Before the
WASHINGTON UTILITIES
AND TRANSPORTATION COMMISSION

In the Matter of the Review of: Unbundled Loop and Switching Rates; the Deaveraged Zone Rate Structure; and Unbundled Network Elements, Transport, and Termination (Recurring Costs)	**Docket No. UT-023003**

COMMONWEALTH OF MASSACHUSETTS)
) ss.
COUNTY OF SUFFOLK)

AFFIDAVIT OF LEE L. SELWYN

Lee L. Selwyn, of lawful age being first duly sworn on oath, deposes and says as follows:

1. My name is Lee L. Selwyn. I have submitted prefiled direct and surrebuttal testimony in the above-captioned proceeding on April 20, 2004 and May 12, 2004, respectively, and have stood for cross-examination thereon at the hearing held by the Washington Utilities and Transportation Commission ("Commission") on May 27, 2004.

2. At the conclusion of my testimony, I was asked by the Commission to provide certain corrections to the data and results pertaining to the regression models that I had presented in my April 20, 2004 direct testimony and that had been raised during cross-examination, and to provide this material together with an explanation of the corrections and supporting workpapers as Bench Request No. 3.

3. The "Response of Dr. Lee L. Selwyn to Bench Request No. 3" dated June 1, 2004 provides the requested information and supporting data. It was prepared by me and by my staff under my direction and supervision. I know the contents thereof and am fully prepared to stand for cross-examination thereon if requested to do so.

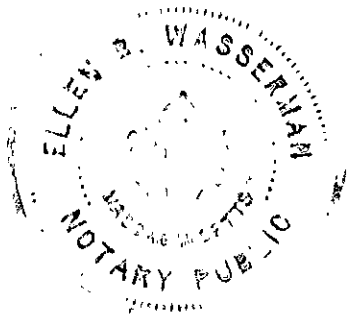
The foregoing statements are true and correct to the best of my knowledge, information and belief.

Lee L. Selwyn

Sworn to before me this first day of June, 2004

Ellen B Wasserman
Notary Public

My commission expires 3/31/06



WUTC Docket No. UT-023003

Response of Dr. Lee L. Selwyn to Bench Request No. 3

June 1, 2004

During my cross-examination by counsel for Verizon Northwest at the hearing in this matter held on May 27, 2004, certain input data errors were identified in the multiple linear regression analyses that I had provided in my Direct Testimony filed April 20, 2004. Specifically, certain of the observations for the Percent Non-ILEC Assets variables for SBC had inadvertently included as "non-ILEC" SBC assets in three Bell Operating Companies – Ameritech, Nevada Bell, and the Southern New England Telephone Company ("SNET"). At the Bench's request, I have corrected these errors and have re-run the regression models to include the corrected values. As I had hypothesized during my cross-examination on May 27, correction of these data input errors has in fact resulted in a significant improvement in the regression results.

SBC's 10-K and 10-Q filings with the SEC no longer report balance sheet and income statement results separately for Ameritech, Nevada Bell and SNET, but data for these entities continues to be separately reported by SBC to the FCC via its ARMIS filings. However, since SEC filings are currently being made by SBC in accordance with Generally Accepted Accounting Practices ("GAAP") whereas ARMIS filings are based upon the FCC's Part 32 and Part 36 Regulatory Accounting Rules, it was necessary for me to adjust the ARMIS data to make it approximately comparable to the SEC filings. While the adjustments that I made and that I describe below may lack absolute precision, I believe that they provide entirely reasonable and

accurate approximations that are more than fully sufficient to satisfy the requirements of the regression models. Moreover, in order to achieve the maximum possible precision, I developed two alternative methods to measure SBC's ILEC assets, and determined that both approaches improve all three of the original models described in my direct testimony. Indeed, these three models now estimate an even larger coefficient and *t*-statistic for the Percent Non-ILEC Assets variable (the measure of diversification into nonregulated lines of business). Therefore, the new regression results demonstrate an even greater correlation between diversification and the RBOCs' increasing beta values. Moreover, the new iterations continue to show that both Facilities-Based Competition and All Competition (including facilities-based, UNE-based, and resale) have no statistically significant relationship with RBOC beta values.

I applied two separate techniques to estimate the GAAP (i.e., 10-K equivalent) values for SBC's ILEC assets in Ameritech, Nevada Bell and SNET:

(1) **ARMIS-based method.** Using ARMIS regulatory accounting data, I calculated the ratio of Pacific Bell + Southwestern Bell assets to total SBC ILEC assets, and the ratio of Ameritech + Nevada Bell + SNET assets to total SBC ILEC assets for the years1999-2003, and based thereon interpolated half-year results. I then applied these ratios to the corresponding period GAAP values for Pacific Bell + Southwestern Bell assets as provided in SBC's 10-Ks and 10-Qs to estimate GAAP-equivalent values for Ameritech + Nevada Bell + SNET. For example, at the end of 2002, ARMIS reports that Pacific Bell and Southwestern Bell accounted for 63.39% of all SBC's ILEC assets, while Ameritech, SNET, and Nevada Bell accounted for the remaining 36.61%. SBC reports in its 2002 10-K that Pacific Bell and

Southwestern Bell account for $34.9-billion in assets. Therefore, since $34.9-billion represents 63.39% percent of all of SBC's ILEC assets, we can calculate SBC's total ILEC assets at $34.9-billion / 0.63387 = $55.1-billion. These results are presented below in Table BR3-1.

Table BR3-1

SBC Ameritech, SNET, and Nevada Bell ILEC Assets
Based upon ARMIS Asset Ratios

Period	ARMIS Data		SEC Data	Estimated SEC Equivalents	All SBC
	Percent PacBell + SW Bell	Percent Ameritech + SNET + Nevada Bell	Assets for PacBell and SW Bell	Assets for Ameritech, SNET, and Nevada Bell	Total ILEC Assets
Dec 31, 1999	63.67%	36.33%	$32.37	$18.47	$50.84
June 30, 2000	64.02%	35.98%	$32.99	$18.54	$51.54
Dec 31, 2000	64.37%	35.63%	$35.96	$19.90	$55.86
June 30, 2001	64.27%	35.73%	$36.93	$20.53	$57.46
Dec 31, 2001	64.18%	35.82%	$37.38	$20.87	$58.25
June 30, 2002	63.78%	36.22%	$36.36	$20.65	$57.01
Dec 31, 2002	63.39%	36.61%	$34.91	$20.16	$55.07

Note: Assets are in billions of dollars.

Sources: (1) Federal Communications Commission, ARMIS Report 43-02, USOA Report: Table B-1.A YE 1999-2003 ("*SBC ARMIS Assets*"). Available at http://www.fcc.gov/wcb/eafs/ (Accessed May 27, 2004).

(2) SBC Communications Inc, 2002 10K Report filed with the US Securities and Exchange Commission, March 14, 2003; 2001 10K Report filed February 28, 2002; 2000 10K Report filed March 12, 2001; 1999 10K Report filed March 10, 2000; Second Quarter 2002 10Q filed August 12, 2002; Second Quarter 2001 10Q filed August 8, 2001; Second Quarter 2000 10Q filed August 10, 2002 ("*SBC SEC Reports*").

(2) **December 1997 10-K-based method.** In the second method, I calculated a single ratio of Pacific Bell + Southwestern Bell assets to total SBC ILEC assets and a single ratio of Ameritech + Nevada Bell + SNET assets to total SBC ILEC assets based upon the most recent date (December 31, 1997) at which all five of what are now SBC's ILEC subsidiaries filed 10-K financial information with the SEC. As of December 31, 1997, Pacific Bell and Southwestern Bell together accounted for 62.00% of what would later become SBC's ILEC assets (following all of its various mergers), while Ameritech, Nevada Bell, and SNET accounted for the remaining 38.00%. I then applied these single period ratios to all of the post-1997 10-K data to obtain estimates of total SBC ILEC assets for each period. The results of this calculation are provided in Table BR3-2.

Table BR3-2

SBC Ameritech, SNET, and Nevada Bell ILEC Assets
Based upon 10-K Asset Ratios as of 12/31/97

Period	**SEC Data**			**Estimated SEC Equivalents**	**All SBC**
	Percent PacBell and SW Bell	Percent Ameritech, SNET, and Nevada Bell	Assets for PacBell and SW Bell	Assets for Ameritech, SNET, and Nevada Bell	Total ILEC Assets
Dec 31, 1999	62.00%	38.00%	$32.37	$19.84	$52.21
June 30, 2000	62.00%	38.00%	$32.99	$20.22	$53.21
Dec 31, 2000	62.00%	38.00%	$35.96	$22.04	$58.00
June 30, 2001	62.00%	38.00%	$36.93	$22.64	$59.57
Dec 31, 2001	62.00%	38.00%	$37.38	$22.91	$60.30
June 30, 2002	62.00%	38.00%	$36.36	$22.29	$58.65
Dec 31, 2002	62.00%	38.00%	$34.91	$21.40	$56.30

Note: Assets are in $billions.

Sources:
(1) *SBC ARMIS Assets,* presented in Table BR3-1.
(2) *SBC SEC Reports,* presented in Table BR3-1.
(3) Ohio Bell Telephone Company, 1997 10K Report filed with the US Securities and Exchange Commission, March 13, 1998.
(4) Wisconsin Bell Inc., 1997 10K Report filed with the US Securities and Exchange Commission, March 13, 1998.
(5) Indiana Bell Telephone Company, 1997 10K Report filed with the US Securities and Exchange Commission, March 13, 1998.
(6) Illinois Bell Telephone Company, 1997 10K Report filed with the US Securities and Exchange Commission, March 13, 1998.
(7) Michigan Bell Telephone Company, 1997 10K Report filed with the US Securities and Exchange Commission, March 13, 1998.
(8) SBC Communications Inc., 1998 10K Report filed with the US Securities and Exchange Commission, March 12, 1999.
(9) Southern New England Telephone., 1998 2nd Quarter 10Q Report filed with the US Securities and Exchange Commission, August 6, 1998.

Using these corrected values for SBC's ILEC assets, I calculated new values for the regression variable Percent Non-ILEC Assets, which are presented below in Table BR3-3.

Table BR3-3

SBC Percent Non-ILEC Assets
Comparison of Original and Corrected Values

Period	Original Values	Corrected Values	
		ARMIS-Based Calculation	12/1997 10K-Based Calculation
Dec 31, 1999	0.3904	0.3891	0.3726
June 30, 2000	0.4317	0.4349	0.4164
Dec 31, 2000	0.4375	0.4337	0.4121
June 30, 2001	0.6150	0.4010	0.3790
Dec 31, 2001	0.6119	0.3953	0.3740
June 30, 2002	0.6145	0.3956	0.3782
Dec 31, 2002	0.6328	0.4206	0.4077

I then re-ran all three regression models with both sets of corrected SBC Percent Non-ILEC Asset values. As I had expected, the corrected data improved the results for all three models.

- In the first model, which measures the impact of diversification (Percent Non-ILEC Assets), facilities-based competition (FB Comp), and financial leverage (Leverage) upon Beta, both the coefficient and *t*-statistic of the diversification variable (Percent Non-ILEC Assets) increased using the corrected SBC data. Specifically, the coefficient increased from 1.34 in the original model to 1.57 in the corrected ARMIS-based model, and to 1.56 in the corrected 12/1997 10-K-based analysis. Similarly, the *t*-statistic increased from 5.71 in the original

model to 12.76 in the corrected ARMIS-based analysis and 12.88 in the 12/1997 10-K-based analysis (See Table BS3-4). At the same time, the Facilities-Based Competition variable remained not significant and negative. It is also important to note that in both versions of the corrected model the Adjusted R-Squared value *increased* (from 0.915 in the original model to 0.979 in the ARMIS-based corrected model and 0.980 in the 12/1997 10-K-based model. The improvement in the Adjusted R-Squared values is significant in two key respects: First, it confirms my expectation, as expressed during my cross-examination, that the corrections would improve the model results, and second, it confirms that even though the corrected input values are necessarily estimates (due to the unavailability of 10-K data for Ameritech, Nevada Bell and SNET), the small degree of imprecision is of no consequence to the overall validity of the model or to its conclusion that diversification is the source of the increase in RBOC betas, and that increased facilities-based competition is not. I would also note that in both corrected models the SBC Dummy variable is no longer correcting for the original data error. In the ARMIS-based model, the coefficient of the SBC Dummy decreased (in absolute value) from –0.26 to –0.08, with borderline significance at the 95% confidence level. In the 12/1997 10-K model, the SBC Dummy was not significant at the 95% confidence level. In the original model, the SBC Dummy variable had been correcting for the SBC data error; with the corrected input data, the SBC Dummy has essentially dropped out.

Table BR3-4
Regression Results
7 period semi-annual data
1H00 - 1H03

Explanatory Variable	Original Model		ARMIS-Based Corrected Model		12/1997 10-K-based Corrected Model	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
Constant	**0.58**	3.59	**0.33**	3.89	**0.33**	3.98
FB Competition	-10.68	-1.88	-4.48	-1.73	-4.43	-1.73
Percent Non-ILEC	**1.34**	5.71	**1.57**	12.76	**1.56**	12.87
Leverage	**0.80**	2.58	0.16	1.02	0.16	1.05
SBC Dummy	**-0.26**	-3.03	**-0.08**	-2.26	-0.06	-1.54
Qwest Dummy	0.05	0.39	**0.20**	3.55	**0.20**	3.56
BellSouth Dummy	-0.20	-2.02	**-0.12**	-2.45	**-0.12**	-2.50
2H02 Dummy	-0.04	0.09	**0.14**	3.01	**0.14**	3.00
1H03 Dummy	0.04	0.09	**0.17**	3.60	**0.16**	3.54
Adjusted R^2	0.915		0.979		0.980	
Durbin-Watson	2.01		2.18		2.28	

Note: With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 for a two-tailed test and 1.83 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant. All Dummy variables not shown were not significant in either the original or the corrected models.

- The second model from my original analysis is very similar to the first model, except that it includes a variable for all forms of competition (facilities-based, UNE-based, and resale) rather than a variable for facilities-based competition only. Again, the corrected SBC figures improve my results and my confidence in them. The coefficient of Percent Non-ILEC Assets increased from 1.33 to 1.60 in the ARMIS-based model and to 1.59 in the 12/1997 10-K-

based model. The *t*-statistic and Adjusted R-Squared values also increased from those in the original version. The results are presented below in Table BR3-5.

Table BR3-5
Alternative Regression Specification 1:
Replacing facilities-based competition with all competition
7 period semi-annual data – 1H00 - 1H03

Explanatory Variable	Original Model		ARMIS-Based Corrected Model		12/1997 10-K-based Corrected Model	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
Constant	**0.60**	3.12	**0.36**	4.06	**0.36**	4.15
All Competition	-3.99	-1.52	-2.18	-1.97	-2.17	-1.99
Percent Non-ILEC	**1.33**	5.27	**1.60**	13.13	**1.59**	13.29
Leverage	0.53	2.00	0.05	0.37	0.05	0.41
SBC Dummy	**-0.25**	-2.73	**-0.08**	-2.44	-0.05	-1.70
Qwest Dummy	0.06	0.44	**0.18**	3.24	**0.18**	3.24
BellSouth Dummy	-0.21	-1.74	**-0.14**	-2.66	**-0.14**	-2.72
2H02 Dummy	0.11	0.70	**0.23**	3.28	**0.23**	3.29
1H03 Dummy	0.24	1.22	**0.29**	3.24	**0.28**	3.23
Adjusted R^2	0.906		0.981		0.981	
Durbin-Watson	1.89		2.17		2.27	

Note: With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 for a two-tailed test and 1.83 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant. All Dummy variables not shown were not significant in either the original or the corrected models.

- Finally, the third model (from my original analysis) traces non-ILEC assets back to 1997 and tests the relationship between diversification and increased RBOC risk over a longer period of time. In this model, the competition variable is not included as an explanatory variable because facilities-based competition data was not available prior to end-of-year 1999. Once

again, the corrected SBC non-ILEC asset figures improve my analysis. The coefficient of Percent Non-ILEC Assets increased from 1.18 to 1.25 in the ARMIS-based model and to 1.25 in the 12/1997 10-K-based model (see all of the results below in Table BR3-6).

Table BR3-6
Alternative Regression Specification 2:
Excluding competition variables
annual data – 1997 - 2003

Explanatory Variable	Original Model		ARMIS-Based Corrected Model		12/1997 10-K-based Corrected Model	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
Constant	0.11	0.89	0.18	1.48	0.20	1.62
Percent Non-ILEC	**1.18**	7.78	**1.25**	7.68	**1.25**	7.85
Leverage	**0.79**	2.74	0.41	1.32	0.38	1.25
1997 Dummy	**0.14**	2.42	**0.17**	2.81	**0.16**	2.81
1998 Dummy	**0.16**	2.86	**0.17**	3.04	**0.16**	3.01
Qwest Dummy	**0.31**	3.26	**0.30**	3.19	**0.30**	3.21
Verizon Dummy	**0.22**	2.32	0.16	1.73	0.16	1.71
Adjusted R^2	0.830		0.827		0.832	
Durbin-Watson	1.68		1.96		1.98	

Note: With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 for a two-tailed test and 1.83 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant. All Dummy variables not shown were not significant in either the original or the corrected models.

Attached hereto is a corrected version of Attachment 4 to my April 20, 2004 direct testimony, identified and admitted as Exhibit 655, with supporting appendices and data sources. The corrections made therein correspond to the corrected SBC input data and regression model results described above.

Corrections to Prefiled Direct Testimony
Exhibit 651

A. I designed a regression model to better understand the causal relationship between competition and systematic risk in the telecommunications services industry. The model examined the relationship between RBOC beta values (the dependent variable) presented in the Value-Line Investment Survey and several possible explanatory variables in order to understand the differences in the beta values confronted by the RBOCs over the past few years. The explanatory variables presented in the model include the percent of non-ILEC assets held by the RBOC (a measure of diversification),[55] the CLEC facilities-based market share in each RBOC region (a measure of facilities-based competition), and the RBOCs' debt/equity ratio (a measure of their financial leverage).[56] Since the data are both cross-sectional and time-series in nature, dummy variables were included for each company and each time period.

