BEFORE THE ARIZONA CORPORATION COMMISSION

JEFF HATCH-MILLER
Chairman
WILLIAM A. MUNDELL
Commissioner
MARC SPITZER
Commissioner
MIKE GLEASON
Commissioner
KRISTIN MAYES
Commissioner

IN THE MATTER OF QWEST CORORATION'S FILING AMENDED RENEWED PRICE REGULATION PLAN.	)	DOCKET NO. T-01051B-03-0454
IN THE MATTER OF THE INVESTIGATION OF THE COST OF TELECOMMUNICATIONS ACCESS	)	DOCKET NO. T-00000D-00-0672

SURREBUTTAL

TESTIMONY

OF

JOEL M. REIKER

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UTILITIES DIVISION

JANUARY 12, 2005

EXECUTIVE SUMMARY
JOEL M. REIKER
DOCKET NOS. T-01051B-03-0454, T-00000D-00-0672

The surrebuttal testimony of Staff witness Joel M. Reiker addresses the following issues:

Response to the rebuttal testimony of Peter C. Cummings

Hamada Methodology – Staff responds to Mr. Cummings' assertion that Staff inappropriately used book-value capital structures when applying the Hamada leverage adjustment methodology.

Staff does not take issue with the prescribed application of the Hamada methodology. Corporate finance states that a firm's weighted average cost of capital ("WACC") is appropriately calculated using the market-value capital structure. However, *regulatory* finance determines a fair rate of return ("ROR") as a weighted average of the embedded cost of debt and the opportunity cost of equity, measured at *book value*. Hence, it is the book value of debt and equity which is of interest to the regulator.

Mr. Cummings' capital structure/financial risk adjustment, which compares market-value capital structures to a book-value capital structure, unnecessarily introduces a known inconsistency to the required return estimate for Qwest. An appropriate adjustment procedure would compare book values to book values rather than market values to book values.

Mr. Cummings' testimony regarding Qwest's market value is inconsistent with the testimony of Company witness Philip Grate, and supports Staff's position that it is appropriate to unlever and relever beta using book-value capital structures in this proceeding.

Adjusted Betas – Staff responds to Mr. Cummings' testimony that published betas should not be unadjusted before they are unlevered and relevered.

The relative effect of unadjusting and readjusting beta is the result of simple mathematics and not an ad hoc attempt to trim Staff's estimate of Qwest's required return, as Mr. Cummings suggests.

The relevered beta provided by the Hamada methodology is an estimate of the OLS slope, or statistical regression, of an adjusted rate of return time series. Accordingly, if the result of unlevering and relevering beta estimates using Hamada's methodology is a classical, or raw estimate, it makes sense to begin with a classical, or raw, estimate rather than a Bayesian estimate.

A reasonableness check on Staff's capital structure/financial risk adjustment based on modern capital structure theory set forth by Franco Modigliani and Merton Miller confirms the reasonableness of Staff's recommendation in this case.

Response to the rebuttal testimony of Philip E. Grate

Fair Value/Earnings Requirement – Staff responds to Mr. Grate's assertion that the ROR must be multiplied by the Company's fair value rate base ("FVRB") to determine dollar earnings, rather than multiplying the ROR by the OCRB and solving for a ROR that, when applied to the FVRB, produces the same dollar level of earnings.

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INTRODUCTION

Q. Please state your name and business address.

A. My name is Joel M. Reiker. My business address is 1200 West Washington Street, Phoenix, Arizona 85007.

Q. Are you the same Joel M. Reiker who previously filed direct testimony in this proceeding?

A. Yes.

Q. What is the purpose of your surrebuttal testimony?

A. The purpose of my surrebuttal testimony is to respond to criticisms of Staff's direct testimony contained in the rebuttal testimony of Qwest Corporation ("Qwest" or "Company") witness Mr. Cummings. I also respond to Company witness Philip Grate's rebuttal testimony concerning fair value.

I. RESPONSE TO THE REBUTTAL TESTIMONY OF PETER C. CUMMINGS

Capital Structure/Financial Risk Adjustment

Hamada Methodology

Q. How does Staff respond to Mr. Cummings assertion that the levered and unlevered beta equations developed by Professor Hamada specify the use of market values of debt and equity, rather than the book values used by Staff? (See rebuttal testimony of Peter C. Cummings. p. 6 at 16 – 20 & p. 7 at 1 – 4.)

