from the total return on large cap stocks.

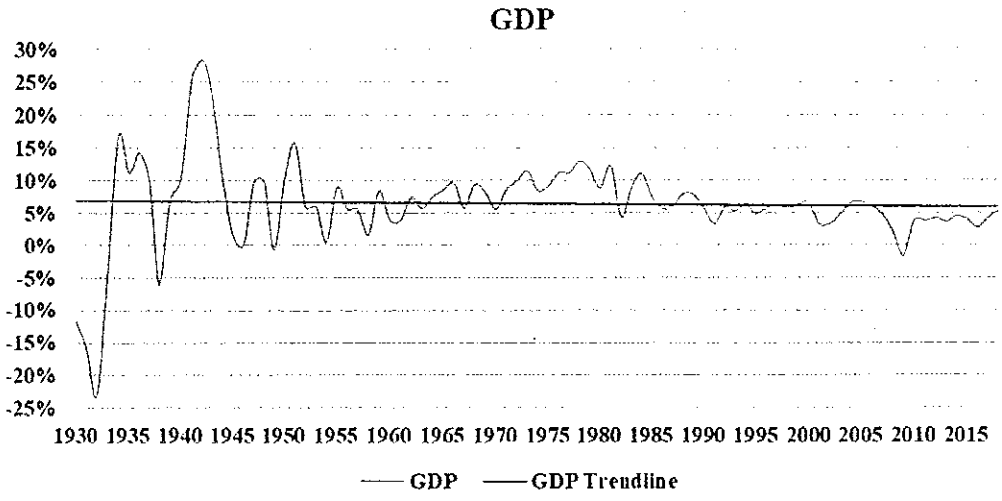


Reviewing Staff's historical MRP distribution shows that MRPs of 12.81% and higher occurred with the same prevalence as negative MRPs, both occurring approximately 39% of the time. Considering MRPs in excess of 12.81% since 1990 shows the occurrence rate drops to approximately 31%. Similarly, considering the occurrence of negative MRPs since 1990 shows the prevalence decreased to approximately 33%. It is important to consider MRPs in a historical context because MRPs have been trending down along with U.S. GDP, displaying a modest correlation of 0.38.[7] Staff chose to analyze the period since 1990 because after 50 years of increased growth since 1930, average long-term GDP began declining in the 1990s. Below are Staff's historical MRP distribution since 1926 with a trend line showing the

[7] Staff's correlation analysis uses the lag of MRP because markets are viewed as leading indicators of GDP.

downward trend in MRPs, and an accompanying historical GDP distribution since 1930 and trend line showing the downward trend in GDP.[8]





What the information above suggests is that lower GDP portends to lower average MRPs. For example, the average MRP prior to 1990 was 7.51%, compared to the average MRP after 1990 of 2.59%. Similarly, GDP from 1930 – 1990 averaged 7.20%, compared to average

[8] This represents the earliest data available from the Bureau of Economic Analysis.

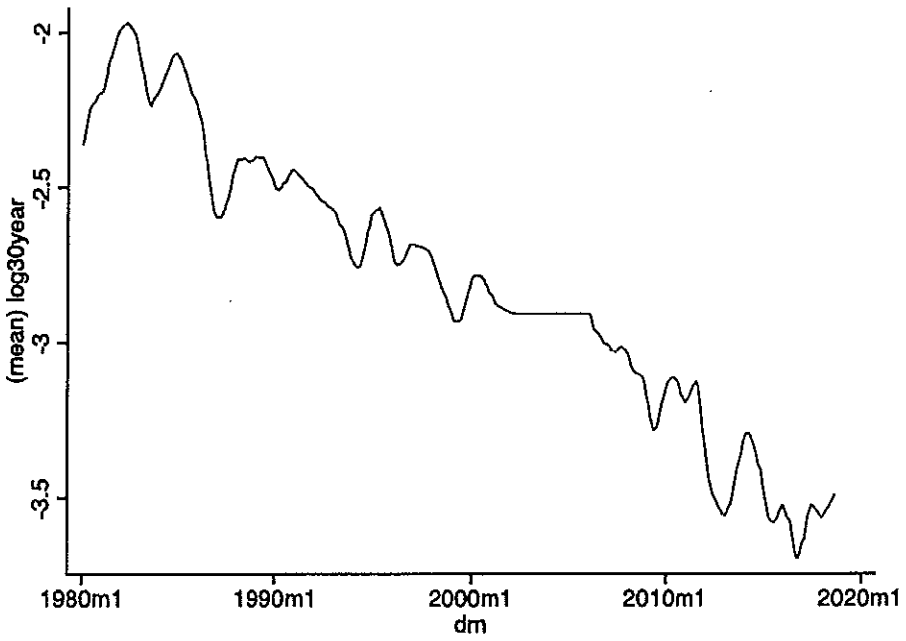
GDP from 1990 – 2018 of 4.55%. Considering Mr. Hevert's calculation of MRP does not negate this fact. For example, observing Mr. Hevert's calculations, the average MRP prior to 1990 was 7.45%, compared to the average MRP after 1990 of 6.19%.