Q. What were the results of your regression analysis?

A. The regression model shows that diversification by the RBOCs into new industries increases exposure to systematic risks and leads to increased beta values, while changes in company-specific variables like competition do not impact systematic risk. As the regression results demonstrate, Percent Non-ILEC (with a coefficient of ~~1.34~~ 1.57 and a *t*-statistic of ~~5.71~~ 12.76) ~~and Leverage (with a coefficient of 0.80 and *t*-statistic of 2.58)~~ had the largest impact upon the

55. Assets are the best measure of diversification because they represent the past investment decisions of the company and quantify the value of the existing equipment necessary and ready for non-LEC ventures.

56. The availability of public data concerning competition limited the time frame of my analysis to the last four years. The data was available in the FCC's semiannual *Local Telephone Competition* reports. They are available online at http://www.fcc.gov/wcb/iatd/comp.html.

beta values, while the extent of Facilities-based Competition (with a coefficient of -10.68 -4.48 and a *t*-statistic of -1.88 -1.73) proved not to be significant and if anything decreased an RBOC's exposure to systematic risk.[57] Table 2 presents these results and Attachment 4 to my testimony presents a more detailed explanation and supporting work papers for this analysis.

Table 2

Regression Results 7 Period Semi-annual Data
1H00 - 1H03

Variable	**Coefficient**	***t*-Statistic**
Constant	~~0.58~~ 0.33	~~3.59~~ 3.90
Facilities-based Comp	~~-10.68~~ -4.48	~~-1.88~~ -1.73
Percent Non-ILEC	~~1.54~~ 1.57	~~5.71~~ 12.76
Leverage	~~0.80~~ 0.16	~~2.58~~ 1.02
SBC Dummy	-0.~~26~~ -0.08	-~~3.03~~ -2.26
Adjusted R^2	~~0.915~~ 0.980	
Durbin-Watson	~~2.01~~ 2.18	

Notes: (1) *With 9 degrees of freedom, the t-statistic* must be greater than 2.26 for a two-tailed test and 1.83 for a one-tailed test to be significant at the 95% level. Bolded *numbers are significant* (based on a two-tailed test).
(2) All other dummy variables for the companies and time periods were not significant and thus were not included in the table.

57. Since the hypothesis being tested, i.e., that there is a positive correlation between the amount of facilities-based competition and the level of systematic risk (beta), requires the use of a one-tail *t*-test, a value of *t* below *positive* 1.83 in this case (for 9 degrees of freedom at the 95% confidence level), which necessarily includes all negative values of *t*, fails the test of statistical significance at the 95% confidence limit.

was extended back to the end of 1996, the year that the *Telecommunications Act* became law. Inasmuch as competition was determined to have no effect upon systematic risk, competition was excluded as an explanatory variable from this second model.[59] Not surprisingly, the results in both models (presented in Tables 3 and 4) were very similar. Both models show that diversification was the leading source of increased beta values.

Table 3

Alternate Regression Model 1 Including Total Competition 7 Period Semi-annual Data 1H00 - 1H03

Variable	Coefficient	t-Statistic
Constant	~~0.610~~ 0.36	~~3.12~~ 4.06
Total Competition	~~-3.99~~ -2.18	~~-1.52~~ -1.97
Percent Non-ILEC	~~1.33~~ 1.60	~~5.27~~ 13.13
Leverage	~~0.58~~ 0.05	~~2.00~~ 0.31
SBC Dummy	~~-0.25~~ 0.09	~~-2.73~~ -2.44
Adjusted R^2	~~0.906~~ 0.981	
Durbin-Watson	~~1.89~~ 2.17	

Notes: (1) With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 for a two-tailed test and 1.83 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant (based on a two-tailed test).
(2) All other dummy variables for the companies and time periods were not significant and thus were not included in the table.

59. The original analysis was limited to the 1H00 - 1H03 time period because the WCB didn't begin providing competition data by state until end-of-year 1999.

Table 4

Alternative Regression Model 2 Excluding FB Competition Annual Data 1997-2003

Variable	Coefficient	t-Statistic
Constant	~~0.11~~ 0.18	~~0.89~~ 1.48
Percent Non-LEC	~~1.18~~ 1.25	~~7.78~~ 7.68
Leverage	~~0.79~~ 0.41	~~2.74~~ 1.32
1997 Dummy	~~0.14~~ 0.17	~~2.42~~ 2.18
1998 Dummy	~~0.16~~ 0.17	~~2.86~~ 3.05
Qwest Dummy	~~0.31~~ 0.30	~~3.26~~ 3.19
Verizon Dummy	~~0.22~~ 0.16	~~2.32~~ 1.73
Adjusted R^2	~~0.830~~ 0.827	
Durbin-Watson	~~1.88~~ 1.96	

Notes: (1) With 16 degrees of freedom, the *t*-statistic must be greater than 2.12 for a two-tailed test and 1.75 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant (based on a two-tailed test).
(2) All other dummy variables for the companies and time periods were not significant and thus were not included in the table.

Q. What conclusions do you draw from the three models?

A. These three models, separately and collectively, provide empirical support for the CAPM-driven conclusion that RBOC diversification, and *not* facilities-based competition for basic local telephone service, is the principal source of elevated risk (as reflected in elevated beta values) currently being experienced by the RBOCs.

Corrections to Attachment 4
Exhibit 655

Technical Description of Regression Analysis
(Corrected 6/1/04)

Overview

In the *Virginia Arbitration Order*, the Wireline Competition Bureau ("WCB") concluded that facilities-based competition in the local service market (assumed under TELRIC) would increase the systematic risk (beta values) of the incumbent providers and thus "absent evidence of any unique risks associated with the telecommunications industry, or a particular segment of the industry,"[1] the WCB was "uncomfortable prescribing a cost of equity capital for UNEs that is based on a beta significantly higher or lower than the average beta for companies that face competition"[2] – i.e., a beta of 1.0. No specific empirical analysis or other authority was advanced by the Commission in support of this "imputed" beta value. This analysis disputes the WCB's conclusion by providing evidence of the unique lack of risks associated with the local service industry, which greatly distinguish its beta from the average competitive company.

Beta is a measure of *systematic risk*. Systematic risk is influenced by a number of *macroeconomic* factors, such as changes in interest rates, GDP, or inflation; conditions that impact all companies simultaneously. Companies within like industries tend to respond to these macro factors similarly, yet not all industries respond the same way (see Table 3 in my Direct Testimony). For example, the soft drink industry confronts only minor fluctuations in demand regardless of what is happening in the economy – exhibited in its very low industry beta of 0.67. The local service industry, as will be explained in greater detail below, is very similar.

RBOC betas have been increasing in recent years. In the *Virginia* order, the Commission ascribed the increases in RBOCs betas to the presence of facilities-based competition confronting incumbent local exchange carriers ("ILECs"). To test this hypothesis, ETI conducted an econometric analysis employing ordinary least squares regression modeling to identify and quantify the principal sources of the higher RBOC beta values. The analysis, which is described in this Exhibit, does not support the hypothesized relationship between facilities-based competition and increased systematic risk. In fact, several factors *other than the presence of facilities-based competition* (including diversification and financial leverage) appear to be the primary drivers of the higher risks and increases in cost of capital that the RBOCs now confront.

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1. *Virginia Arbitration Order*, at para. 90.

2. *Id*., at para. 90.

Since the enactment of the 1996 legislation, the RBOCs have invested heavily in *non-ILEC*, non-regulated activities, such as wireless services, broadband and related Internet services, foreign ventures, and, most recently, long distance. Unlike core basic local telephone service, the demand for which is highly price- and income-inelastic, these newer RBOC investment initiatives are more discretionary goods and far more heavily impacted by macroeconomic factors. For example, the three principal publicly-traded *non-RBOC* wireless carriers – AT&T Wireless, Sprint PCS and Nextel – have an average beta of 1.65.[3] It is reasonable to assume that the RBOCs confront an equally elevated level of systematic risk with respect to their own wireless affiliates, causing the parent company betas to be higher than they would otherwise be if, for example, wireless was not in their portfolios. Other *non-ILEC* RBOC ventures exhibit similar elevated levels of risk which, when averaged with the considerably less risky ILEC operation, explain the increase in overall RBOC beta values.

The Data

We considered four potential sources to explain the varying degrees of exposure to systematic risk (beta values) confronted by the RBOCs – facilities-based competition, all competition, RBOC asset diversification into non-ILEC ventures, and financial leverage. The data for this analysis was taken from several publicly available sources – FCC Form 477, SEC Forms 10-K and 10-Q, and the Value Line Investment Survey. The data were collected for each RBOC for 1996 through 2002, except for data on facilities-based competition, which was only available for 1999 through 2002.

RBOC Betas. The regression models were estimated using both annual and semi-annual data. For the annual analyses, RBOC betas were averaged over the four quarters following the public release date of the corresponding explanatory variable; for the semi-annual analysis, the RBOC betas were averaged over the two quarters following the public release date of the explanatory variable. By averaging beta values (over two quarters or four, respectively), seasonal or random variation in the beta values are addressed.

Facilities-based competition. The level of facilities-based competition came from the FCC's *Local Telephone Competition and Broadband Deployment* report for 1999 through 2002.[4] CLEC-owned lines (by state) were separated by RBOC region and CLEC facilities-based market shares were calculated for each RBOC region by using the counts of RBOC ILEC lines for each

3. As of January 2004, beta values for each were 1.45 for AT&T Wireless, 1.80 for Nextel, and 1.65 for Sprint PCS. Value Line Investment Survey, January 2, 2004, pp. 722, 734, 739.

4. The reports are available online at http://www.fcc.gov/wcb/iatd/comp.html.

state. Since the data for CLEC-owned lines has only been reported by state since end-of-year 1999, the analysis was necessarily limited to the seven half-year periods from 2H99 through and including 2H02. Because betas necessarily reflect historic conditions, the explanatory variables were lagged by one period relative to the beta values .

All competition. The level of all competition came from the FCC's *Local Telephone Competition and Broadband Deployment* report for 1999 through 2002.[5] Total CLEC end-user switched access lines (by state) were separated by RBOC region and CLEC market shares were calculated for each RBOC region by using the counts of RBOC ILEC lines for each state. Since the data for CLEC end-user switched access lines has only been reported by state since end-of-year 1999, the analysis was necessarily limited to the seven half-year periods from 2H99 through and including 2H02. Because betas necessarily reflect historic conditions, the explanatory variables were lagged by one period relative to the beta values .

Asset diversification. The measure of diversification was calculated as the share of total RBOC assets devoted to non-ILEC activities. Assets were used as a measure of diversification because they best represent and quantify long-term investment commitments of the RBOCs. The data was obtained from the parent company and ILEC affiliate 10-K and 10-Q reports filed with the Securities and Exchange Commission ("SEC"). The share of non-ILEC RBOC assets was calculated by subtracting the value of the assets in the RBOC ILEC affiliates (i.e., the BOCs) from the total parent company assets, and then dividing that value by the total parent company assets.[6] However, in the case of SBC, which does not separately file asset data for Ameritech, Nevada Bell, and SNET, two separate methods were employed to estimate an accurate level of diversification. First, an ARMIS-based asset ratio was applied to Pacific Bell and Southwestern Bell Telephone Company assets (relative to Ameritech et al assets) to fully account for SBC ILEC assets. Second, a similar asset ratio was calculated based on ratios of assets as reported in the December 1997 10Ks for all five ILECs – the most recent date at which 10Ks were filed for all of these companies. Each of three regression models contains two versions – one with the ARMIS-based SBC asset ratio (Version A) and one with the 12/97 10K based asset ratio (Version B).

Financial leverage. The financial leverage variable was calculated from Value Line Investment Survey data as the ratio of debt financing to total debt plus equity in the RBOC. Not

5. The reports are available online at http://www.fcc.gov/wcb/iatd/comp.html.

6. Percent Non-ILEC = (Total RBOC Assets - ΣILEC Assets)/Total RBOC Assets

surprisingly, there was some correlation between the diversification variable and financial leverage variable, since some of the diversification was financed disproportionately with debt.[7]

Finally, since the data are both cross-sectional (representing different RBOCs) and time-series (covering different time periods), dummy variables were assigned for each company and each time period. This technique is known as pooling and allows one to combine both cross-sectional and time-series data effectively.[8]

The Regression Models and Results

ETI ran three distinct regressions to best understand the relationships between systematic risk (beta) and the principal explanatory variables – facilities-based competition, all competition, asset diversification, and financial leverage. Since FCC data on the extent of facilities-based competition has only been reported since end-of-year 1999, the analyses in which competition was included was necessarily limited to the seven most recent half-year periods. These results are presented in Tables A4-1A, A4-1B, A4-2A, and A4-2B below (Appendices 1 and 2 to this Attachment contain the results of the individual regression runs). The third iteration excluded all competition-based variables and was extended back to 1996. Table A4-3A and A4-3B contain these results, with the regression run results being provided in Appendix 3 to this Attachment. All three iterations of the regression, which are described below, indicate that the growth of facilities-based competition and all competition were not significant sources of the increase in RBOC beta values, and show that RBOC asset diversification has been the principal source of the increase in RBOC betas.[9]

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7. There was also some correlation between the facilities-based competition variable and the diversification variable. However, there is no intuitive basis to ascribe any direct linkage or causality between the two. Rather, both have tended to increase over time, and hence exhibit some apparent correlation in a time-series analysis.

8. SHAZAM, a widely-used econometric software package produced through the University of British Columbia (and which was used for the regressions described herein), provides a description of this technique on its web page. See, http://shazam.econ.ubc.ca/intro/poolols.htm.

9. This is true both for a two-sided test and a one-sided test. For a two-sided test, one tests for any (either positive or negative) correlation between the dependent variable (beta) and the independent variables (facilities-based competition, all competition, diversification, and leverage). For a one-sided test, one tests for a potential positive correlation only. A one-sided test is valid in this situation because of the WCB's hypothesis that competition *increases*

(continued...)

Table A4-1A
Regression Results
7 period semi-annual data
1H00 - 1H03

Explanatory Variable	Coefficient	*t*-Statistic
Constant	**0.33**	3.89
FB Competition	-4.48	-1.73
Percent Non-ILEC	**1.57**	12.76
Leverage	0.16	1.02
SBC Dummy	**-0.08**	-2.26
Qwest Dummy	**0.20**	3.55
BellSouth Dummy	**-0.12**	-2.45
2H02 Dummy	**0.14**	3.01
1H03 Dummy	**0.17**	3.60
Adjusted R^2	0.9793	
Durbin-Watson	2.177	

Notes: (1) With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 for a two-tailed test and 1.83 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant.
(2) All other dummy variables for the companies and time periods were not significant and thus were not included in the table.

9. (...continued)
systematic risk. In a one-tail *t*-test, a value of *t* below *positive* 1.83 in this case (for 9 degrees of freedom at the 95% confidence level), which necessarily includes all negative values of *t*, fails the test of statistical significance at the 95% confidence level. In a two-tail *t*-test, *t* must be above 2.26 to be deemed significant at the 95% level.

Table A4-1B
Regression Results
7 period semi-annual data
1H00 - 1H03

Explanatory Variable	Coefficient	*t*-Statistic
Constant	**0.33**	3.98
FB Competition	-4.43	-1.73
Percent Non-ILEC	**1.56**	12.88
Leverage	0.16	1.05
BellSouth Dummy	**-0.12**	-2.50
Qwest Dummy	**0.20**	3.56
2H02 Dummy	**0.14**	3.00
1H03 Dummy	**0.16**	3.54
Adjusted R^2	0.9796	
Durbin-Watson	2.276	

Notes: (1) With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 for a two-tailed test and 1.83 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant.
(2) All other dummy variables for the companies and time periods were not significant and thus were not included in the table.

To further test the validity of this conclusion, two alternate model specifications were used in which (1) the facilities-based competition variable was replaced with a total competition variable and (2) the facilities-based competition variable was excluded. Since the second alternative model was not limited to the time periods covered by the FCC Local Competition Reports with respect to competition, the analysis was extended back to the 1996, when TA96 was enacted and when the FCC's *Local Competition Order* was issued (see Appendix 3 to this Exhibit). The analysis covered seven years of data and included six out of the original seven

ILECs.[10] All three models similarly ascribed the principal sources of increased RBOC betas to the growing share of total RBOC assets that were committed to *non-ILEC* (non-BOC) lines of business (see Tables A4-2A, A4-2B, A4-3A and A4-3B).

Table A4-2A
Alternative Regression Specification 1:
Replacing facilities-based competition with all competition
7 period semi-annual data
1H00 - 1H03

Explanatory Variable	Coefficient	*t*-Statistic
Constant	**0.36**	4.06
All Competition	-2.18	-1.97
Percent Non-LEC	**1.60**	13.13
Leverage	0.05	0.37
SBC Dummy	**-0.09**	-2.44
Qwest Dummy	**0.18**	3.24
BellSouth Dummy	**-0.14**	-2.66
2H02 Dummy	**0.23**	3.28
1H03 Dummy	**0.29**	3.24
Adjusted R^2	0.9807	
Durbin-Watson	2.174	

Notes: (1) With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 for a two-tailed test and 1.83 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant
(2) All other dummy variables for the companies and time periods were not significant and thus were not included in the table.

10. The Pacific Telesis-SBC merger was announced in April 1996 and became effective as of April 1, 1997. Value Line did not publish beta values for Pacific Telesis in 1996 or 1997, and so Pacific Telesis was not included in the model.

Table A4-2B
Alternative Regression Specification 1:
Replacing facilities-based competition with all competition
7 period semi-annual data
1H00 - 1H03

Explanatory Variable	Coefficient	*t*-Statistic
Constant	**0.36**	4.15
All Competition	-2.17	-1.99
Percent Non-LEC	**1.59**	13.29
Leverage	0.05	0.41
Qwest Dummy	**0.18**	3.24
BellSouth Dummy	**-0.14**	-2.71
2H02 Dummy	**0.23**	3.29
1H03 Dummy	**0.28**	3.24
Adjusted R^2	0.9811	
Durbin-Watson	2.270	

Notes: (1) With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 for a two-tailed test and 1.83 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant
(2) All other dummy variables for the companies and time periods were not significant and thus were not included in the table.