A. Staff agrees that Hamada indeed specifies the use of market values of debt and equity in his leveraging equations. Staff does not take issue with Hamada's specification. In the realm of unregulated corporate finance the weighted average cost of capital ("WACC") is properly calculated using *market* values of debt and equity. It, therefore, follows that a

leveraging equation such as Hamada's would, in turn, call for market values rather than book values of debt and equity. However, Mr. Cummings' position and statement that Staff "used the wrong input for equity capital… the book value percentage of equity capital instead of the market value…" (see rebuttal testimony of Peter C. Cummings. p. 7 at 13 – 15) ignores the fact that in the realm of *regulatory* public utility finance, a fair rate of return ("ROR") is a weighted average of the embedded cost of debt and the opportunity cost of equity, *measured at book value*.[1] Hence, it is the mix of outstanding debt and equity securities used to finance the utility's original investment, i.e., the *book* value of debt and equity, which is of interest to the regulator when setting rates.

Q. Is it appropriate to compare the capital structure of a utility, measured at book value, with the average capital structure of a sample group, measured at market value, as Mr. Cummings does in his financial risk adjustment and Exhibit PCC-3 of his direct testimony?

A. No. As stated on page 7 (line 13) of Staff's direct testimony, the cost of equity is determined by the market. Therefore, market-based models such as the DCF model and the CAPM are used to estimate the cost of equity. Staff agrees with Mr. Cummings' statement that inherent in rate of return regulation "is the potential for some mismatch in the application of financial theory and models to the construct of rate base regulation." (See rebuttal testimony of Peter C. Cummings. p. 8 at 1 – 3.) However, cost of capital estimation is subject to significant estimation error without introducing additional and unnecessary *known* inconsistencies. Mr. Cummings unnecessarily introduces a known inconsistency to his final cost of capital estimate for Qwest by unlevering beta with a market-value capital structure and relevering it with a book-value capital structure. An

[1] See Myers, Stewart C. "The Application of Finance Theory to Public Utility Rate Cases." *Bell Journal of Economics and Management Science*. Spring 1972. p. 92.

appropriate adjustment procedure would compare book values to book values rather than market values to book values.

Q. Is it normal practice in utility rate cases to compare the book-value capital structure of the subject utility to the market-value capital structures of proxy companies for the purpose of making a financial risk adjustment to the allowed return on equity ("ROE")?

A. No. Staff regularly processes rate applications for utilities of all sizes. It is not normal practice to compare the book-value capital structure of the subject utility to the market-value capital structures of proxy companies. Staff's approach in this case is the same approach previously approved by the Commission. For example, in Decision No. 67093, dated June 30, 2004,[2] the Commission adopted a ROE based on the same relevering methodology used by Staff in this case. Staff's approach in this case is consistent with that of previous cases, and has been approved by the Commission. In contrast, Mr. Cummings' approach is not consistent with prior Commission orders or with his own testimony in prior cases.

Q. Did Mr. Cummings use the same methodology in Qwest's last rate proceeding.

No. Mr. Cummings' testimony before the Commission in Qwest's (then US West) previous rate case[3] made no argument for a capital structure/financial risk adjustment to US West's ROE when the average capital structure of his sample telephone company group, derived from market equity values, exhibited a significantly higher percentage of equity (approximately 82%) than US West's proposed capital structure (52% equity) in that case.

[2] Docket No. WS-01303A-02-0867 *et seq.* Application of Arizona-American Water Company.
[3] Docket No. T-01051B-99-0105

Q. On pages 8 and 9 of his rebuttal testimony Mr. Cummings argues the absence of any inconsistency in his financial risk adjustment by stating that because "[Qwest] – Arizona is not publicly traded and is regulated; we may infer that, under rate of return regulation, the value of the rate base is the best surrogate available for the market value of the entity." (See rebuttal testimony of Peter C. Cummings. p. 8 at 17 – 19.) How does Staff respond?

A. Mr. Cummings' testimony supports Staff's position that it is appropriate to unlever and relever beta using capital structures measured at book value in this proceeding.