Mr. Hevert's reliance on projected Treasury yields is also an unreasonable input in his CAPM. Current bond prices already reflect investors' interest rate expectations over the long-term. If they didn't, the market would be considered inefficient and investors could make a riskless profit by shorting bonds to capture the certain decline in long-term bond prices when long-term interest rates increased. The near-term projected 30-year Treasury rate of 3.52% used in his CAPM is unreasonable because it inflates the COE using projections that are already factored into current bond prices, presenting an upward bias. For example, as can be seen in the chart below, applying the same technique that Mr. Hevert used to calculate his near-term projected 30-year Treasury rate, using data from the same source, presented 1-year prior, shows the technique overestimated the near-term projected 30-year Treasury rate by 25 basis points. Mr. Hevert's long-term projected 30-year Treasury rate should not be relied upon, because his near-term 30-year Treasury rate has proven unreliable and long-term forecasts are even less reliable.

October 2017 Blue Chip Forecasts	Blue Chip Consensus Forecasts-Quarterly Average 30-Year Treasury	Actual 30-Year Treasury Average	Forecast Error
4Q2017	2.90	2.82	0.08
1Q2018	3.10	3.03	0.07
2Q2018	3.30	3.09	0.21
3Q2018	3.40	3.06	0.34
4Q2018	3.50	3.27	0.23
1Q2019	3.60	3.01	0.59
Average	**3.30**	**3.05**	**0.25**

Q. Does Staff think the statistical analysis that Mr. Hevert performed for his Bond Yield Plus Risk Premium analysis provides a reasonable estimate of the COE?

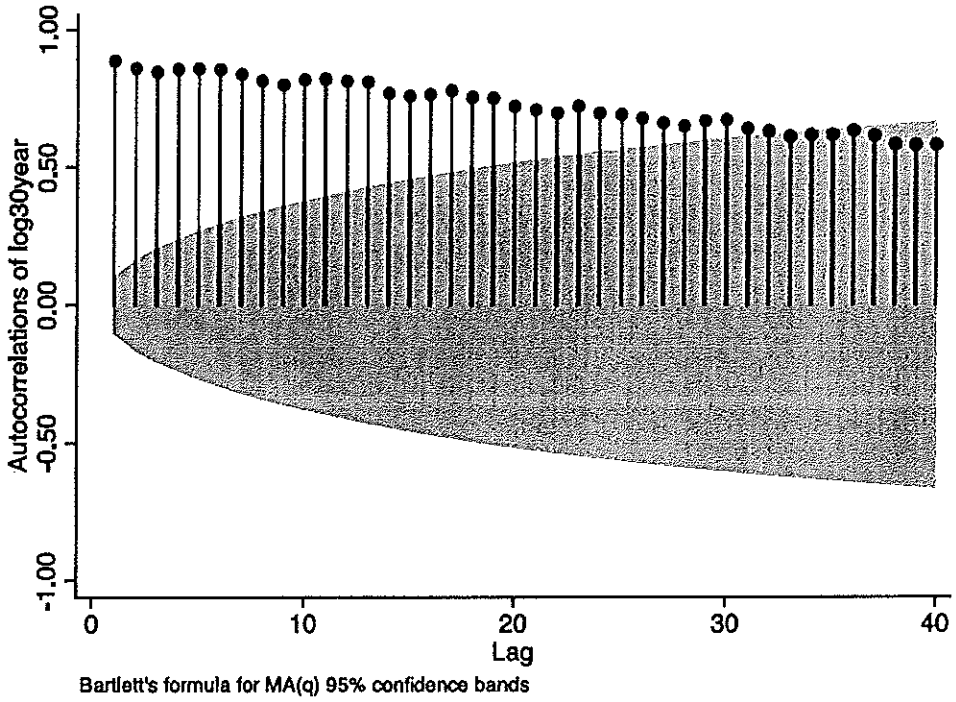
A. No. Similar to the observations already described, Mr. Hevert's statistical analysis ignores the overarching downward drift in the economic environment portending to lower risk premiums, violating the statistical tenet of stationarity; results of this model should be interpreted with caution. Staff performed several analyses on Mr. Hevert's data to test stationarity. First, Staff plotted the time series of Mr. Hevert's independent variable, the log of 30-year Treasury rates. The downward drift in the time series signals the possibility of non-stationary data.