Table A4-3A
Alternative Regression Specification 2:
Excluding competition variables
annual data
1997 - 2003

Variable	**Coefficient**	***t*-Statistic**
Constant	0.18	1.48
Percent Non-LEC	**1.25**	7.68
Leverage	0.41	1.32
1997 Dummy	**0.17**	2.81
1998 Dummy	**0.17**	3.04
Qwest Dummy	**0.30**	3.19
Adjusted R^2	0.8267	
Durbin-Watson	1.9591	

Notes: (1) With 16 degrees of freedom, the *t*-statistic must be greater than 2.12 for a two-tailed test and 1.75 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant.
(2) All other dummy variables for the companies and time periods were not significant and thus were not included in the table.

Table A4-3B
Alternative Regression Specification 2:
Excluding competition variables
annual data
1997 - 2003

Variable	Coefficient	*t*-Statistic
Constant	0.20	1.62
Percent Non-LEC	**1.25**	7.85
Leverage	0.38	1.25
1997 Dummy	**0.16**	2.81
1998 Dummy	**0.16**	3.01
Qwest Dummy	**0.30**	3.21
Adjusted R^2	0.8323	
Durbin-Watson	1.984	

Notes: (1) With 16 degrees of freedom, the *t*-statistic must be greater than 2.12 for a two-tailed test and 1.75 for a one-tailed test to be significant at the 95% level. Bolded numbers are significant.
(2) All other dummy variables for the companies and time periods were not significant and thus were not included in the table.

Conclusion

The regression analysis refutes the relationship hypothesized by the Commission – i.e., that facilities-based competition increases systematic risk and, therefore, causes the RBOCs to confront higher costs of capital than would prevail under noncompetitive conditions. The analysis also demonstrates that the primary source of increased risk is RBOC diversification into non-ILEC, nonregulated lines of business. The effect of the Commission's imputation of a beta value of 1.00 – the average beta value of a firm facing facilities-based competition – is to shift the consequences of these increased *non-ILEC* sources of risk into the RBOCs' regulated core services. By requiring that the cost of capital applicable to TELRIC be based upon *average* RBOC corporation-wide risks rather than being confined to the substantially lower risk confronting the BOC's ILEC entities specifically, the effect is to overstate the cost of capital

attributable to the RBOCs' regulated operations and in so doing shift capital costs out of the nonregulated, non-ILEC competitive components of the RBOCs over to their regulated operations, in effect forcing the ILEC to cross-subsidize the remaining and far more risky portions of the RBOCs' business.

Appendix 1A and 1B

Dependent Variable:	ILEC Beta Values
Explanatory Variables:	Facilities-Based Competition (FB_Comp) Diversification (Non_ILEC) Financial Leverage (Leverage)
Time Series:	Betas, 1H00 – 1H03 (7 periods) Explanatory Variables, 2H99 – 2H02 (7 periods)
Companies Included:	BellSouth (7 observations) Qwest (5 observations)[1] SBC (7 observations) Verizon (3 observations)[2]
Version:	Version A – Uses ARMIS-based asset information to estimate SBC ILEC assets. Version B – Uses 10K asset information as of 12/31/97 to estimate SBC ILEC assets.
Total Observations:	22

1. Value Line did not publish beta values for Qwest 2H00. Qwest has not released its 2002 10-K.

2. Value Line did not publish beta values for Verizon 2H00 - 2H02.

Data Underlying Appendix 1A					
Company	**Year**	**Beta**	**FB_Comp**	**Non_ILEC**	**Leverage**
BellSouth	1H00	0.825	0.0186	0.4719	0.1593
BellSouth	2H00	0.825	0.0207	0.4260	0.1967
BellSouth	1H01	0.825	0.0238	0.4170	0.2108
BellSouth	2H01	0.800	0.0260	0.3868	0.1931
BellSouth	1H02	0.775	0.0192	0.3861	0.2244
BellSouth	2H02	0.850	0.0199	0.3670	0.3141
BellSouth	1H03	0.900	0.0240	0.3641	0.2557
Qwest	1H00	0.750	0.0122	0.1415	0.2582
Qwest	1H01	1.600	0.0255	0.6892	0.2458
Qwest	2H01	1.475	0.0322	0.6644	0.4206
Qwest	1H02	1.475	0.0393	0.6603	0.6490
Qwest	2H02	1.675	0.0449	0.6557	0.8614
SBC	1H00	0.825	0.0124	0.3891	0.1274
SBC	2H00	0.850	0.0208	0.4349	0.1391
SBC	1H01	0.825	0.0276	0.4337	0.1542
SBC	2H01	0.800	0.0296	0.4010	0.1452
SBC	1H02	0.775	0.0326	0.3953	0.1692
SBC	2H02	0.900	0.0342	0.3956	0.2557
SBC	1H03	0.975	0.0351	0.4206	0.2366
Verizon	1H00	0.850	0.0171	0.3184	0.1773
Verizon	2H02	1.025	0.0480	0.4483	0.4349
Verizon	1H03	1.000	0.0478	0.4472	0.3680

SHAZAM OUTPUT

```
----------------------------7d41df3a702ae
Content-Disposition: form-data; name="IX"; filename="\\Etinovell\VOL1\ETI\AT&T\Wash
 FILE UPLOAD (120 CHARS MAX) FOR:
Content-Type: application/octet-stream
*****************************************************************
Hello/Bonjour/Aloha/Howdy/G Day/Kia Ora/Konnichiwa/Buenos Dias/Nee Hau/Ciao
Welcome to SHAZAM - Version 9.0  -  OCT 2003 SYSTEM=LINUX    PAR=   781
|_sample 1 22,,,,,,,,,,,,
|_Read Beta FBShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3 ,,,,,,,,,,,,
  13 VARIABLES AND       22 OBSERVATIONS STARTING AT OBS       1

|_STAT  Beta FBShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3  / pcor pcov,,,,,,,
NAME         N    MEAN         ST. DEV      VARIANCE     MINIMUM      MAXIMUM
BETA          22  0.98182      0.28828      0.83106E-01  0.75000       1.6750
FBSHARE       22  0.27795E-01 0.10527E-01 0.11081E-03  0.12200E-01  0.48000E-01
NONBOC        22  0.43910      0.12688      0.16098E-01  0.14150      0.68920
LEVERAGE      22  0.28167      0.17841      0.31829E-01  0.12740      0.86140
P1            22  0.18182      0.39477      0.15584       0.0000       1.0000
P2            22  0.13636      0.35125      0.12338       0.0000       1.0000
P3            22  0.13636      0.35125      0.12338       0.0000       1.0000
P4            22  0.13636      0.35125      0.12338       0.0000       1.0000
P5            22  0.18182      0.39477      0.15584       0.0000       1.0000
P6            22  0.13636      0.35125      0.12338       0.0000       1.0000
C1            22  0.22727      0.42893      0.18398       0.0000       1.0000
C2            22  0.31818      0.47673      0.22727       0.0000       1.0000
C3            22  0.31818      0.47673      0.22727       0.0000       1.0000

 CORRELATION MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA       1.0000
FBSHARE   0.51239       1.0000
NONBOC    0.89084      0.52891       1.0000
LEVERAGE  0.77742      0.65321      0.59846       1.0000
P1       -0.28339     -0.58305     -0.46535     -0.27347       1.0000
P2        0.14322     -0.83536E-01  0.23786     -0.17797     -0.18732
          1.0000
P3        0.60921E-01  0.56842E-01  0.14415     -0.65431E-01 -0.18732
         -0.15789       1.0000
P4        0.37408E-01  0.99342E-01  0.13294      0.15015     -0.18732
         -0.15789     -0.15789       1.0000
P5        0.21872      0.41044      0.10478      0.49994     -0.22222
         -0.18732     -0.18732     -0.18732       1.0000
P6       -0.33133E-01  0.30283     -0.91235E-01  0.11623E-01 -0.18732
         -0.15789     -0.15789     -0.15789     -0.18732       1.0000
C1        0.79559      0.15949      0.53866      0.63886      0.25565E-01
          0.10057      0.10057      0.10057      0.25565E-01 -0.21550
          1.0000
C2       -0.31972     -0.21523E-01 -0.16018     -0.41671     -0.69007E-01
          0.12926E-01  0.12926E-01  0.12926E-01 -0.69007E-01  0.12926E-01
         -0.37048       1.0000
C3       -0.37169     -0.40203     -0.24308     -0.23379     -0.69007E-01
          0.12926E-01  0.12926E-01  0.12926E-01 -0.69007E-01  0.12926E-01
         -0.37048     -0.46667       1.0000
             BETA          FBSHARE       NONBOC        LEVERAGE      P1
             P2            P3            P4            P5            P6
             C1            C2            C3
```

A4-14

```
 COVARIANCE MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA       0.83106E-01
FBSHARE    0.15549E-02  0.11081E-03
NONBOC     0.32584E-01  0.70642E-03  0.16098E-01
LEVERAGE   0.39984E-01  0.12267E-02  0.13547E-01  0.31829E-01
P1        -0.32251E-01 -0.24229E-02 -0.23309E-01 -0.19261E-01  0.15584
P2         0.14502E-01 -0.30887E-03  0.10601E-01 -0.11153E-01 -0.25974E-01
          0.12338
P3         0.61688E-02  0.21017E-03  0.64245E-02 -0.41002E-02 -0.25974E-01
          -0.19481E-01  0.12338
P4         0.37879E-02  0.36732E-03  0.59245E-02  0.94093E-02 -0.25974E-01
          -0.19481E-01 -0.19481E-01  0.12338
P5         0.24892E-01  0.17056E-02  0.52485E-02  0.35211E-01 -0.34632E-01
          -0.25974E-01 -0.25974E-01 -0.25974E-01  0.15584
P6        -0.33550E-02  0.11197E-02 -0.40660E-02  0.72835E-03 -0.25974E-01
          -0.19481E-01 -0.19481E-01 -0.19481E-01 -0.25974E-01  0.12338
C1         0.98377E-01  0.72013E-03  0.29315E-01  0.48889E-01  0.43290E-02
           0.15152E-01  0.15152E-01  0.15152E-01  0.43290E-02 -0.32468E-01
           0.18398
C2        -0.43939E-01 -0.10801E-03 -0.96890E-02 -0.35442E-01 -0.12987E-01
           0.21645E-02  0.21645E-02  0.21645E-02 -0.12987E-01  0.21645E-02
          -0.75758E-01  0.22727
C3        -0.51082E-01 -0.20175E-02 -0.14703E-01 -0.19885E-01 -0.12987E-01
           0.21645E-02  0.21645E-02  0.21645E-02 -0.12987E-01  0.21645E-02
          -0.75758E-01 -0.10606      0.22727
              BETA          FBSHARE       NONBOC        LEVERAGE      P1
              P2            P3            P4            P5            P6
              C1            C2            C3

|_OLS  Beta FBShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3  / auxrsqr rstat dwp

REQUIRED MEMORY IS PAR=      11 CURRENT PAR=     781
 OLS ESTIMATION
       22 OBSERVATIONS     DEPENDENT VARIABLE= BETA
...NOTE..SAMPLE RANGE SET TO:       1,     22

DURBIN-WATSON STATISTIC  =    2.17673
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =     0.209239
              NEGATIVE AUTOCORRELATION TEST P-VALUE =     0.790761
R-SQUARE OF FBSHARE  ON OTHER INDEPENDENT VARIABLES =    0.8898
R-SQUARE OF NONBOC   ON OTHER INDEPENDENT VARIABLES =    0.6630
R-SQUARE OF LEVERAGE ON OTHER INDEPENDENT VARIABLES =    0.8939
R-SQUARE OF P1       ON OTHER INDEPENDENT VARIABLES =    0.7306
R-SQUARE OF P2       ON OTHER INDEPENDENT VARIABLES =    0.6143
R-SQUARE OF P3       ON OTHER INDEPENDENT VARIABLES =    0.6299
R-SQUARE OF P4       ON OTHER INDEPENDENT VARIABLES =    0.6217
R-SQUARE OF P5       ON OTHER INDEPENDENT VARIABLES =    0.7676
R-SQUARE OF P6       ON OTHER INDEPENDENT VARIABLES =    0.6893
R-SQUARE OF C1       ON OTHER INDEPENDENT VARIABLES =    0.8558
R-SQUARE OF C2       ON OTHER INDEPENDENT VARIABLES =    0.7384
R-SQUARE OF C3       ON OTHER INDEPENDENT VARIABLES =    0.8368
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =    0.0000

 R-SQUARE =    0.9911     R-SQUARE ADJUSTED =    0.9793
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.17237E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.41517E-01
SUM OF SQUARED ERRORS-SSE=  0.15513E-01
```

AA-15

```
MEAN OF DEPENDENT VARIABLE =  0.98182
LOG OF THE LIKELIHOOD FUNCTION =  48.6116

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.27422E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -6.0753
 SCHWARZ (1978) CRITERION - LOG SC =              -5.4306
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.42134E-02
 HANNAN AND QUINN (1979) CRITERION =              0.26760E-02
 RICE (1984) CRITERION =                         -0.38783E-02
 SHIBATA (1981) CRITERION =                       0.15385E-02
 SCHWARZ (1978) CRITERION - SC =                  0.43805E-02
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.22990E-02

                    ANALYSIS OF VARIANCE - FROM MEAN
                      SS          DF          MS              F
REGRESSION        1.7297         12.      0.14414          83.625
ERROR          0.15513E-01        9.      0.17237E-02      P-VALUE
TOTAL             1.7452         21.      0.83106E-01        0.000

                    ANALYSIS OF VARIANCE - FROM ZERO
                      SS          DF          MS              F
REGRESSION        22.937         13.       1.7644        1023.618
ERROR          0.15513E-01        9.      0.17237E-02      P-VALUE
TOTAL             22.952         22.       1.0433           0.000


VARIABLE   ESTIMATED   STANDARD    T-RATIO        PARTIAL STANDARDIZED ELASTICITY
  NAME    COEFFICIENT   ERROR       9 DF    P-VALUE CORR. COEFFICIENT  AT MEANS
FBSHARE    -4.4835      2.593      -1.729     0.118-0.499    -0.1637    -0.1269
NONBOC      1.5701     0.1230       12.76     0.000 0.973     0.6910     0.7022
LEVERAGE   0.15855     0.1559       1.017     0.336 0.321     0.0981     0.0455
P1         0.26914E-01 0.4422E-01  0.6086     0.558 0.199     0.0369     0.0050
P2         0.32922E-01 0.4153E-01  0.7927     0.448 0.255     0.0401     0.0046
P3         0.28950E-01 0.4240E-01  0.6828     0.512 0.222     0.0353     0.0040
P4         0.77171E-02 0.4194E-01  0.1840     0.858 0.061     0.0094     0.0011
P5         0.14336     0.4760E-01   3.012     0.015 0.708     0.1963     0.0265
P6         0.16664     0.4627E-01   3.601     0.006 0.768     0.2030     0.0231
C1         0.19762     0.5563E-01   3.552     0.006 0.764     0.2940     0.0457
C2        -0.84130E-01 0.3716E-01  -2.264     0.050-0.602    -0.1391    -0.0273
C3        -0.11502     0.4704E-01  -2.445     0.037-0.632    -0.1902    -0.0373
CONSTANT   0.32765     0.8403E-01   3.899     0.004 0.793     0.0000     0.3337

DURBIN-WATSON = 2.1767    VON NEUMANN RATIO = 2.2804    RHO = -0.16344
RESIDUAL SUM = -0.20817E-16  RESIDUAL VARIANCE =  0.17237E-02
SUM OF ABSOLUTE ERRORS=  0.47660
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9911
RUNS TEST:   13 RUNS,   10 POS,    0 ZERO,   12 NEG  NORMAL STATISTIC =  0.4808
COEFFICIENT OF SKEWNESS =  -0.0261 WITH STANDARD DEVIATION OF 0.4910
COEFFICIENT OF EXCESS KURTOSIS =  -0.8659 WITH STANDARD DEVIATION OF 0.9528

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    0.8158 P-VALUE= 0.665

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 20 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  0.0  0.0  3.0  1.0  3.0  5.0  3.0  3.0  2.0  2.0  0.0

EXPECTED  0.1  0.1  0.2  0.4  0.7  1.1  1.5  2.0  2.4  2.6  2.6  2.4  2.0  1.5  1.1
```

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```
CHI-SQUARE =     9.7815 WITH  5 DEGREES OF FREEDOM, P-VALUE= 0.082
|_DIAGNOS / HET,,,,,,,,,,,

REQUIRED MEMORY IS PAR=     104 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            22 OBSERVATIONS
REGRESSION COEFFICIENTS
  -4.48346492125       1.57006780981      0.158548116068      0.269135651984E-01
  0.329221346016E-01  0.289500474591E-01  0.771706269727E-02  0.143359453488
  0.166637361422      0.197618602360     -0.841300066802E-01 -0.115023788464
  0.327652877267

HETEROSKEDASTICITY TESTS
                              CHI-SQUARE     D.F.   P-VALUE
                            TEST STATISTIC
E**2 ON YHAT:                       4.498     1    0.03394
E**2 ON YHAT**2:                    4.541     1    0.03310
E**2 ON LOG(YHAT**2):               4.402     1    0.03590
E**2 ON LAG(E**2) ARCH TEST:        1.802     1    0.17947
LOG(E**2) ON X (HARVEY) TEST:       8.992    12    0.70363
ABS(E) ON X (GLEJSER) TEST:         9.924    12    0.62266
E**2 ON X                  TEST:
          KOENKER(R2):             11.984    12    0.44696
          B-P-G (SSR) :             6.339    12    0.89804

...MATRIX INVERSION FAILED IN ROW   21
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2    (WHITE) TEST:
          KOENKER(R2):          **********    24  *********
          B-P-G (SSR) :         **********    24  *********