Q. How does Mr. Cummings' statement an on page 8 (lines 17 – 23) of his rebuttal testimony support Staff's position that it is appropriate to unlever and relever beta using capital structures measured at book value in this proceeding?

A. Mr. Cummings' statement and related testimony supports Staff's position because carried to its logical conclusion, a market-to-book ratio in excess of 1.0 suggests that a utility is expected to earn more than its cost of equity. Therefore, investors expect the sample companies to earn book/accounting returns in excess of the return they (investors) require. As a result, they have bid the stock prices (market values) of the sample companies up to the value of the expected future cash flows (dividends and capital gains) discounted at the return they (investors) require. James Claus of Barclays Global Investors and Jacob Thomas of Columbia Business School discussed this basic proposition in finance in a recent *Journal of Finance* article:

> This relation indicates that the [market-to-book] ratio is explained by expected future profitability ($roe_t - k$). Firms expected to earn an accounting return on equity equal to the cost of [equity] should trade currently at book values ($p_0/bv_0 = 1$).[4]

[4] Claus, James and Jacob Thomas. "Equity Premia as Low as Three Percent? Evidence from Analysts' Earnings Forecasts for Domestic and International Stock Markets." *The Journal of Finance*. October 2001. pp. 1629 – 1666.

If the market values of the sample companies reflect the expectation that they will over-earn, and the goal of regulation is not satisfied when a regulated utility over-earns, then the market-value capital structures used by Mr. Cummings to unlever beta cannot reasonably be compared to the capital structure of a regulated public utility. As stated previously, an appropriate financial risk adjustment procedure would compare book values to book values rather than market values to book values.

Adjusted Betas

Q. On page 9 (lines 6 – 15) of his rebuttal testimony Mr. Cummings discusses the fact that unadjusting the published betas provided by Merrill Lynch and Value Line has a small effect on the calculation of the average unlevered beta of the proxy group while readjusting beta has a very large effect, and suggests that the procedure "…appears to be the cloaking of an ad hoc downward trimming of the required return for [Qwest]…" How does staff respond?

A. The relative effect of unadjusting and readjusting beta is the result of simple mathematics and not an ad hoc attempt to trim Staff's estimate of Qwest's required return. The Merrill Lynch and Value Line adjustments are averaging techniques – they push high betas (betas in excess of 1.0) down toward 1.0 and low betas (betas below 1.0) up toward 1.0. As a result, the adjustment is smaller for raw betas that are closer to 1.0. For example, if we average the number 200 with the number 100, we get 150, which is a 50 point adjustment to the number 200. However, averaging the number 150 with the number 100 results in 125, which is only a 25 point adjustment.

Q. On page 10 (lines 5 – 16) of his rebuttal testimony Mr. Cummings argues against unadjusting published beta estimates before unlevering them and readjusting them

after they are relevered. Why did Staff unadjust the published beta estimates before unlevering and readjust after relevering?

A. As stated on page 35 (lines 1 – 16) of Staff's direct testimony, the beta estimates published by Value Line and Merrill Lynch are "Bayesian" estimates. Bayesian statistics provide a method of formally taking prior, often subjective, information or belief about a parameter (such as the presumed long-term tendency for betas to converge toward 1.0) into account in the estimation procedure. Unadjusting published beta estimates out of Bayesian mode and back into their classical (and objective) raw estimates gives us the original ordinary least squares ("OLS") slope, or beta. The classical estimate of the raw beta shows us how a particular security moved in relation to the market over some time period. Because the purpose of the Hamada methodology is to estimate how a security *would* have moved in relation to the market given different degrees of leverage, it makes sense to "unadjust" beta estimates out of their published Bayesian mode and back into their classical (and objective) raw beta estimates before unlevering and relevering them. After unlevering and relevering the raw beta estimates, they can then be readjusted back into Bayesian mode for comparison with betas published by Value Line and Merrill Lynch. In contrast, unlevering and relevering Bayesian estimates introduces a distortion that fails to preserve the relative relationship between a security and the market.

Q. In support of his argument against unadjusting published beta estimates before unlevering them Mr. Cummings states "there is no statistical regression or observed data in the calculated relevered beta." (See rebuttal testimony of Peter C. Cummings. p. 10 at 9 – 10.) How does Staff respond?