Next Staff followed procedures described in the CFA curriculum to test for stationarity:

> [F]or a time series, either autocorrelations at all lags are statistically indistinguishable from zero, or the autocorrelations drop off rapidly to

zero as the number of lags becomes large. Conversely, the autocorrelations of a nonstationary time series do not exhibit those characteristics. However, this approach is less definite than a currently more popular test for nonstationarity know as the Dickey-Fuller test for a unit root… The null hypothesis of the Dickey-Fuller test is $H_0: g_1 = 0$ – that is, that the time series has a unit root and is nonstationary – and the alternate hypothesis is $H_a: g_1 < 0$, that the time series does not have a unit root and is stationary.[9]



The autocorrelations for the log of 30-year Treasury data do not drop off rapidly to zero, exhibiting characteristics of nonstationary data. Staff utilized Stata, a statistical software program, to conduct the more definitive Dickey-Fuller test:

[9] Defusco, R., MeLeavey, D., Pinto, J., & Runkle, D. (2015), *Time-Series Analysis*. Reading 9, Ethical and Professional Standards, Quantitative Methods, and Economics, CFA Program Curriculum, 2019, Level II, Volume 1, pg. 465.

. dfuller log30year

Dickey-Fuller test for unit root Number of obs = 317

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
		---------- Interpolated Dickey-Fuller ---------		
Z(t)	-0.388	-3.455	-2.877	-2.570

MacKinnon approximate p-value for Z(t) = 0.9121

The test statistic of -0.388 is greater than all the critical values indicating that the null hypothesis cannot be rejected. Similarly, assessing the high p-value shows that the null hypothesis stands, the time series has a unit root and is nonstationary. To be considered reliable, the model inputs need to be normalized to make them stationary, or the data needs to be segmented and modeled in stationary units. The nonstationary nature of the data is likely due to structural breaks in the economic environment. Mr. Hevert eludes to such artifacts in his testimony, "[r]elative to the long-term historical average, the analytical period includes interest rates and authorized ROE's that are quite high during one period (*i.e.*, the 1980's) and that are quite low during another (*i.e.*, the post-Lehman bankruptcy period)."[10]

Staff does not agree with the way Mr. Hevert interprets his model results. Mr. Hevert simply plugs his selected Treasury rates, 3.19%, 3.52%, and 4.30% into his model output, y = -0.0274 + ln(x) (-0.0273) to derive his MRP, and then adds his selected Treasury rates to derive his ROE estimates, 9.88%, 9.94%, and 10.17%, respectively. For example, using the log of 3.19% the output equation is -0.0274 + (-3.45) (-0.0273) = 6.67%. Adding the 3.19% Treasury rate yields an ROE estimate of 9.86%.[11] However, the coefficient for the

[10] Hevert Direct, pg. 45, ll. 9-11.

[11] The slight difference is due to rounding.

independent variable in the linear-log model should be interpreted as describing the effect on the dependent variable related to a percentage increase or decrease in the independent variable. For example, the coefficient of -0.0273 implies that a 1% change in the Treasury rate will have a -0.000273 effect on average MRPs. The average MRP and Treasury rate of Mr. Hevert's data set were 4.62% and 7.63%, respectively. Using the proper interpretation for the linear-log model shows that a Treasury rate of 3.19% is approximately 58 percentage points lower than the average Treasury rate in the data set. This implies that it would drive the average MRP up by approximately 1.58% (-0.000273 x -58 = 0.0158), resulting in an MRP of 6.2% (4.62 + 1.58 = 6.2), and an ROE of 9.39% (6.2 + 3.19 = 9.39).

SUMMARY AND CONCLUSIONS

Q. What are the main points the Commission should consider in determining an appropriate capital structure and fair rate of return for Ameren Missouri?

A. In determining a fair and reasonable capital structure, Staff recommends the Commission consider the diverging trend between AEE and Ameren Missouri's capital structures. Staff recommends that the Commission order an equity cap of 50%, similar to that applied by the Illinois Commerce Commission, to Ameren Missouri's capital structure, to avoid unjustified divergence in capital structures between parent company and operating company.

Staff recommends the Commission exclude unreasonable companies from Mr. Hevert's proxy group, and apply more reasonable growth, and MRP assumptions. Doing so provides sufficient evidence to support an allowed ROE of 9.50% for Ameren Missouri.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase its Revenues for Natural Gas Service	)))	Case No. GR-2019-0077

AFFIDAVIT OF JEFFREY SMITH

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW JEFFREY SMITH and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

JEFFREY SMITH

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 5th day of June 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

Notary Public