...MATRIX INVERSION FAILED IN ROW   21
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2 XX (WHITE) TEST:
          KOENKER(R2):          **********    90  *********
          B-P-G (SSR) :         **********    90  *********

|_stop,,,,,,,,,,,
```

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Data Underlying Appendix 1B					
Company	**Year**	**Beta**	**FB_Comp**	**Non_ILEC**	**Leverage**
BellSouth	1H00	0.825	0.0186	0.4719	0.1593
BellSouth	2H00	0.825	0.0207	0.4260	0.1967
BellSouth	1H01	0.825	0.0238	0.4170	0.2108
BellSouth	2H01	0.800	0.0260	0.3868	0.1931
BellSouth	1H02	0.775	0.0192	0.3861	0.2244
BellSouth	2H02	0.850	0.0199	0.3670	0.3141
BellSouth	1H03	0.900	0.0240	0.3641	0.2557
Qwest	1H00	0.750	0.0122	0.1415	0.2582
Qwest	1H01	1.600	0.0255	0.6892	0.2458
Qwest	2H01	1.475	0.0322	0.6644	0.4206
Qwest	1H02	1.475	0.0393	0.6603	0.6490
Qwest	2H02	1.675	0.0449	0.6557	0.8614
SBC	1H00	0.825	0.0124	0.3726	0.1274
SBC	2H00	0.850	0.0208	0.4164	0.1391
SBC	1H01	0.825	0.0276	0.4121	0.1542
SBC	2H01	0.800	0.0296	0.3790	0.1452
SBC	1H02	0.775	0.0326	0.3740	0.1692
SBC	2H02	0.900	0.0342	0.3782	0.2557
SBC	1H03	0.975	0.0351	0.4077	0.2366
Verizon	1H00	0.850	0.0171	0.3184	0.1773
Verizon	2H02	1.025	0.0480	0.4483	0.4349
Verizon	1H03	1.000	0.0478	0.4472	0.3680

SHAZAM OUTPUT

```
----------------------------7d43b8183102bc
Content-Disposition: form-data; name="IX"; filename="\\Etinovell\VOL1\ETI\AT&T\Wash
 FILE UPLOAD (120 CHARS MAX) FOR:
Content-Type: application/octet-stream
****************************************************************
Hello/Bonjour/Aloha/Howdy/G Day/Kia Ora/Konnichiwa/Buenos Dias/Nee Hau/Ciao
Welcome to SHAZAM - Version 9.0  -  OCT 2003 SYSTEM=LINUX    PAR=   781
|_sample 1 22,,,,,,,,,,,,
|_Read Beta FBShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3 ,,,,,,,,,,,,
  13 VARIABLES AND       22 OBSERVATIONS STARTING AT OBS       1

|_STAT  Beta FBShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3  / pcor pcov,,,,,,,
NAME         N    MEAN         ST. DEV      VARIANCE     MINIMUM      MAXIMUM
BETA          22  0.98182      0.28828     0.83106E-01  0.75000       1.6750
FBSHARE       22  0.27795E-01 0.10526E-01 0.11080E-03  0.12203E-01  0.48046E-01
NONBOC        22  0.43318      0.12861     0.16540E-01  0.14150      0.68923
LEVERAGE      22  0.28167      0.17841     0.31829E-01  0.12742      0.86142
P1            22  0.18182      0.39477     0.15584       0.0000       1.0000
P2            22  0.13636      0.35125     0.12338       0.0000       1.0000
P3            22  0.13636      0.35125     0.12338       0.0000       1.0000
P4            22  0.13636      0.35125     0.12338       0.0000       1.0000
P5            22  0.18182      0.39477     0.15584       0.0000       1.0000
P6            22  0.13636      0.35125     0.12338       0.0000       1.0000
C1            22  0.22727      0.42893     0.18398       0.0000       1.0000
C2            22  0.31818      0.47673     0.22727       0.0000       1.0000
C3            22  0.31818      0.47673     0.22727       0.0000       1.0000

 CORRELATION MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA        1.0000
FBSHARE    0.51265       1.0000
NONBOC     0.90238      0.52352       1.0000
LEVERAGE   0.77745      0.65315      0.62020       1.0000
P1        -0.28339     -0.58334     -0.45241     -0.27346       1.0000
P2         0.14322     -0.83364E-01  0.23070     -0.17795     -0.18732
           1.0000
P3         0.60921E-01  0.56324E-01  0.13771     -0.65339E-01 -0.18732
          -0.15789       1.0000
P4         0.37408E-01  0.99496E-01  0.12736      0.15010     -0.18732
          -0.15789     -0.15789       1.0000
P5         0.21872      0.41029      0.10925      0.49991     -0.22222
          -0.18732     -0.18732     -0.18732       1.0000
P6        -0.33133E-01  0.30351     -0.84841E-01  0.11622E-01 -0.18732
          -0.15789     -0.15789     -0.15789     -0.18732       1.0000
C1         0.79559      0.15967      0.55692      0.63891      0.25565E-01
           0.10057      0.10057      0.10057      0.25565E-01 -0.21550
           1.0000
C2        -0.31972     -0.21894E-01 -0.22697     -0.41669     -0.69007E-01
           0.12926E-01  0.12926E-01  0.12926E-01 -0.69007E-01  0.12926E-01
          -0.37048       1.0000
C3        -0.37169     -0.40150     -0.20764     -0.23384     -0.69007E-01
           0.12926E-01  0.12926E-01  0.12926E-01 -0.69007E-01  0.12926E-01
          -0.37048     -0.46667       1.0000
              BETA         FBSHARE      NONBOC       LEVERAGE     P1
              P2           P3           P4           P5           P6
              C1           C2           C3
```

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```
 COVARIANCE MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA       0.83106E-01
FBSHARE    0.15556E-02  0.11080E-03
NONBOC     0.33456E-01  0.70871E-03  0.16540E-01
LEVERAGE   0.39985E-01  0.12266E-02  0.14230E-01  0.31829E-01
P1        -0.32251E-01 -0.24240E-02 -0.22969E-01 -0.19260E-01  0.15584
P2         0.14502E-01 -0.30822E-03  0.10421E-01 -0.11152E-01 -0.25974E-01
          0.12338
P3         0.61688E-02  0.20825E-03  0.62210E-02 -0.40945E-02 -0.25974E-01
         -0.19481E-01  0.12338
P4         0.37879E-02  0.36787E-03  0.57534E-02  0.94062E-02 -0.25974E-01
         -0.19481E-01 -0.19481E-01  0.12338
P5         0.24892E-01  0.17049E-02  0.55467E-02  0.35208E-01 -0.34632E-01
         -0.25974E-01 -0.25974E-01 -0.25974E-01  0.15584
P6        -0.33550E-02  0.11222E-02 -0.38325E-02  0.72831E-03 -0.25974E-01
         -0.19481E-01 -0.19481E-01 -0.19481E-01 -0.25974E-01  0.12338
C1         0.98377E-01  0.72093E-03  0.30722E-01  0.48892E-01  0.43290E-02
          0.15152E-01  0.15152E-01  0.15152E-01  0.43290E-02 -0.32468E-01
          0.18398
C2        -0.43939E-01 -0.10987E-03 -0.13916E-01 -0.35440E-01 -0.12987E-01
          0.21645E-02  0.21645E-02  0.21645E-02 -0.12987E-01  0.21645E-02
         -0.75758E-01  0.22727
C3        -0.51082E-01 -0.20148E-02 -0.12731E-01 -0.19889E-01 -0.12987E-01
          0.21645E-02  0.21645E-02  0.21645E-02 -0.12987E-01  0.21645E-02
         -0.75758E-01 -0.10606      0.22727
             BETA          FBSHARE       NONBOC        LEVERAGE      P1
             P2            P3            P4            P5            P6
             C1            C2            C3

|_OLS  Beta FBShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3  / auxrsqr rstat dwp

REQUIRED MEMORY IS PAR=      11 CURRENT PAR=     781
 OLS ESTIMATION
       22 OBSERVATIONS     DEPENDENT VARIABLE= BETA
...NOTE..SAMPLE RANGE SET TO:      1,     22

DURBIN-WATSON STATISTIC  =    2.27645
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =     0.272295
              NEGATIVE AUTOCORRELATION TEST P-VALUE =     0.727705
R-SQUARE OF FBSHARE  ON OTHER INDEPENDENT VARIABLES =    0.8894
R-SQUARE OF NONBOC   ON OTHER INDEPENDENT VARIABLES =    0.6682
R-SQUARE OF LEVERAGE ON OTHER INDEPENDENT VARIABLES =    0.8934
R-SQUARE OF P1       ON OTHER INDEPENDENT VARIABLES =    0.7301
R-SQUARE OF P2       ON OTHER INDEPENDENT VARIABLES =    0.6137
R-SQUARE OF P3       ON OTHER INDEPENDENT VARIABLES =    0.6296
R-SQUARE OF P4       ON OTHER INDEPENDENT VARIABLES =    0.6221
R-SQUARE OF P5       ON OTHER INDEPENDENT VARIABLES =    0.7671
R-SQUARE OF P6       ON OTHER INDEPENDENT VARIABLES =    0.6882
R-SQUARE OF C1       ON OTHER INDEPENDENT VARIABLES =    0.8554
R-SQUARE OF C2       ON OTHER INDEPENDENT VARIABLES =    0.7344
R-SQUARE OF C3       ON OTHER INDEPENDENT VARIABLES =    0.8363
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =    0.0000

 R-SQUARE =    0.9913     R-SQUARE ADJUSTED =    0.9796
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.16936E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.41153E-01
SUM OF SQUARED ERRORS-SSE=  0.15242E-01
```

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```
MEAN OF DEPENDENT VARIABLE =  0.98182
LOG OF THE LIKELIHOOD FUNCTION =  48.8052

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.26944E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -6.0929
 SCHWARZ (1978) CRITERION - LOG SC =              -5.4482
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.41399E-02
 HANNAN AND QUINN (1979) CRITERION =              0.26293E-02
 RICE (1984) CRITERION =                         -0.38106E-02
 SHIBATA (1981) CRITERION =                       0.15116E-02
 SCHWARZ (1978) CRITERION - SC =                  0.43041E-02
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.22589E-02

                    ANALYSIS OF VARIANCE - FROM MEAN
                      SS          DF            MS              F
REGRESSION         1.7300         12.       0.14417          85.123
ERROR           0.15242E-01        9.       0.16936E-02      P-VALUE
TOTAL              1.7452         21.       0.83106E-01        0.000

                    ANALYSIS OF VARIANCE - FROM ZERO
                      SS          DF            MS              F
REGRESSION         22.937         13.        1.7644         1041.803
ERROR           0.15242E-01        9.       0.16936E-02      P-VALUE
TOTAL              22.952         22.        1.0433           0.000


VARIABLE   ESTIMATED  STANDARD   T-RATIO        PARTIAL STANDARDIZED ELASTICITY
  NAME    COEFFICIENT   ERROR      9 DF   P-VALUE CORR. COEFFICIENT  AT MEANS
FBSHARE    -4.4337      2.565    -1.728    0.118-0.499    -0.1619    -0.1255
NONBOC      1.5616     0.1212     12.88    0.000 0.974     0.6967     0.6890
LEVERAGE   0.16134     0.1542     1.047    0.323 0.329     0.0998     0.0463
P1         0.25267E-01 0.4379E-01 0.5770   0.578 0.189     0.0346     0.0047
P2         0.35042E-01 0.4114E-01 0.8518   0.416 0.273     0.0427     0.0049
P3         0.30684E-01 0.4201E-01 0.7304   0.484 0.237     0.0374     0.0043
P4         0.88355E-02 0.4159E-01 0.2124   0.836 0.071     0.0108     0.0012
P5         0.14145     0.4714E-01  3.001   0.015 0.707     0.1937     0.0262
P6         0.16216     0.4579E-01  3.542   0.006 0.763     0.1976     0.0225
C1         0.19599     0.5506E-01  3.560   0.006 0.765     0.2916     0.0454
C2        -0.56302E-01 0.3655E-01 -1.540   0.158-0.457    -0.0931    -0.0182
C3        -0.11615     0.4656E-01 -2.495   0.034-0.639    -0.1921    -0.0376
CONSTANT   0.33088     0.8311E-01  3.981   0.003 0.799     0.0000     0.3370

DURBIN-WATSON = 2.2764    VON NEUMANN RATIO = 2.3849    RHO = -0.21353
RESIDUAL SUM = -0.69389E-17  RESIDUAL VARIANCE =  0.16936E-02
SUM OF ABSOLUTE ERRORS=  0.47871
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9913
RUNS TEST:   13 RUNS,   10 POS,    0 ZERO,   12 NEG  NORMAL STATISTIC =  0.4808
COEFFICIENT OF SKEWNESS =   0.0011 WITH STANDARD DEVIATION OF 0.4910
COEFFICIENT OF EXCESS KURTOSIS =  -0.8905 WITH STANDARD DEVIATION OF 0.9528

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    0.8474 P-VALUE= 0.655

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 20 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  0.0  0.0  3.0  1.0  2.0  6.0  3.0  2.0  3.0  2.0  0.0

EXPECTED  0.1  0.1  0.2  0.4  0.7  1.1  1.5  2.0  2.4  2.6  2.6  2.4  2.0  1.5  1.1
```

A4-21

```
CHI-SQUARE =   12.3255 WITH  5 DEGREES OF FREEDOM, P-VALUE= 0.031
|_DIAGNOS / HET,,,,,,,,,,,

REQUIRED MEMORY IS PAR=     104 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            22 OBSERVATIONS
REGRESSION COEFFICIENTS
  -4.43372784778       1.56164755842      0.161337645715      0.252667526037E-01
  0.350417413367E-01  0.306838628622E-01  0.883546369167E-02  0.141450793859
  0.162164082195      0.195985005210     -0.563020621041E-01 -0.116146044735
  0.330875357857

HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                          TEST STATISTIC
E**2 ON YHAT:                     5.319      1    0.02110
E**2 ON YHAT**2:                  5.433      1    0.01976
E**2 ON LOG(YHAT**2):             5.135      1    0.02345
E**2 ON LAG(E**2) ARCH TEST:      1.323      1    0.25003
LOG(E**2) ON X (HARVEY) TEST:     7.404     12    0.82978
ABS(E) ON X (GLEJSER) TEST:      10.202     12    0.59828
E**2 ON X                 TEST:
          KOENKER(R2):           12.755     12    0.38709
          B-P-G (SSR) :           6.623     12    0.88147

...MATRIX INVERSION FAILED IN ROW   18
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2    (WHITE) TEST:
          KOENKER(R2):       **********     24  *********
          B-P-G (SSR) :      **********     24  *********

...MATRIX INVERSION FAILED IN ROW   18
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2 XX (WHITE) TEST:
          KOENKER(R2):       **********     90  *********
          B-P-G (SSR) :      **********     90  *********

|_stop,,,,,,,,,,,
```

AH-22

Appendix 2A and 2B

Dependent Variable:	ILEC Beta Values
Explanatory Variables:	All Competition (All_Comp) Diversification (Non_ILEC) Financial Leverage (Leverage)
Time Series:	Betas, 1H00 – 1H03 (7 periods) Explanatory Variables, 2H99 – 2H02 (7 periods)
Companies Included:	BellSouth (7 observations) Qwest (5 observations)[1] SBC (7 observations) Verizon (3 observations)[2]
Version:	Version A – Uses ARMIS-based asset information to estimate SBC ILEC assets. Version B – Uses 10K asset information as of 12/31/97 to estimate SBC ILEC assets.
Total Observations:	22

1. Value Line did not publish beta values for Qwest 2H00. Qwest has not released its 2002 10-K.

2. Value Line did not publish beta values for Verizon 2H00 - 2H02.

Data Underlying Appendix 2A					
Company	**Year**	**Beta**	**All_Comp**	**Non_ILEC**	**Leverage**
BellSouth	1H00	0.825	0.0425	0.4719	0.1593
BellSouth	2H00	0.825	0.0419	0.4260	0.1967
BellSouth	1H01	0.825	0.0536	0.4170	0.2108
BellSouth	2H01	0.800	0.0632	0.3868	0.1931
BellSouth	1H02	0.775	0.0638	0.3861	0.2244
BellSouth	2H02	0.850	0.0737	0.3670	0.3141
BellSouth	1H03	0.900	0.1012	0.3641	0.2557
Qwest	1H00	0.750	0.0235	0.1415	0.2582
Qwest	1H01	1.600	0.0606	0.6892	0.2458
Qwest	2H01	1.475	0.0714	0.6644	0.4206
Qwest	1H02	1.475	0.0926	0.6603	0.6490
Qwest	2H02	1.675	0.1012	0.6557	0.8614
SBC	1H00	0.825	0.0380	0.3891	0.1274
SBC	2H00	0.850	0.0536	0.4349	0.1391
SBC	1H01	0.825	0.0715	0.4337	0.1542
SBC	2H01	0.800	0.0846	0.4010	0.1452
SBC	1H02	0.775	0.0993	0.3953	0.1692
SBC	2H02	0.900	0.1135	0.3956	0.2557
SBC	1H03	0.975	0.1345	0.4206	0.2366
Verizon	1H00	0.850	0.0423	0.3184	0.1773
Verizon	2H02	1.025	0.1417	0.4483	0.4349
Verizon	1H03	1.000	0.1529	0.4472	0.3680

SHAZAM OUTPUT

```
----------------------------7d413930702ae
Content-Disposition: form-data; name="IX"; filename="\\Etinovell\VOL1\ETI\AT&T\Wash
 FILE UPLOAD (120 CHARS MAX) FOR:
Content-Type: application/octet-stream
*******************************************************************
Hello/Bonjour/Aloha/Howdy/G Day/Kia Ora/Konnichiwa/Buenos Dias/Nee Hau/Ciao
Welcome to SHAZAM - Version 9.0  -  OCT 2003 SYSTEM=LINUX    PAR=   781
|_sample 1 22,,,,,,,,,,,,
|_Read Beta TotShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3 ,,,,,,,,,,,,
  13 VARIABLES AND       22 OBSERVATIONS STARTING AT OBS       1

|_STAT  Beta TotShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3  / pcor pcov,,,,,,
NAME         N    MEAN         ST. DEV      VARIANCE     MINIMUM      MAXIMUM
BETA          22  0.98182      0.28828      0.83106E-01  0.75000       1.6750
TOTSHARE      22  0.78232E-01  0.35411E-01  0.12539E-02  0.23500E-01   0.15290
NONBOC        22  0.43910      0.12688      0.16098E-01  0.14150       0.68920
LEVERAGE      22  0.28167      0.17841      0.31829E-01  0.12740       0.86140
P1            22  0.18182      0.39477      0.15584       0.0000        1.0000
P2            22  0.13636      0.35125      0.12338       0.0000        1.0000
P3            22  0.13636      0.35125      0.12338       0.0000        1.0000
P4            22  0.13636      0.35125      0.12338       0.0000        1.0000
P5            22  0.18182      0.39477      0.15584       0.0000        1.0000
P6            22  0.13636      0.35125      0.12338       0.0000        1.0000
C1            22  0.22727      0.42893      0.18398       0.0000        1.0000
C2            22  0.31818      0.47673      0.22727       0.0000        1.0000
C3            22  0.31818      0.47673      0.22727       0.0000        1.0000