A. As stated previously, the purpose of the Hamada methodology is to estimate how a security *would* have moved in relation to the market given different degrees of leverage. In other words, the Hamada methodology provides us with the classical raw estimate of the OLS slope, or beta, given different degrees of leverage. Hamada states the following:

> The last approach, which will be used in this study, is to assume the validity of the [Miller & Modigliani] theory from the outset. Then the observed rate of return of a stock can be adjusted to what *it would have been* over the same time period had the firm no debt and preferred stock in its capital structure. The difference between the observed systematic risk, $_{B}\beta$, and the systematic risk for this *adjusted rate of return time series*, $_{A}\beta$, can be attributed to leverage, if the [Miller & Modigliani] theory is correct.[5] (latter emphasis added)

The relevered beta provided by Hamada's methodology is an estimate of the OLS slope, or statistical regression, of an adjusted rate of return time series. Accordingly, if the result of unlevering and relevering beta estimates using Hamada's methodology is a classical, or raw estimate, it makes sense to begin with a classical, or raw, estimate rather than a Bayesian estimate.

Reasonableness Check on Staff's Capital Structure/Financial Risk Adjustment

Q. Is there a simplified calculation that can act as a reasonableness check on Staff's capital structure/financial risk adjustment?

A. Yes. Schedule JR-S1 is a simplified estimate of the effect that leverage has on a firm's cost of equity. The basis for the calculation is modern capital structure theory set forth by Franco Modigliani and Merton Miller ("MM") in their now famous 1958 article on the subject.[6] Under MM's proposition, the overall WACC remains constant while the cost of equity increases with financial risk (leverage). This theory is demonstrated in Schedule JR-S1. The top portion of Schedule JR-S1 shows Staff's estimate of the WACC for the sample telcos. The average capital structure of the sample telcos consists of approximately 50 percent debt and 50 percent equity. In its direct testimony, Staff estimated the average cost of equity to the sample telcos to be approximately 10.9 percent.

[5] Hamada, Robert S. "The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks." *Journal of Finance*. May 1972. pp. 435 – 452.
[6] Miller, Merton and Franco Modigliani. "The Cost of Capital, Corporation Finance and the Theory of Investment." *American Economic Review*. June 1958. pp. 261 – 297.

The cost of debt shown in the schedule is the average effective cost of debt for the sample telcos reported by Value Line. Based on this information, the average WACC to the sample telcos is approximately 8.86 percent. In the bottom portion of Schedule JR-S1, Staff simply calculated an adjusted WACC to reflect a capital structure representative of Qwest's, consisting of approximately 75 percent debt and 25 percent equity. Holding the overall WACC constant, Staff calculated the resulting adjusted cost of equity estimate to be approximately 14.97 percent.

Staff's recommended ROE for Qwest in this proceeding is 14.6 percent. The 14.97 percent cost of equity calculation shown in Schedule JR-S1 is closer to Staff's recommended 14.6 percent ROE than it is to the Company's proposed 21.4 percent ROE, and therefore confirms the reasonableness of Staff's ROE recommendation in this case.

II. RESPONSE TO THE REBUTTAL TESTIMONY OF COMPANY WITNESS PHILIP E. GRATE

Fair Value

Earnings Requirement

Q. What is Mr. Grate's recommendation regarding the rate base to which the ROR is applied when determining the dollar earnings requirement?

A. Based on a legal argument, Mr. Grate asserts that the ROR must be multiplied by the Company's FVRB to determine dollar earnings, rather than multiplying the ROR by the OCRB and solving for a ROR that, when applied to the FVRB, produces the same dollar level of earnings. (See rebuttal testimony of Philip E. Grate. pp. 132 – 134.)

Q. If Mr. Grate's recommendation was adopted would the Company and its investors receive a windfall gain?

A. Yes. Because Qwest's FVRB is greater than its OCRB, applying the market-based ROR to the FVRB to determine dollar earnings provides the Company and its investors with a windfall gain at the expense of Arizona consumers.