 CORRELATION MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA        1.0000
TOTSHARE   0.24111       1.0000
NONBOC     0.89084      0.25820       1.0000
LEVERAGE   0.77742      0.40694      0.59846       1.0000
P1        -0.28339     -0.56760     -0.46535     -0.27347       1.0000
P2         0.14322     -0.18758      0.23786     -0.17797     -0.18732
           1.0000
P3         0.60921E-01 -0.59324E-01  0.14415     -0.65431E-01 -0.18732
          -0.15789       1.0000
P4         0.37408E-01  0.80416E-01  0.13294      0.15015     -0.18732
          -0.15789     -0.15789       1.0000
P5         0.21872      0.39914      0.10478      0.49994     -0.22222
          -0.18732     -0.18732     -0.18732       1.0000
P6        -0.33133E-01  0.58922     -0.91235E-01  0.11623E-01 -0.18732
          -0.15789     -0.15789     -0.15789     -0.18732       1.0000
C1         0.79559     -0.13123      0.53866      0.63886      0.25565E-01
           0.10057      0.10057      0.10057      0.25565E-01 -0.21550
           1.0000
C2        -0.31972      0.13364     -0.16018     -0.41671     -0.69007E-01
           0.12926E-01  0.12926E-01  0.12926E-01 -0.69007E-01  0.12926E-01
          -0.37048       1.0000
C3        -0.37169     -0.30386     -0.24308     -0.23379     -0.69007E-01
           0.12926E-01  0.12926E-01  0.12926E-01 -0.69007E-01  0.12926E-01
          -0.37048     -0.46667       1.0000
              BETA         TOTSHARE     NONBOC       LEVERAGE     P1
              P2           P3           P4           P5           P6
              C1           C2           C3
```

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 COVARIANCE MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA       0.83106E-01
TOTSHARE   0.24613E-02  0.12539E-02
NONBOC     0.32584E-01  0.11601E-02  0.16098E-01
LEVERAGE   0.39984E-01  0.25709E-02  0.13547E-01  0.31829E-01
P1        -0.32251E-01 -0.79346E-02 -0.23309E-01 -0.19261E-01  0.15584
P2         0.14502E-01 -0.23331E-02  0.10601E-01 -0.11153E-01 -0.25974E-01
          0.12338
P3         0.61688E-02 -0.73788E-03  0.64245E-02 -0.41002E-02 -0.25974E-01
          -0.19481E-01  0.12338
P4         0.37879E-02  0.10002E-02  0.59245E-02  0.94093E-02 -0.25974E-01
          -0.19481E-01 -0.19481E-01  0.12338
P5         0.24892E-01  0.55797E-02  0.52485E-02  0.35211E-01 -0.34632E-01
          -0.25974E-01 -0.25974E-01 -0.25974E-01  0.15584
P6        -0.33550E-02  0.73288E-02 -0.40660E-02  0.72835E-03 -0.25974E-01
          -0.19481E-01 -0.19481E-01 -0.19481E-01 -0.25974E-01  0.12338
C1         0.98377E-01 -0.19933E-02  0.29315E-01  0.48889E-01  0.43290E-02
           0.15152E-01  0.15152E-01  0.15152E-01  0.43290E-02 -0.32468E-01
           0.18398
C2        -0.43939E-01  0.22561E-02 -0.96890E-02 -0.35442E-01 -0.12987E-01
           0.21645E-02  0.21645E-02  0.21645E-02 -0.12987E-01  0.21645E-02
          -0.75758E-01  0.22727
C3        -0.51082E-01 -0.51297E-02 -0.14703E-01 -0.19885E-01 -0.12987E-01
           0.21645E-02  0.21645E-02  0.21645E-02 -0.12987E-01  0.21645E-02
          -0.75758E-01 -0.10606      0.22727
              BETA          TOTSHARE      NONBOC        LEVERAGE      P1
              P2            P3            P4            P5            P6
              C1            C2            C3

|_OLS  Beta TotShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3  / auxrsqr rstat dw

REQUIRED MEMORY IS PAR=      11 CURRENT PAR=     781
 OLS ESTIMATION
       22 OBSERVATIONS     DEPENDENT VARIABLE= BETA
...NOTE..SAMPLE RANGE SET TO:      1,     22

DURBIN-WATSON STATISTIC  =   2.17372
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =    0.228886
              NEGATIVE AUTOCORRELATION TEST P-VALUE =    0.771114
R-SQUARE OF TOTSHARE ON OTHER INDEPENDENT VARIABLES =   0.9500
R-SQUARE OF NONBOC   ON OTHER INDEPENDENT VARIABLES =   0.6787
R-SQUARE OF LEVERAGE ON OTHER INDEPENDENT VARIABLES =   0.8503
R-SQUARE OF P1       ON OTHER INDEPENDENT VARIABLES =   0.7187
R-SQUARE OF P2       ON OTHER INDEPENDENT VARIABLES =   0.6428
R-SQUARE OF P3       ON OTHER INDEPENDENT VARIABLES =   0.7175
R-SQUARE OF P4       ON OTHER INDEPENDENT VARIABLES =   0.8004
R-SQUARE OF P5       ON OTHER INDEPENDENT VARIABLES =   0.9016
R-SQUARE OF P6       ON OTHER INDEPENDENT VARIABLES =   0.9214
R-SQUARE OF C1       ON OTHER INDEPENDENT VARIABLES =   0.8700
R-SQUARE OF C2       ON OTHER INDEPENDENT VARIABLES =   0.7428
R-SQUARE OF C3       ON OTHER INDEPENDENT VARIABLES =   0.8722
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =   0.0000

 R-SQUARE =   0.9917     R-SQUARE ADJUSTED =   0.9807
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.16034E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.40043E-01
SUM OF SQUARED ERRORS-SSE=  0.14431E-01
```

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```
MEAN OF DEPENDENT VARIABLE =  0.98182
LOG OF THE LIKELIHOOD FUNCTION =  49.4072

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.25509E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -6.1476
 SCHWARZ (1978) CRITERION - LOG SC =              -5.5029
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.39194E-02
 HANNAN AND QUINN (1979) CRITERION =              0.24893E-02
 RICE (1984) CRITERION =                         -0.36077E-02
 SHIBATA (1981) CRITERION =                       0.14311E-02
 SCHWARZ (1978) CRITERION - SC =                  0.40749E-02
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.21386E-02

                    ANALYSIS OF VARIANCE - FROM MEAN
                      SS          DF          MS              F
REGRESSION         1.7308         12.      0.14423          89.954
ERROR          0.14431E-01         9.      0.16034E-02      P-VALUE
TOTAL              1.7452         21.      0.83106E-01        0.000

                    ANALYSIS OF VARIANCE - FROM ZERO
                      SS          DF          MS              F
REGRESSION        22.938          13.       1.7645        1100.451
ERROR          0.14431E-01         9.      0.16034E-02      P-VALUE
TOTAL             22.952          22.       1.0433           0.000


VARIABLE   ESTIMATED   STANDARD   T-RATIO        PARTIAL STANDARDIZED ELASTICITY
  NAME    COEFFICIENT   ERROR       9 DF   P-VALUE CORR. COEFFICIENT  AT MEANS
TOTSHARE  -2.1769       1.104      -1.972    0.080-0.549     -0.2674    -0.1735
NONBOC     1.5957      0.1215       13.13    0.000 0.975      0.7023     0.7136
LEVERAGE  0.46784E-01  0.1266      0.3696    0.720 0.122      0.0290     0.0134
P1        0.29677E-01  0.4173E-01  0.7111    0.495 0.231      0.0406     0.0055
P2        0.44339E-01  0.4162E-01   1.065    0.315 0.335      0.0540     0.0062
P3        0.54652E-01  0.4680E-01   1.168    0.273 0.363      0.0666     0.0076
P4        0.65631E-01  0.5569E-01   1.179    0.269 0.366      0.0800     0.0091
P5        0.23152      0.7057E-01   3.281    0.010 0.738      0.3170     0.0429
P6        0.28752      0.8874E-01   3.240    0.010 0.734      0.3503     0.0399
C1        0.18307      0.5649E-01   3.241    0.010 0.734      0.2724     0.0424
C2       -0.88288E-01  0.3614E-01  -2.443    0.037-0.631     -0.1460    -0.0286
C3       -0.13613      0.5128E-01  -2.655    0.026-0.663     -0.2251    -0.0441
CONSTANT  0.35894      0.8852E-01   4.055    0.003 0.804      0.0000     0.3656

DURBIN-WATSON = 2.1737    VON NEUMANN RATIO = 2.2772    RHO = -0.18326
RESIDUAL SUM = -0.20817E-16  RESIDUAL VARIANCE =  0.16034E-02
SUM OF ABSOLUTE ERRORS=  0.45353
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9917
RUNS TEST:   13 RUNS,   11 POS,    0 ZERO,   11 NEG  NORMAL STATISTIC =  0.4369
COEFFICIENT OF SKEWNESS =  -0.3372 WITH STANDARD DEVIATION OF 0.4910
COEFFICIENT OF EXCESS KURTOSIS =  -0.7185 WITH STANDARD DEVIATION OF 0.9528

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    0.9866 P-VALUE= 0.611

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 20 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  0.0  0.0  3.0  1.0  2.0  5.0  3.0  3.0  4.0  1.0  0.0

EXPECTED  0.1  0.1  0.2  0.4  0.7  1.1  1.5  2.0  2.4  2.6  2.6  2.4  2.0  1.5  1.1
```

A4-27

```
CHI-SQUARE =   11.7441 WITH  5 DEGREES OF FREEDOM, P-VALUE= 0.038
|_DIAGNOS / HET,,,,,,,,,,,

REQUIRED MEMORY IS PAR=     104 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            22 OBSERVATIONS
REGRESSION COEFFICIENTS
  -2.17689102741       1.59567004002      0.467839854991E-01  0.296772247517E-01
  0.443390424030E-01  0.546515102950E-01  0.656309907066E-01  0.231517762143
  0.287523356075      0.183067983610     -0.882884120564E-01 -0.136130707942
  0.358944906664

HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                          TEST STATISTIC
E**2 ON YHAT:                    3.999      1    0.04553
E**2 ON YHAT**2:                 3.786      1    0.05169
E**2 ON LOG(YHAT**2):            4.200      1    0.04042
E**2 ON LAG(E**2) ARCH TEST:     1.472      1    0.22499
LOG(E**2) ON X (HARVEY) TEST:   12.692     12    0.39179
ABS(E) ON X (GLEJSER) TEST:     13.194     12    0.35512
E**2 ON X                 TEST:
          KOENKER(R2):          13.678     12    0.32176
          B-P-G (SSR) :          8.028     12    0.78296

...MATRIX INVERSION FAILED IN ROW   17
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2    (WHITE) TEST:
          KOENKER(R2):       **********    24  *********
          B-P-G (SSR) :      **********    24  *********

...MATRIX INVERSION FAILED IN ROW   17
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2 XX (WHITE) TEST:
          KOENKER(R2):       **********    90  *********
          B-P-G (SSR) :      **********    90  *********

|_stop,,,,,,,,,,,
```

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Data Underlying Appendix 2B					
Company	**Year**	**Beta**	**All_Comp**	**Non_ILEC**	**Leverage**
BellSouth	1H00	0.825	0.0425	0.4719	0.1593
BellSouth	2H00	0.825	0.0419	0.4260	0.1967
BellSouth	1H01	0.825	0.0536	0.4170	0.2108
BellSouth	2H01	0.800	0.0632	0.3868	0.1931
BellSouth	1H02	0.775	0.0638	0.3861	0.2244
BellSouth	2H02	0.850	0.0737	0.3670	0.3141
BellSouth	1H03	0.900	0.1012	0.3641	0.2557
Qwest	1H00	0.750	0.0235	0.1415	0.2582
Qwest	1H01	1.600	0.0606	0.6892	0.2458
Qwest	2H01	1.475	0.0714	0.6644	0.4206
Qwest	1H02	1.475	0.0926	0.6603	0.6490
Qwest	2H02	1.675	0.1012	0.6557	0.8614
SBC	1H00	0.825	0.0380	0.3726	0.1274
SBC	2H00	0.850	0.0536	0.4164	0.1391
SBC	1H01	0.825	0.0715	0.4121	0.1542
SBC	2H01	0.800	0.0846	0.3790	0.1452
SBC	1H02	0.775	0.0993	0.3740	0.1692
SBC	2H02	0.900	0.1135	0.3782	0.2557
SBC	1H03	0.975	0.1345	0.4077	0.2366
Verizon	1H00	0.850	0.0423	0.3184	0.1773
Verizon	2H02	1.025	0.1417	0.4483	0.4349
Verizon	1H03	1.000	0.1529	0.4472	0.3680

SHAZAM OUTPUT

```
----------------------------7d424c33102bc
Content-Disposition: form-data; name="IX"; filename="\\Etinovell\VOL1\ETI\AT&T\Wash
 FILE UPLOAD (120 CHARS MAX) FOR:
Content-Type: application/octet-stream
*****************************************************************
Hello/Bonjour/Aloha/Howdy/G Day/Kia Ora/Konnichiwa/Buenos Dias/Nee Hau/Ciao
Welcome to SHAZAM - Version 9.0  -  OCT 2003 SYSTEM=LINUX    PAR=   781
|_sample 1 22,,,,,,,,,,,,
|_Read Beta TotShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3 ,,,,,,,,,,,,
  13 VARIABLES AND       22 OBSERVATIONS STARTING AT OBS       1

|_STAT  Beta TotShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3  / pcor pcov,,,,,,
NAME         N    MEAN         ST. DEV      VARIANCE     MINIMUM      MAXIMUM
BETA          22  0.98182      0.28828      0.83106E-01  0.75000       1.6750
TOTSHARE      22  0.78237E-01  0.35397E-01  0.12529E-02  0.23547E-01   0.15285
NONBOC        22  0.43318      0.12861      0.16540E-01  0.14150       0.68923
LEVERAGE      22  0.28167      0.17841      0.31829E-01  0.12742       0.86142
P1            22  0.18182      0.39477      0.15584       0.0000        1.0000
P2            22  0.13636      0.35125      0.12338       0.0000        1.0000
P3            22  0.13636      0.35125      0.12338       0.0000        1.0000
P4            22  0.13636      0.35125      0.12338       0.0000        1.0000
P5            22  0.18182      0.39477      0.15584       0.0000        1.0000
P6            22  0.13636      0.35125      0.12338       0.0000        1.0000
C1            22  0.22727      0.42893      0.18398       0.0000        1.0000
C2            22  0.31818      0.47673      0.22727       0.0000        1.0000
C3            22  0.31818      0.47673      0.22727       0.0000        1.0000

 CORRELATION MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA       1.0000
TOTSHARE  0.24113       1.0000
NONBOC    0.90238      0.24784       1.0000
LEVERAGE  0.77745      0.40700      0.62020       1.0000
P1       -0.28339     -0.56747     -0.45241     -0.27346       1.0000
P2        0.14322     -0.18769      0.23070     -0.17795     -0.18732
          1.0000
P3        0.60921E-01 -0.59262E-01  0.13771     -0.65339E-01 -0.18732
         -0.15789       1.0000
P4        0.37408E-01  0.80621E-01  0.12736      0.15010     -0.18732
         -0.15789     -0.15789       1.0000
P5        0.21872      0.39907      0.10925      0.49991     -0.22222
         -0.18732     -0.18732     -0.18732       1.0000
P6       -0.33133E-01  0.58910     -0.84841E-01  0.11622E-01 -0.18732
         -0.15789     -0.15789     -0.15789     -0.18732       1.0000
C1        0.79559     -0.13111      0.55692      0.63891      0.25565E-01
          0.10057      0.10057      0.10057      0.25565E-01 -0.21550
          1.0000
C2       -0.31972      0.13382     -0.22697     -0.41669     -0.69007E-01
          0.12926E-01  0.12926E-01  0.12926E-01 -0.69007E-01  0.12926E-01
         -0.37048       1.0000
C3       -0.37169     -0.30409     -0.20764     -0.23384     -0.69007E-01
          0.12926E-01  0.12926E-01  0.12926E-01 -0.69007E-01  0.12926E-01
         -0.37048     -0.46667       1.0000
             BETA         TOTSHARE     NONBOC       LEVERAGE     P1
             P2           P3           P4           P5           P6
             C1           C2           C3
```

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```
 COVARIANCE MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA       0.83106E-01
TOTSHARE   0.24606E-02  0.12529E-02
NONBOC     0.33456E-01  0.11282E-02  0.16540E-01
LEVERAGE   0.39985E-01  0.25703E-02  0.14230E-01  0.31829E-01
P1        -0.32251E-01 -0.79297E-02 -0.22969E-01 -0.19260E-01  0.15584
P2         0.14502E-01 -0.23336E-02  0.10421E-01 -0.11152E-01 -0.25974E-01
           0.12338
P3         0.61688E-02 -0.73681E-03  0.62210E-02 -0.40945E-02 -0.25974E-01
          -0.19481E-01  0.12338
P4         0.37879E-02  0.10024E-02  0.57534E-02  0.94062E-02 -0.25974E-01
          -0.19481E-01 -0.19481E-01  0.12338
P5         0.24892E-01  0.55765E-02  0.55467E-02  0.35208E-01 -0.34632E-01
          -0.25974E-01 -0.25974E-01 -0.25974E-01  0.15584
P6        -0.33550E-02  0.73243E-02 -0.38325E-02  0.72831E-03 -0.25974E-01
          -0.19481E-01 -0.19481E-01 -0.19481E-01 -0.25974E-01  0.12338
C1         0.98377E-01 -0.19907E-02  0.30722E-01  0.48892E-01  0.43290E-02
           0.15152E-01  0.15152E-01  0.15152E-01  0.43290E-02 -0.32468E-01
           0.18398
C2        -0.43939E-01  0.22581E-02 -0.13916E-01 -0.35440E-01 -0.12987E-01
           0.21645E-02  0.21645E-02  0.21645E-02 -0.12987E-01  0.21645E-02
          -0.75758E-01  0.22727
C3        -0.51082E-01 -0.51315E-02 -0.12731E-01 -0.19889E-01 -0.12987E-01
           0.21645E-02  0.21645E-02  0.21645E-02 -0.12987E-01  0.21645E-02
          -0.75758E-01 -0.10606      0.22727
              BETA          TOTSHARE      NONBOC        LEVERAGE      P1
              P2            P3            P4            P5            P6
              C1            C2            C3

|_OLS  Beta TotShare nonBOC Leverage p1 p2 p3 p4 p5 p6 c1 c2 c3  / auxrsqr rstat dw

REQUIRED MEMORY IS PAR=      11 CURRENT PAR=     781
 OLS ESTIMATION
       22 OBSERVATIONS     DEPENDENT VARIABLE= BETA
...NOTE..SAMPLE RANGE SET TO:      1,     22

DURBIN-WATSON STATISTIC  =   2.27000
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =    0.293337
              NEGATIVE AUTOCORRELATION TEST P-VALUE =    0.706663
R-SQUARE OF TOTSHARE ON OTHER INDEPENDENT VARIABLES =   0.9499
R-SQUARE OF NONBOC   ON OTHER INDEPENDENT VARIABLES =   0.6834
R-SQUARE OF LEVERAGE ON OTHER INDEPENDENT VARIABLES =   0.8499
R-SQUARE OF P1       ON OTHER INDEPENDENT VARIABLES =   0.7181
R-SQUARE OF P2       ON OTHER INDEPENDENT VARIABLES =   0.6427
R-SQUARE OF P3       ON OTHER INDEPENDENT VARIABLES =   0.7178
R-SQUARE OF P4       ON OTHER INDEPENDENT VARIABLES =   0.8005
R-SQUARE OF P5       ON OTHER INDEPENDENT VARIABLES =   0.9013
R-SQUARE OF P6       ON OTHER INDEPENDENT VARIABLES =   0.9210
R-SQUARE OF C1       ON OTHER INDEPENDENT VARIABLES =   0.8701
R-SQUARE OF C2       ON OTHER INDEPENDENT VARIABLES =   0.7375
R-SQUARE OF C3       ON OTHER INDEPENDENT VARIABLES =   0.8722
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =   0.0000

 R-SQUARE =    0.9919     R-SQUARE ADJUSTED =    0.9811
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.15672E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.39587E-01
SUM OF SQUARED ERRORS-SSE=  0.14104E-01
```

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MEAN OF DEPENDENT VARIABLE =  0.98182
LOG OF THE LIKELIHOOD FUNCTION =  49.6587

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.24932E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -6.1705
 SCHWARZ (1978) CRITERION - LOG SC =              -5.5258
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.38308E-02
 HANNAN AND QUINN (1979) CRITERION =              0.24330E-02
 RICE (1984) CRITERION =                         -0.35261E-02
 SHIBATA (1981) CRITERION =                       0.13988E-02
 SCHWARZ (1978) CRITERION - SC =                  0.39828E-02
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.20902E-02

                    ANALYSIS OF VARIANCE - FROM MEAN
                      SS          DF          MS              F
REGRESSION         1.7311         12.      0.14426          92.052
ERROR          0.14104E-01         9.      0.15672E-02      P-VALUE
TOTAL              1.7452         21.      0.83106E-01        0.000

                    ANALYSIS OF VARIANCE - FROM ZERO
                      SS          DF          MS              F
REGRESSION         22.938         13.       1.7645        1125.914
ERROR          0.14104E-01         9.      0.15672E-02      P-VALUE
TOTAL              22.952         22.       1.0433             0.000


VARIABLE   ESTIMATED   STANDARD    T-RATIO       PARTIAL STANDARDIZED ELASTICITY
  NAME    COEFFICIENT   ERROR       9 DF   P-VALUE CORR. COEFFICIENT  AT MEANS
TOTSHARE   -2.1687      1.091      -1.988    0.078-0.552    -0.2663    -0.1728
NONBOC      1.5871     0.1194       13.29    0.000 0.975     0.7080     0.7002
LEVERAGE  0.51856E-01  0.1250      0.4149    0.688 0.137     0.0321     0.0149
P1        0.27870E-01 0.4121E-01  0.6763    0.516 0.220     0.0382     0.0052
P2        0.46632E-01 0.4114E-01   1.133    0.286 0.353     0.0568     0.0065
P3        0.56640E-01 0.4629E-01   1.223    0.252 0.378     0.0690     0.0079
P4        0.66669E-01 0.5507E-01   1.211    0.257 0.374     0.0812     0.0093
P5        0.22922     0.6965E-01   3.291    0.009 0.739     0.3139     0.0424
P6        0.28255     0.8753E-01   3.228    0.010 0.733     0.3443     0.0392
C1        0.18080     0.5587E-01   3.236    0.010 0.733     0.2690     0.0419
C2       -0.60139E-01 0.3537E-01  -1.700    0.123-0.493    -0.0995    -0.0195
C3       -0.13770     0.5070E-01  -2.716    0.024-0.671    -0.2277    -0.0446
CONSTANT  0.36281     0.8742E-01   4.150    0.002 0.810     0.0000     0.3695

DURBIN-WATSON = 2.2700    VON NEUMANN RATIO = 2.3781    RHO = -0.23156
RESIDUAL SUM = -0.69389E-17  RESIDUAL VARIANCE =  0.15672E-02
SUM OF ABSOLUTE ERRORS=  0.45411
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9919
RUNS TEST:   13 RUNS,   11 POS,    0 ZERO,   11 NEG  NORMAL STATISTIC =  0.4369
COEFFICIENT OF SKEWNESS =  -0.3171 WITH STANDARD DEVIATION OF 0.4910
COEFFICIENT OF EXCESS KURTOSIS =  -0.7660 WITH STANDARD DEVIATION OF 0.9528

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    1.0029 P-VALUE= 0.606

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 20 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  0.0  0.0  3.0  1.0  2.0  5.0  3.0  4.0  2.0  2.0  0.0

EXPECTED  0.1  0.1  0.2  0.4  0.7  1.1  1.5  2.0  2.4  2.6  2.6  2.4  2.0  1.5  1.1
```

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CHI-SQUARE =   10.6249 WITH  5 DEGREES OF FREEDOM, P-VALUE= 0.059
|_DIAGNOS / HET,,,,,,,,,,,

REQUIRED MEMORY IS PAR=     104 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            22 OBSERVATIONS
REGRESSION COEFFICIENTS
  -2.16865091984       1.58706235095      0.518560956808E-01  0.278704366815E-01
  0.466316612852E-01  0.566399555463E-01  0.666692385054E-01  0.229219747691
  0.282552229056      0.180804526306     -0.601388635081E-01 -0.137703809826
  0.362814433463

HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                          TEST STATISTIC
E**2 ON YHAT:                    4.877      1    0.02721
E**2 ON YHAT**2:                 4.716      1    0.02988
E**2 ON LOG(YHAT**2):            5.008      1    0.02523
E**2 ON LAG(E**2) ARCH TEST:     1.044      1    0.30691
LOG(E**2) ON X (HARVEY) TEST:   11.594     12    0.47883
ABS(E) ON X (GLEJSER) TEST:     13.436     12    0.33814
E**2 ON X                 TEST:
          KOENKER(R2):          14.629     12    0.26234
          B-P-G (SSR) :          8.313     12    0.76024

...MATRIX INVERSION FAILED IN ROW   19
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2    (WHITE) TEST:
          KOENKER(R2):       **********    24  *********
          B-P-G (SSR) :      **********    24  *********

...MATRIX INVERSION FAILED IN ROW   19
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2 XX (WHITE) TEST:
          KOENKER(R2):       **********    90  *********
          B-P-G (SSR) :      **********    90  *********

|_stop,,,,,,,,,,,
```

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Appendix 3A and 3B

Dependent Variable:	ILEC Beta Values
Explanatory Variables:	Diversification (Non_ILEC) Financial Leverage (Leverage)
Time Series:	Betas, 1997 – 2003 (7 years) Explanatory Variables, 1996 – 2002 (7 years)
Companies Included:	Ameritech (3 observations)[1] BellSouth (7 observations) NYNEX (1 observation)[2] Qwest (6 observations)[3] SBC (7 observations) Verizon (6 observations)[4]
Version:	Version A – Uses ARMIS-based asset information to estimate SBC ILEC assets. Version B – Uses 10K asset information as of 12/31/97 to estimate SBC ILEC assets.
Total Observations:	30

1. Value Line stopped publishing Ameritech's beta after 1999.
2. Value Line stopped publishing NYNEX's beta after 1997.
3. Qwest has not released its 2002 10-K.
4. Value Line did not publish beta values for Verizon in 2000.

Data Underlying Appendix 3A				
Company	**Year**	**Beta**	**Non_ILEC**	**Leverage**
Ameritech	1997	0.900	0.3428	0.1896
Ameritech	1998	0.900	0.3696	0.1242
Ameritech	1999	0.833	0.4618	0.1141
BellSouth	1997	0.950	0.2948	0.1974
BellSouth	1998	0.925	0.3625	0.1426
BellSouth	1999	0.813	0.3956	0.1350
BellSouth	2000	0.825	0.4179	0.1593
BellSouth	2001	0.813	0.4170	0.2108
BellSouth	2002	0.800	0.3861	0.2244
BellSouth	2003	0.900	0.3641	0.2557
NYNEX	1997	0.875	0.3112	0.3271
Qwest	1997	0.775	0.0374	0.2916
Qwest	1998	0.713	0.0373	0.1722
Qwest	1999	0.750	0.0450	0.2640
Qwest	2000	0.750	0.1415	0.2582
Qwest	2001	1.538	0.6892	0.2458
Qwest	2002	1.563	0.6603	0.6490
SBC	1997	0.925	0.4043	0.1881
SBC	1998	0.875	0.2405	0.1503
SBC	1999	0.813	0.1772	0.1249
SBC	2000	0.838	0.3891	0.1274
SBC	2001	0.813	0.4337	0.1542
SBC	2002	0.825	0.3953	0.1692
SBC	2003	0.975	0.4206	0.2366

Verizon	1997	0.950	0.2303	0.2387
Verizon	1998	0.925	0.2689	0.2000
Verizon	1999	0.863	0.2611	0.1996
Verizon	2000	0.850	0.3184	0.1773
Verizon	2002	1.025	0.4551	0.3387
Verizon	2003	1.000	0.4472	0.3680

SHAZAM OUTPUT

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----------------------------7d41262b702ae
Content-Disposition: form-data; name="IX"; filename="\\Etinovell\VOL1\ETI\AT&T\Washington\WUTC UNE Case\
 FILE UPLOAD (120 CHARS MAX) FOR:
Content-Type: application/octet-stream
*****************************************************************
Hello/Bonjour/Aloha/Howdy/G Day/Kia Ora/Konnichiwa/Buenos Dias/Nee Hau/Ciao
Welcome to SHAZAM - Version 9.0  -  OCT 2003 SYSTEM=LINUX    PAR=   781
|_SAMPLE 1 30,,,,,,,,,,,,
|_Read Beta NonLec Leverage Y97 Y98 Y99 Y03 Y01 Y02 Catech CBS CQ CSBC CVZ,,,,,,,,,,,,
  14 VARIABLES AND       30 OBSERVATIONS STARTING AT OBS       1

|_STAT  Beta NonLec Leverage Y97 Y98 Y99 Y03 Y01 Y02 Catech CBS CQ CSBC CVZ  / pcor pcov,,,,,,,,,,,,
NAME         N    MEAN        ST. DEV      VARIANCE     MINIMUM      MAXIMUM
BETA          30  0.90985     0.18953     0.35922E-01  0.71250      1.5625
NONLEC        30  0.33919     0.15322     0.23477E-01  0.37300E-01  0.68920
LEVERAGE      30  0.22113     0.10450     0.10921E-01  0.11410      0.64900
Y97           30  0.20000     0.40684     0.16552       0.0000      1.0000
Y98           30  0.16667     0.37905     0.14368       0.0000      1.0000
Y99           30  0.16667     0.37905     0.14368       0.0000      1.0000
Y03           30  0.10000     0.30513     0.93103E-01   0.0000      1.0000
Y01           30  0.10000     0.30513     0.93103E-01   0.0000      1.0000
Y02           30  0.13333     0.34575     0.11954       0.0000      1.0000
CATECH        30  0.10000     0.30513     0.93103E-01   0.0000      1.0000
CBS           30  0.23333     0.43018     0.18506       0.0000      1.0000
CQ            30  0.20000     0.40684     0.16552       0.0000      1.0000
CSBC          30  0.23333     0.43018     0.18506       0.0000      1.0000
CVZ           30  0.20000     0.40684     0.16552       0.0000      1.0000

 CORRELATION MATRIX OF VARIABLES -       30 OBSERVATIONS


BETA       1.0000
NONLEC    0.71639       1.0000
LEVERAGE  0.62771      0.27904       1.0000
Y97      -0.37609E-01 -0.22921      0.85728E-01   1.0000
Y98      -0.10164     -0.24768     -0.27540     -0.22361       1.0000
Y99      -0.22979     -0.21093     -0.23335     -0.22361     -0.20000
          1.0000
Y03       0.86727E-01  0.15807      0.21293     -0.16667     -0.14907
         -0.14907       1.0000
Y01       0.25815      0.38524     -0.56881E-01 -0.16667     -0.14907
         -0.14907     -0.11111       1.0000
Y02       0.30158      0.35151      0.47409     -0.19612     -0.17541
         -0.17541     -0.13074     -0.13074       1.0000
CATECH   -0.57569E-01  0.11552     -0.25467      0.11111      0.14907
          0.14907     -0.11111     -0.11111     -0.13074      1.00000
CBS      -0.14547      0.13793     -0.17084     -0.78811E-01 -0.35245E-01
         -0.35245E-01  0.78811E-01  0.78811E-01  0.15456E-01 -0.18389
           1.0000
CQ        0.28102     -0.23480      0.44932     -0.41667E-01  0.94133E-17
          0.15620E-16 -0.16667      0.11111      0.49029E-01 -0.16667
         -0.27584       1.0000
CSBC     -0.12961      0.45172E-01 -0.30469     -0.78811E-01 -0.35245E-01
         -0.35245E-01  0.78811E-01  0.78811E-01  0.15456E-01 -0.18389
         -0.30435     -0.27584       1.0000
CVZ       0.68600E-01 -0.29960E-01  0.15856     -0.41667E-01  0.14067E-16
          0.14067E-16  0.11111     -0.16667      0.49029E-01 -0.16667
         -0.27584     -0.25000     -0.27584       1.0000
             BETA          NONLEC       LEVERAGE     Y97          Y98
             Y99           Y03          Y01          Y02          CATECH
             CBS           CQ           CSBC         CVZ

 COVARIANCE MATRIX OF VARIABLES -       30 OBSERVATIONS


BETA      0.35922E-01
NONLEC    0.20804E-01  0.23477E-01
LEVERAGE  0.12433E-01  0.44681E-02  0.10921E-01
Y97      -0.29000E-02 -0.14288E-01  0.36448E-02  0.16552
Y98      -0.73017E-02 -0.14385E-01 -0.10909E-01 -0.34483E-01  0.14368
Y99      -0.16509E-01 -0.12251E-01 -0.92437E-02 -0.34483E-01 -0.28736E-01
          0.14368
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Y03        0.50155E-02  0.73903E-02  0.67897E-02 -0.20690E-01 -0.17241E-01
          -0.17241E-01  0.93103E-01
Y01        0.14929E-01  0.18011E-01 -0.18138E-02 -0.20690E-01 -0.17241E-01
          -0.17241E-01 -0.10345E-01  0.93103E-01
Y02        0.19762E-01  0.18622E-01  0.17130E-01 -0.27586E-01 -0.22989E-01
          -0.22989E-01 -0.13793E-01 -0.13793E-01  0.11954
CATECH    -0.33293E-02  0.54007E-02 -0.81207E-02  0.13793E-01  0.17241E-01
           0.17241E-01 -0.10345E-01 -0.10345E-01 -0.13793E-01  0.93103E-01
CBS       -0.11860E-01  0.90913E-02 -0.76805E-02 -0.13793E-01 -0.57471E-02
          -0.57471E-02  0.10345E-01  0.10345E-01  0.22989E-02 -0.24138E-01
           0.18506
CQ         0.21669E-01 -0.14637E-01  0.19103E-01 -0.68966E-02  0.14516E-17
           0.24087E-17 -0.20690E-01  0.13793E-01  0.68966E-02 -0.20690E-01
          -0.48276E-01  0.16552
CSBC      -0.10567E-01  0.29775E-02 -0.13698E-01 -0.13793E-01 -0.57471E-02
          -0.57471E-02  0.10345E-01  0.10345E-01  0.22989E-02 -0.24138E-01
          -0.56322E-01 -0.48276E-01  0.18506
CVZ        0.52897E-02 -0.18676E-02  0.67414E-02 -0.68966E-02  0.21693E-17
           0.21693E-17  0.13793E-01 -0.20690E-01  0.68966E-02 -0.20690E-01
          -0.48276E-01 -0.41379E-01 -0.48276E-01  0.16552
              BETA         NONLEC       LEVERAGE     Y97          Y98
              Y99          Y03          Y01          Y02          CATECH
              CBS          CQ           CSBC         CVZ

|_OLS  Beta NonLec Leverage Y97 Y98 Y99 Y03 Y01 Y02 Catech CBS CQ CSBC CVZ / auxrsqr rstat dwpvalue,,,,,

REQUIRED MEMORY IS PAR=      17 CURRENT PAR=     781
 OLS ESTIMATION
       30 OBSERVATIONS     DEPENDENT VARIABLE= BETA
...NOTE..SAMPLE RANGE SET TO:       1,      30