Q. Is Mr. Grate's recommendation consistent with the widely accepted capital attraction standard?

A. No. If Mr. Grate's recommendation was adopted and the FVRB, for whatever reason, was smaller than the OCRB, the Company would expect to earn *less* than the cost of capital on its investment. Mr. Grate's recommendation is therefore confiscatory and violates the widely accepted capital attraction standard when the FVRB is smaller than the OCRB.[7]

Q. Can you give an example demonstrating why OCRB should be used to determine the dollar earnings requirement?

A. Yes. Here is a simple example that reveals the fallacy of Mr. Grate's recommendation: Assume a rate base of $100 that is entirely financed with debt at a cost of 5.0 percent. The OCRB is $100 and the utility's cost of capital/allowed ROR is 5.0 percent. Applying the 5.0 percent ROR to the $100 OCRB yields the $5 in earnings the utility needs to repay its debt – no less and no more. However, if a FVRB were determined, through whatever means, and that FVRB were $200, and dollar earnings were determined by multiplying the ROR by the FVRB, then the utility would be authorized $10 (5.0% times the $200 FVRB) in rates to cover its cost of capital, or twice its need. This is surely unfair to the consumer. If the FVRB happened to be $50, and dollar earnings were determined by multiplying the ROR by the FVRB, then the company would be granted $2.50 (5.0% times the $50 FVRB). This is surely unfair to the utility. Only multiplying the ROR by the OCRB yields the correct earnings.

[7] Myers. 1972. p. 80.

Q. When would a utility expect to be able to earn the cost of capital on its investment if dollar earnings were determined by multiplying the market-based ROR by the FVRB?

A. A utility would expect to be able to earn the cost of capital on its investment if dollar earnings were determined by multiplying the ROR by the FVRB only when the FVRB is equal to the OCRB. Windfall gains (losses) would result whenever the FVRB is greater (less) than the OCRB if the Commission multiplied the ROR by the FVRB to determine dollar earnings.

Q. If Qwest's FVRB was smaller than its OCRB and the market-based ROR was multiplied by the FVRB to determine dollar earnings, would the Company expect to be able to maintain its credit?

A. No. For a utility to expect to maintain its credit there must be a relationship between corporate earning power and the annual revenue requirement imposed by fixed charges on the outstanding securities that were used to finance the OCRB.[8] If a utility's dollar earnings were determined by multiplying a market-based ROR by a FVRB that was less than its OCRB, the utility would be unable to expect to pay fixed charges on the outstanding securities used to finance the OCRB. The utility would thus be unable to maintain its credit.

Q. Have experts commented on this subject?

A. Yes. Recognized experts in regulation including one of Mr. Grate's own authorities, Professor Charles Phillips of Washington and Lee University, agree:

> The use of an original cost rate base enables public utilities to maintain their credit standing and to attract new capital. Investors

[8] Bonbright, James C., Albert L. Danielsen, and David R. Kamerschen. *Principles of Public Utility Rates*. 1988. pp. 225 – 226.

> receive a rate of return on the money that they have invested in the utility.[9]

Q. Does Mr. Grate offer any sound economic reason for applying the market-based ROR to the FVRB of a regulated utility to determine the dollar earnings requirement?

A. No, Mr. Grate does not offer any kind of economic reasoning or theory to support the application of a market-based ROR to the FVRB to determine the dollar earnings requirement of a regulated utility. His assertion is based entirely on legal interpretation of the Arizona Constitution and court decisions.

Q. Has the Commission recently ruled on the subject of which rate base the market-based ROR should be multiplied by when determining dollar earnings?

A. Yes. In Decision No. 67093, dated June 30, 2004, in response to the company's proposal to determine dollar earnings by multiplying the market-based ROR by its estimated reconstruction cost rate base, the Commission stated:

> The rate of return methodology and resulting revenue increase proposed by Arizona-American would produce an excessive return on FVRB. There has been no legitimate basis presented for departing from the traditional ratemaking methodology of applying a fair value rate of return to the Company's FVRB in this proceeding. We find that applying a fair value rate of return to the FVRB is just, reasonable, and in accord with the mandates of the Arizona Constitution, and will adopt it in this case.[10]

Q. Does this conclude your surrebuttal testimony?

A. Yes.

[9] Phillips, Charles Jr. *The Regulation of Public Utilities*. 3rd ed. 1993. p. 337.
[10] Decision No. 67093, dated June 30, 2004 (Arizona-American Water Company). Page 32, lines 25 – 28 & page 33, line 1.