DURBIN-WATSON STATISTIC  =   1.95909
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =    0.171611
              NEGATIVE AUTOCORRELATION TEST P-VALUE =    0.828389
R-SQUARE OF NONLEC   ON OTHER INDEPENDENT VARIABLES =   0.6536
R-SQUARE OF LEVERAGE ON OTHER INDEPENDENT VARIABLES =   0.7977
R-SQUARE OF Y97      ON OTHER INDEPENDENT VARIABLES =   0.6368
R-SQUARE OF Y98      ON OTHER INDEPENDENT VARIABLES =   0.5167
R-SQUARE OF Y99      ON OTHER INDEPENDENT VARIABLES =   0.5128
R-SQUARE OF Y03      ON OTHER INDEPENDENT VARIABLES =   0.5574
R-SQUARE OF Y01      ON OTHER INDEPENDENT VARIABLES =   0.4983
R-SQUARE OF Y02      ON OTHER INDEPENDENT VARIABLES =   0.6489
R-SQUARE OF CATECH   ON OTHER INDEPENDENT VARIABLES =   0.8069
R-SQUARE OF CBS      ON OTHER INDEPENDENT VARIABLES =   0.8828
R-SQUARE OF CQ       ON OTHER INDEPENDENT VARIABLES =   0.8547
R-SQUARE OF CSBC     ON OTHER INDEPENDENT VARIABLES =   0.8890
R-SQUARE OF CVZ      ON OTHER INDEPENDENT VARIABLES =   0.8532
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =   0.0000

 R-SQUARE =   0.9044     R-SQUARE ADJUSTED =   0.8267
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.62261E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.78906E-01
SUM OF SQUARED ERRORS-SSE=  0.99617E-01
MEAN OF DEPENDENT VARIABLE =  0.90985
LOG OF THE LIKELIHOOD FUNCTION =  43.0461

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.91316E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -4.7743
 SCHWARZ (1978) CRITERION - LOG SC =              -4.1204
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.11674E-01
 HANNAN AND QUINN (1979) CRITERION =              0.10409E-01
 RICE (1984) CRITERION =                          0.49809E-01
 SHIBATA (1981) CRITERION =                       0.64198E-02
 SCHWARZ (1978) CRITERION - SC =                  0.16238E-01
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.84441E-02

                    ANALYSIS OF VARIANCE - FROM MEAN
                      SS          DF            MS                F
REGRESSION        0.94212         13.       0.72471E-01          11.640
ERROR             0.99617E-01     16.       0.62261E-02          P-VALUE
TOTAL              1.0417         29.       0.35922E-01            0.000
```

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                    ANALYSIS OF VARIANCE - FROM ZERO
                      SS          DF          MS              F
REGRESSION          25.777        14.        1.8412          295.725
ERROR            0.99617E-01      16.     0.62261E-02        P-VALUE
TOTAL               25.877        30.       0.86255           0.000


VARIABLE   ESTIMATED  STANDARD   T-RATIO        PARTIAL STANDARDIZED ELASTICITY
  NAME    COEFFICIENT   ERROR      16 DF   P-VALUE CORR. COEFFICIENT  AT MEANS
NONLEC     1.2481      0.1625      7.682     0.000 0.887     1.0090     0.4653
LEVERAGE  0.41279      0.3117      1.324     0.204 0.314     0.2276     0.1003
Y97       0.16808      0.5976E-01  2.813     0.013 0.575     0.3608     0.0369
Y98       0.16937      0.5561E-01  3.046     0.008 0.606     0.3387     0.0310
Y99       0.96528E-01  0.5538E-01  1.743     0.101 0.399     0.1930     0.0177
Y03       0.28063E-01  0.7218E-01  0.3888    0.703 0.097     0.0452     0.0031
Y01      -0.16219E-01  0.6780E-01 -0.2392    0.814-0.060    -0.0261    -0.0018
Y02      -0.27067E-01  0.7153E-01 -0.3784    0.710-0.094    -0.0494    -0.0040
CATECH    0.21357E-02  0.1093      0.1954E-01 0.985 0.005     0.0034     0.0002
CBS       0.68902E-01  0.9948E-01  0.6926    0.498 0.171     0.1564     0.0177
CQ        0.30154      0.9448E-01  3.191     0.006 0.624     0.6473     0.0663
CSBC      0.11616      0.1022      1.136     0.273 0.273     0.2637     0.0298
CVZ       0.16262      0.9400E-01  1.730     0.103 0.397     0.3491     0.0357
CONSTANT  0.18348      0.1236      1.484     0.157 0.348     0.0000     0.2017

DURBIN-WATSON = 1.9591    VON NEUMANN RATIO = 2.0266    RHO = -0.02504
RESIDUAL SUM = -0.55511E-16  RESIDUAL VARIANCE =  0.62261E-02
SUM OF ABSOLUTE ERRORS=   1.2842
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9044
RUNS TEST:   16 RUNS,   14 POS,    0 ZERO,   16 NEG  NORMAL STATISTIC =  0.0249
COEFFICIENT OF SKEWNESS =   0.1701 WITH STANDARD DEVIATION OF 0.4269
COEFFICIENT OF EXCESS KURTOSIS =   0.4486 WITH STANDARD DEVIATION OF 0.8327

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    0.1725 P-VALUE= 0.917

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 20 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  1.0  0.0  4.0  1.0  2.0  8.0  4.0  5.0  2.0  1.0  1.0  0.0  1.0  0.0  0.0

EXPECTED  0.1  0.1  0.3  0.5  0.9  1.4  2.1  2.7  3.2  3.5  3.5  3.2  2.7  2.1  1.4  0.9  0.5  0.3  0.1

CHI-SQUARE =   15.2663 WITH  4 DEGREES OF FREEDOM, P-VALUE= 0.004
|_DIAGNOS / HET,,,,,,,,,,,,

REQUIRED MEMORY IS PAR=     139 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            30 OBSERVATIONS
REGRESSION COEFFICIENTS
   1.24812950246      0.412789427692      0.168082400346      0.169367425700
  0.965280365879E-01  0.280633732481E-01 -0.162186792355E-01 -0.270665713477E-01
  0.213568313255E-02  0.689022715432E-01  0.301535530432      0.116163002389
  0.162622297529      0.183476276691

HETEROSKEDASTICITY TESTS
                           CHI-SQUARE     D.F.   P-VALUE
                         TEST STATISTIC
E**2 ON YHAT:                   0.297      1    0.58548
E**2 ON YHAT**2:                0.387      1    0.53374
E**2 ON LOG(YHAT**2):           0.146      1    0.70204
E**2 ON LAG(E**2) ARCH TEST:    1.877      1    0.17073
LOG(E**2) ON X (HARVEY) TEST: **********   13    0.00000
ABS(E) ON X (GLEJSER) TEST:    20.559      13    0.08212
E**2 ON X                TEST:
          KOENKER(R2):         15.089      13    0.30184
          B-P-G (SSR) :        16.474      13    0.22445

...MATRIX INVERSION FAILED IN ROW   17
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2    (WHITE) TEST:
          KOENKER(R2):       **********    26  *********
          B-P-G (SSR) :      **********    26  *********

...MATRIX INVERSION FAILED IN ROW   17
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2 XX (WHITE) TEST:
          KOENKER(R2):       **********   104  *********
          B-P-G (SSR) :      **********   104  *********
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Data Underlying Appendix 3B				
Company	**Year**	**Beta**	**Non_ILEC**	**Leverage**
Ameritech	1997	0.900	0.3428	0.1896
Ameritech	1998	0.900	0.3696	0.1242
Ameritech	1999	0.833	0.4618	0.1141
BellSouth	1997	0.950	0.2948	0.1974
BellSouth	1998	0.925	0.3625	0.1426
BellSouth	1999	0.813	0.3956	0.1350
BellSouth	2000	0.825	0.4179	0.1593
BellSouth	2001	0.813	0.4170	0.2108
BellSouth	2002	0.800	0.3861	0.2244
BellSouth	2003	0.900	0.3641	0.2557
NYNEX	1997	0.875	0.3112	0.3271
Qwest	1997	0.775	0.0374	0.2916
Qwest	1998	0.713	0.0373	0.1722
Qwest	1999	0.750	0.0450	0.2640
Qwest	2000	0.750	0.1415	0.2582
Qwest	2001	1.538	0.6892	0.2458
Qwest	2002	1.563	0.6603	0.6490
SBC	1997	0.925	0.4043	0.1881
SBC	1998	0.875	0.2405	0.1503
SBC	1999	0.813	0.1772	0.1249
SBC	2000	0.838	0.3726	0.1274
SBC	2001	0.813	0.4121	0.1542
SBC	2002	0.825	0.3740	0.1692
SBC	2003	0.975	0.4077	0.2366

Verizon	1997	0.950	0.2303	0.2387
Verizon	1998	0.925	0.2689	0.2000
Verizon	1999	0.863	0.2611	0.1996
Verizon	2000	0.850	0.3184	0.1773
Verizon	2002	1.025	0.4551	0.3387
Verizon	2003	1.000	0.4472	0.3680

SHAZAM OUTPUT

```
-----------------------------7d48733102bc
Content-Disposition: form-data; name="IX"; filename="\\Etinovell\VOL1\ETI\AT&T\Wash
 FILE UPLOAD (120 CHARS MAX) FOR:
Content-Type: application/octet-stream
**************************************************************
Hello/Bonjour/Aloha/Howdy/G Day/Kia Ora/Konnichiwa/Buenos Dias/Nee Hau/Ciao
Welcome to SHAZAM - Version 9.0  -  OCT 2003 SYSTEM=LINUX    PAR=   781
|_SAMPLE 1 30,,,,,,,,,,,,
|_Read Beta NonLec Leverage Y97 Y98 Y99 Y03 Y01 Y02 Catech CBS CQ CSBC CVZ,,,,,,,,
  14 VARIABLES AND       30 OBSERVATIONS STARTING AT OBS       1

|_STAT  Beta NonLec Leverage Y97 Y98 Y99 Y03 Y01 Y02 Catech CBS CQ CSBC CVZ  / pcor
NAME         N    MEAN        ST. DEV      VARIANCE     MINIMUM      MAXIMUM
BETA          30  0.90985     0.18953     0.35922E-01  0.71250       1.5625
NONLEC        30  0.33679     0.15220     0.23163E-01  0.37301E-01  0.68923
LEVERAGE      30  0.22113     0.10450     0.10921E-01  0.11411      0.64899
Y97           30  0.20000     0.40684     0.16552       0.0000       1.0000
Y98           30  0.16667     0.37905     0.14368       0.0000       1.0000
Y99           30  0.16667     0.37905     0.14368       0.0000       1.0000
Y03           30  0.10000     0.30513     0.93103E-01   0.0000       1.0000
Y01           30  0.10000     0.30513     0.93103E-01   0.0000       1.0000
Y02           30  0.13333     0.34575     0.11954       0.0000       1.0000
CATECH        30  0.10000     0.30513     0.93103E-01   0.0000       1.0000
CBS           30  0.23333     0.43018     0.18506       0.0000       1.0000
CQ            30  0.20000     0.40684     0.16552       0.0000       1.0000
CSBC          30  0.23333     0.43018     0.18506       0.0000       1.0000
CVZ           30  0.20000     0.40684     0.16552       0.0000       1.0000

 CORRELATION MATRIX OF VARIABLES -       30 OBSERVATIONS


BETA        1.0000
NONLEC     0.72630       1.0000
LEVERAGE   0.62770      0.28930       1.0000
Y97       -0.37609E-01 -0.22267      0.85809E-01   1.0000
Y98       -0.10164     -0.24211     -0.27541     -0.22361       1.0000
Y99       -0.22979     -0.20520     -0.23339     -0.22361     -0.20000
           1.0000
Y03        0.86727E-01  0.15495      0.21293     -0.16667     -0.14907
          -0.14907       1.0000
Y01        0.25815      0.37721     -0.56856E-01 -0.16667     -0.14907
          -0.14907     -0.11111       1.0000
Y02        0.30158      0.34618      0.47401     -0.19612     -0.17541
          -0.17541     -0.13074     -0.13074       1.0000
CATECH    -0.57569E-01  0.12167     -0.25468      0.11111      0.14907
           0.14907     -0.11111     -0.11111     -0.13074      1.00000
CBS       -0.14547      0.14774     -0.17090     -0.78811E-01 -0.35245E-01
          -0.35245E-01  0.78811E-01  0.78811E-01  0.15456E-01 -0.18389
           1.0000
CQ         0.28102     -0.22829      0.44941     -0.41667E-01  0.94133E-17
           0.15620E-16 -0.16667      0.11111      0.49029E-01 -0.16667
          -0.27584       1.0000
CSBC      -0.12961      0.16274E-01 -0.30467     -0.78811E-01 -0.35245E-01
          -0.35245E-01  0.78811E-01  0.78811E-01  0.15456E-01 -0.18389
          -0.30435     -0.27584       1.0000
CVZ        0.68600E-01 -0.22152E-01  0.15848     -0.41667E-01  0.14067E-16
           0.14067E-16  0.11111     -0.16667      0.49029E-01 -0.16667
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      -0.27584      -0.25000      -0.27584       1.0000
          BETA          NONLEC        LEVERAGE      Y97           Y98
          Y99           Y03           Y01           Y02           CATECH
          CBS           CQ            CSBC          CVZ

 COVARIANCE MATRIX OF VARIABLES -       30 OBSERVATIONS


BETA       0.35922E-01
NONLEC     0.20950E-01  0.23163E-01
LEVERAGE   0.12433E-01  0.46013E-02  0.10921E-01
Y97       -0.29000E-02 -0.13788E-01  0.36483E-02  0.16552
Y98       -0.73017E-02 -0.13967E-01 -0.10910E-01 -0.34483E-01  0.14368
Y99       -0.16509E-01 -0.11838E-01 -0.92453E-02 -0.34483E-01 -0.28736E-01
           0.14368
Y03        0.50155E-02  0.71956E-02  0.67897E-02 -0.20690E-01 -0.17241E-01
          -0.17241E-01  0.93103E-01
Y01        0.14929E-01  0.17517E-01 -0.18130E-02 -0.20690E-01 -0.17241E-01
          -0.17241E-01 -0.10345E-01  0.93103E-01
Y02        0.19762E-01  0.18216E-01  0.17127E-01 -0.27586E-01 -0.22989E-01
          -0.22989E-01 -0.13793E-01 -0.13793E-01  0.11954
CATECH    -0.33293E-02  0.56503E-02 -0.81212E-02  0.13793E-01  0.17241E-01
           0.17241E-01 -0.10345E-01 -0.10345E-01 -0.13793E-01  0.93103E-01
CBS       -0.11860E-01  0.96731E-02 -0.76828E-02 -0.13793E-01 -0.57471E-02
          -0.57471E-02  0.10345E-01  0.10345E-01  0.22989E-02 -0.24138E-01
           0.18506
CQ         0.21669E-01 -0.14135E-01  0.19107E-01 -0.68966E-02  0.14516E-17
           0.24087E-17 -0.20690E-01  0.13793E-01  0.68966E-02 -0.20690E-01
          -0.48276E-01  0.16552
CSBC      -0.10567E-01  0.10655E-02 -0.13697E-01 -0.13793E-01 -0.57471E-02
          -0.57471E-02  0.10345E-01  0.10345E-01  0.22989E-02 -0.24138E-01
          -0.56322E-01 -0.48276E-01  0.18506
CVZ        0.52897E-02 -0.13716E-02  0.67381E-02 -0.68966E-02  0.21693E-17
           0.21693E-17  0.13793E-01 -0.20690E-01  0.68966E-02 -0.20690E-01
          -0.48276E-01 -0.41379E-01 -0.48276E-01  0.16552
              BETA          NONLEC        LEVERAGE      Y97           Y98
              Y99           Y03           Y01           Y02           CATECH
              CBS           CQ            CSBC          CVZ

|_OLS  Beta NonLec Leverage Y97 Y98 Y99 Y03 Y01 Y02 Catech CBS CQ CSBC CVZ / auxrsq

REQUIRED MEMORY IS PAR=      17 CURRENT PAR=     781
 OLS ESTIMATION
       30 OBSERVATIONS     DEPENDENT VARIABLE= BETA
...NOTE..SAMPLE RANGE SET TO:      1,     30

DURBIN-WATSON STATISTIC  =   1.98363
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =    0.189411
              NEGATIVE AUTOCORRELATION TEST P-VALUE =    0.810589
R-SQUARE OF NONLEC   ON OTHER INDEPENDENT VARIABLES =   0.6458
R-SQUARE OF LEVERAGE ON OTHER INDEPENDENT VARIABLES =   0.7997
R-SQUARE OF Y97      ON OTHER INDEPENDENT VARIABLES =   0.6343
R-SQUARE OF Y98      ON OTHER INDEPENDENT VARIABLES =   0.5136
R-SQUARE OF Y99      ON OTHER INDEPENDENT VARIABLES =   0.5099
R-SQUARE OF Y03      ON OTHER INDEPENDENT VARIABLES =   0.5579
R-SQUARE OF Y01      ON OTHER INDEPENDENT VARIABLES =   0.4945
R-SQUARE OF Y02      ON OTHER INDEPENDENT VARIABLES =   0.6489
R-SQUARE OF CATECH   ON OTHER INDEPENDENT VARIABLES =   0.8073
R-SQUARE OF CBS      ON OTHER INDEPENDENT VARIABLES =   0.8831
R-SQUARE OF CQ       ON OTHER INDEPENDENT VARIABLES =   0.8543
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R-SQUARE OF CSBC     ON OTHER INDEPENDENT VARIABLES =   0.8888
R-SQUARE OF CVZ      ON OTHER INDEPENDENT VARIABLES =   0.8533
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =   0.0000

 R-SQUARE =   0.9075     R-SQUARE ADJUSTED =   0.8323
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.60227E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.77606E-01
SUM OF SQUARED ERRORS-SSE=  0.96363E-01
MEAN OF DEPENDENT VARIABLE =  0.90985
LOG OF THE LIKELIHOOD FUNCTION =  43.5443

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.88332E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -4.8075
 SCHWARZ (1978) CRITERION - LOG SC =              -4.1536
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.11293E-01
 HANNAN AND QUINN (1979) CRITERION =              0.10069E-01
 RICE (1984) CRITERION =                          0.48181E-01
 SHIBATA (1981) CRITERION =                       0.62100E-02
 SCHWARZ (1978) CRITERION - SC =                  0.15708E-01
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.81683E-02

                    ANALYSIS OF VARIANCE - FROM MEAN
                      SS          DF            MS                F
REGRESSION        0.94537         13.       0.72721E-01          12.075
ERROR             0.96363E-01     16.       0.60227E-02          P-VALUE
TOTAL              1.0417         29.       0.35922E-01            0.000

                    ANALYSIS OF VARIANCE - FROM ZERO
                      SS          DF            MS                F
REGRESSION         25.780         14.        1.8414             305.752
ERROR             0.96363E-01     16.       0.60227E-02          P-VALUE
TOTAL              25.877         30.       0.86255                0.000


VARIABLE   ESTIMATED  STANDARD   T-RATIO        PARTIAL STANDARDIZED ELASTICITY
  NAME    COEFFICIENT   ERROR      16 DF   P-VALUE CORR. COEFFICIENT  AT MEANS
NONLEC     1.2481      0.1591      7.845     0.000 0.891     1.0022     0.4620
LEVERAGE  0.38452      0.3081      1.248     0.230 0.298     0.2120     0.0935
Y97       0.16433      0.5857E-01  2.806     0.013 0.574     0.3527     0.0361
Y98       0.16383      0.5451E-01  3.005     0.008 0.601     0.3276     0.0300
Y99       0.91300E-01  0.5431E-01  1.681     0.112 0.387     0.1826     0.0167
Y03       0.31054E-01  0.7104E-01  0.4372    0.668 0.109     0.0500     0.0034
Y01      -0.12473E-01  0.6643E-01 -0.1878    0.853-0.047    -0.0201    -0.0014
Y02      -0.20870E-01  0.7035E-01 -0.2967    0.771-0.074    -0.0381    -0.0031
CATECH   -0.19695E-02  0.1076     -0.1830E-01 0.986-0.005    -0.0032    -0.0002
CBS       0.61507E-01  0.9798E-01  0.6278    0.539 0.155     0.1396     0.0158
CQ        0.29815      0.9280E-01  3.213     0.005 0.626     0.6400     0.0655
CSBC      0.12095      0.1005      1.204     0.246 0.288     0.2745     0.0310
CVZ       0.15772      0.9247E-01  1.706     0.107 0.392     0.3386     0.0347
CONSTANT  0.19647      0.1213      1.620     0.125 0.375     0.0000     0.2159

DURBIN-WATSON = 1.9836    VON NEUMANN RATIO = 2.0520    RHO = -0.04072
RESIDUAL SUM =  0.27756E-16  RESIDUAL VARIANCE =  0.60227E-02
SUM OF ABSOLUTE ERRORS=   1.2747
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9075
RUNS TEST:   16 RUNS,   14 POS,    0 ZERO,   16 NEG  NORMAL STATISTIC =  0.0249
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COEFFICIENT OF SKEWNESS =   0.0024 WITH STANDARD DEVIATION OF 0.4269
COEFFICIENT OF EXCESS KURTOSIS =   0.4585 WITH STANDARD DEVIATION OF 0.8327

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    0.0461 P-VALUE= 0.977

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 20 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  1.0  0.0  3.0  2.0  2.0  8.0  4.0  5.0  2.0  1.0  1.0

EXPECTED  0.1  0.1  0.3  0.5  0.9  1.4  2.1  2.7  3.2  3.5  3.5  3.2  2.7  2.1  1.4

CHI-SQUARE =   12.2202 WITH  4 DEGREES OF FREEDOM, P-VALUE= 0.016
|_DIAGNOS / HET,,,,,,,,,,,,

REQUIRED MEMORY IS PAR=     139 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            30 OBSERVATIONS
REGRESSION COEFFICIENTS
   1.24805514730      0.384519786769      0.164325477210      0.163826108874
  0.912999028899E-01  0.310537742338E-01 -0.124725478060E-01 -0.208700652075E-01
 -0.196945432766E-02  0.615069131578E-01  0.298151315581      0.120950193592
  0.157724926860      0.196473329048

HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                           TEST STATISTIC
E**2 ON YHAT:                     0.504      1    0.47762
E**2 ON YHAT**2:                  0.535      1    0.46446
E**2 ON LOG(YHAT**2):             0.376      1    0.53971
E**2 ON LAG(E**2) ARCH TEST:      2.037      1    0.15353
LOG(E**2) ON X (HARVEY) TEST: **********     13    0.00000
ABS(E) ON X (GLEJSER) TEST:      20.664     13    0.07984
E**2 ON X                 TEST:
          KOENKER(R2):           15.822     13    0.25890
          B-P-G (SSR) :          17.341     13    0.18418

...MATRIX INVERSION FAILED IN ROW   18
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2    (WHITE) TEST:
          KOENKER(R2):      **********     26  *********
          B-P-G (SSR) :     **********     26  *********

...MATRIX INVERSION FAILED IN ROW   18
...RESULTS MAY BE UNRELIABLE
E**2 ON X X**2 XX (WHITE) TEST:
          KOENKER(R2):      **********    104  *********
          B-P-G (SSR) :     **********    104  *********

|_stop,,,,,,,,,,,,
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Data Sources

The following attachment presents the sources for all data used in Table 1 - Table 4 in the Direct Testimony of Dr. Lee L. Selwyn in WUTC Docket No. UT-023003.

Section 1: Data relied upon in Table 1 – Average Company Beta Values by Industry

Auto Industry Betas
Value Line Investment Survey, 9/5/03, at 102-110.

Brokerage/Securities Industry Betas
Value Line Investment Survey, 10/31/03, at 1425-1433.

Computer Industry Betas
Value Line Investment Survey, 10/17/03, at 1107-1136.

Home Appliance Industry Betas
Value Line Investment Survey, 9/5/03, at 118-123.

Insurance Industry Betas
Value Line Investment Survey, 9/26/03 at 587-612.

Paper Industry Betas
Value Line Investment Survey, 10/10/03, at 907-923.

Petroleum Industry Betas
Value Line Investment Survey, 9/19/03, at 407-427.

Restaurant Industry Betas
Value Line Investment Survey, 9/12/03, at 295-323.

Soft Drink Industry Betas
Value Line Investment Survey, 11/7/03, at 1546-1553.

Tire Industry Betas
Value Line Investment Survey, 9/5/03, at 112-116.

Section 2: Data relied upon in Table 2 through Table 4 – The Regression Analysis.

A. Equity Beta Values

RBOC Betas
Value Line Investment Survey, 1/10/97, at 743-772;
4/11/97, at 743-769;

7/11/97, at 743-769;
10/10/97, at 742-769;
1/9/98, at 741-767;
4/10/98, at 740-766;
7/10/98, at 737-762;
10/9/98, at 737-763;
1/8/99, at 737-762;
4/9/99, at 736-764;
7/9/99, at 736-765;
10/8/99, at 736-769;
1/7/00, at 735-768;
4/7/00, at 733-766;
7/7/00, at 732-763;
10/6/00, at 732-758;
1/5/01, at 729-756;
4/6/01, at 722-747;
7/6/01, at 722-747;
10/5/01, at 722-746;
1/4/02, at 727-745;
4/5/02, at 722-743;
7/5/02, at 722-743;
10/4/02, at 722-741;
1/3/03, at 722-741;
4/4/03, at 722-742;
7/4/03, at 722-742;
1/2/04, at 722-742.

B. Facilities-Based Competition & All Competition

Industry Analysis Division, FCC, *Local Telephone Competition and Broadband Deployment*, Local Telephone Competition, data as of December 31, 2002 at Table 7 and Table 10.

Data as of June 30, 2002 at Table 6 and Table 8.
Data as of December 31, 2001 at Table 6 and Table 8.
Data as of June 30, 2001 at Table 6.
Data as of December 31, 2000 at Table 6.
Data as of June 30, 2000 at Table 5.
Data as of December 31, 1999 at Table 4.

Industry Analysis Division, FCC, State-level Aggregated CLEC Data available at http://www.fcc.gov/wcb/iatd/comp.html, data as of June 20, 2001.

Data as of December 31, 2000.
Data as of June 30, 2000.
Data as of December 31, 1999.

C. RBOC Diversification

BellSouth Corporation

2002 10K filed February 28, 2003.
2001 10K filed February 28, 2002.
2000 10K filed March 2, 2001.
1999 10K filed March 2, 2000.

Second Quarter 2002 10Q filed August 2, 2002.
Second Quarter 2001 10Q filed August 3, 2001.
Second Quarter 2000 10Q filed August 14, 2000.

BellSouth Telecommunication Inc.[1]

1999 10K filed March 2, 2000.

Second Quarter 2000 10Q filed August 14, 2000.

Qwest Communications International Inc.

2001 10K filed April 1, 2002.
2000 10K filed March 16, 2001.
1999 10K filed March 17, 2000.

First Quarter 2002 10Q filed May 15, 2002.[2]
Second Quarter 2001 10Q filed August 14, 2001.
Second Quarter 2000 10Q filed August 11, 2000.

Qwest Corporation

2001 10K filed April 1, 2002.
2000 10K filed April 2, 2001.
1999 10K filed March 3, 2000.

First Quarter 2002 10Q filed May 15, 2002.[3]
Second Quarter 2001 10Q filed August 14, 2001.

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1. Since 2000, BellSouth Corp. has tracked BellSouth Telecommunications Inc.'s assets in its own 10K and 10Q.

2. First quarter figures were used because Qwest Communication International Inc. has yet to file a second quarter 2002 10K.

3. First quarter figures were used because Qwest Corporation has yet to file a second quarter 2002 10K.

Second Quarter 2000 10Q filed August 11, 2000.

SBC Communications Inc.[4]

2002 10K filed March 14, 2003.
2001 10K filed February 28, 2002.
2000 10K filed March 12, 2001.
1999 10K filed March 10, 2003.
1998 10K filed March 12, 1999.

Second Quarter 2002 10Q filed August 12, 2002.
Second Quarter 2001 10Q filed August 8, 2001.
Second Quarter 2000 10Q filed August 10, 2000.

Federal Communications Commission, ARMIS Report 43-02, USOA Report: Table B-1.A YE 1999-2003. Available at http://www.fcc.gov/wcb/eafs.

Ohio Bell Telephone Company, 1997 10K filed March 13, 1998.

Wisconsin Bell Inc., 1997 10K filed March 13, 1998.

Indiana Bell Telephone Company, 1997 10K filed March 13, 1998.

Illinois Bell Telephone Company, 1997 10K filed March 13, 1998.

Michigan Bell Telephone Company, 1997 10K filed March 13, 1998.

Southern New England Telephone, 1998 2nd Quarter 10Q filed August 6, 1998.

Verizon Communications Inc.

2002 10K filed March 14, 2003.
2001 10K filed March 20, 2002.
2000 10K filed March 23, 2001.
1999 10K filed March 30, 2000.

Second Quarter 2002 10Q filed August 12, 2002.
Second Quarter 2001 10Q filed August 14, 2001.

4. SBC Communications Inc.'s 10Ks and 10Qs contain data on its ILEC affiliates.

Second Quarter 2000 10Q filed August 14, 2000.

Verizon New Jersey Inc.[5]

2002 10K filed March 19, 2003.
2001 10K filed March 25, 2002.
2000 10K filed March 23, 2001.
1999 10K filed March 30, 2000.

Second Quarter 2002 10Q filed August14, 2002.
Second Quarter 2001 10Q filed August 14, 2001.
Second Quarter 2000 10Q filed August 14, 2000.

D. RBOC Financial Leverage

Value Line Investment Survey, 4/11/97, at 743-769;
4/10/98, at 740-766;
4/9/99, at 736-764;
4/7/00, at 733-766;
4/6/01, at 722-747;
4/5/02, at 722-743;
4/4/03, at 722-742.

5. Verizon Communications Inc. has 15 other ILEC subsidiaries including Verizon California Inc., Verizon Delaware Inc., Verizon Florida Inc., Verizon Hawaii Inc., Verizon Maryland Inc., Verizon New England Inc., Verizon New York Inc., Verizon North Inc., Verizon Northwest Inc., Verizon Pennsylvania Inc., Verizon South Inc., Verizon Virginia Inc., Verizon Washington DC Inc., Verizon West Virginia Inc., and GTE Southwest Inc. Each affiliate filed its 10-Ks and 10-Qs on the same dates as Verizon New Jersey. Note that Verizon Delaware, Verizon Hawaii, Verizon Northwest, Verizon Washington DC, Verizon West Virginia and GTE Southwest did not file separate 10-K reports for 2002. For these companies, data from the 10-Q reports for the first half of 2002 were used as end-of-year estimates. All Verizon ILEC affiliates were included in ETI's analysis; the reports are available on the Edgar database on the SEC's web page, http://www.sec.gov.

DATA UNDERLYING ARMIS-BASED ASSET RATIO
(VERSION A)

Data Run Date 05/27/2004

FCC Report 43-02, the ARMIS USOA Report
Table B-1.A. Balance Sheet Accounts (Excluding Plant Accts)

Company	Row Title	Y2003 Amount (b)	Y2002 Amount (b)	Y2001 Amount (b)	Y2000 Amount (b)	Y1999 Amount (b)
SBC/Southwestern Bell Telephone	Total Assets	17,723,836	19,535,152	21,105,279	20,343,097	19,244,947
Pacific Bell - California	Total Assets	16,512,700	19,093,021	20,830,369	20,009,861	18,155,406
Nevada Bell	Total Assets	478,967	505,943	522,168	477,851	437,567
SBC/SNET - Connecticut	Total Assets	2,580,276	2,831,394	3,005,529	2,885,729	2,772,068
Illinois Bell	Total Assets	6,255,688	6,824,108	6,686,621	6,341,544	6,003,633
Indiana Bell	Total Assets	1,559,590	1,802,315	1,978,832	1,877,633	1,866,555
Michigan Bell	Total Assets	3,638,806	4,100,900	4,538,055	4,408,911	4,308,140
Ohio Bell	Total Assets	4,057,053	4,389,667	4,592,631	4,391,338	4,114,854
Wisconsin Bell	Total Assets	1,540,511	1,858,019	2,083,296	1,954,677	1,836,820
	SBC TOTAL	**54,347,427**	**60,940,519**	**65,342,780**	**62,690,641**	**58,739,990**
		PERCENT OF TOTAL				
SBC/Southwestern Bell		0.326	0.321	0.323	0.324	0.328
Pacific Bell - California		0.304	0.313	0.319	0.319	0.309
Nevada Bell		0.009	0.008	0.008	0.008	0.007
SBC/SNET - Connecticut		0.047	0.046	0.046	0.046	0.047
Illinois Bell		0.115	0.112	0 102	0.101	0.102
Indiana Bell		0.029	0.030	0.030	0.030	0.032
Michigan Bell		0.067	0.067	0.069	0.070	0.073
Ohio Bell		0.075	0.072	0.070	0.070	0.070
Wisconsin Bell		0.028	0.030	0.032	0.031	0.031
		1	1	1	1	1

Percentage Breakouts

	(PacBell + SWBT) & (Ameritech + SNET + NVBell)				
=PAC+SWBT	62.996%	63.387%	64.178%	64.368%	63.671%
=Ameritech+SNET+NVBell	37.004%	36.613%	35.822%	35.632%	36.329%
	1.0000	1.0000	1.0000	1.0000	1.0000

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DATA UNDERLYING 12/1997 ASSET RATIO
(VERSION B)

Note 3. Subsidiary Financial Information

SBC has not provided separate financial statements and other disclosures for PAC as management has determined that such information is not material to the holders of the Trust Originated Preferred Securities (TOPrS) (see Note 9), which have been guaranteed by SBC. See Note 7 for a discussion of conforming items on the segments and subsidiaries. This information is provided as a supplement only. The following table presents summarized financial information for PAC at December 31, or for the year then ended:

<TABLE>

PAC	1999	1998	1997
<S>	<C>	<C>	<C>
Balance Sheets			
Current assets	$ 3,022	$ 3,037	$ 2,835
Noncurrent assets	15,334	15,428	14,150
Current liabilities	4,944	5,278	4,513
Noncurrent liabilities	10,284	10,482	10,413
Income Statements			
Operating revenues	$ 11,747	$ 11,305	$ 10,101
Operating income (loss)	2,866	2,612	(166)
Income (loss) before extraordinary loss and cumulative effect of accounting changes	1,521	1,240	(546)
Net income (loss)	1,303	1,180	(224)

</TABLE>

SBC has not provided separate financial statements and other disclosures for SWBell or PacBell as management has determined that such information is not material to the holders of certain SWBell and PacBell outstanding debt securities, which have been guaranteed by SBC. See Note 7 for a discussion of conforming items on the segments and subsidiaries. This information is provided as a supplement only. The following tables present summarized financial information for SWBell and PacBell:

<TABLE>

SWBell	1999	1998	1997
<S>	<C>	<C>	<C>
Balance Sheets			
Current assets	$ 2,453	$ 2,538	$ 2,452
Noncurrent assets	13,978	13,241	12,562
Current liabilities	5,127	4,679	3,686
Noncurrent liabilities	8,403	7,838	8,310
Income Statements			
Operating revenues	$ 11,173	$ 10,752	$ 10,116
Operating income	2,815	2,794	2,192
Income before cumulative effect of accounting change	1,540	1,527	1,187
Net income	1,267	1,527	1,187

PacBell	1999	1998	1997
Balance Sheets			
Current assets	$ 2,318	$ 2,431	$ 2,337
Noncurrent assets	13,620	12,662	12,002
Current liabilities	4,539	4,445	3,599

Noncurrent liabilities	8,680	7,388	7,953
Income Statements			
Operating revenues	$ 9,718	$ 9,406	$ 8,726
Operating income	2,259	2,299	483
Income before extraordinary loss and cumulative effect of accounting changes	1,161	1,137	-
Net income	151	1,077	345

</TABLE>

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THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY

BALANCE SHEETS

Dollars in Millions, at December 31,	1997	1996
Assets		
Cash and temporary cash investments	$ 28.3	$ 56.8
Accounts receivable, net of allowance for uncollectibles of $19.4 and $18.0, respectively	259.9	270.8
Accounts receivable from affiliates	86.4	11.1
Materials and supplies	14.7	14.3
Prepaid publishing	35.8	35.2
Deferred income taxes	29.1	35.2
Other current assets	4.3	11.9
Total Current Assets	458.5	435.3
Land	16.5	16.8
Buildings	398.4	386.4
Central office equipment	1,850.8	1,743.0
Outside plant facilities and equipment	1,798.4	1,732.4
Furniture and office equipment	255.5	310.0
Station equipment and connections	24.9	22.5
Plant under construction	85.5	98.0
Total telephone plant, at cost	4,430.0	4,309.1
Accumulated depreciation	(3,028.7)	(2,964.5)
Net Telephone Plant	1,401.3	1,344.6
Deferred income taxes	64.8	52.9
Other assets	28.9	24.4
Total Assets	$1,953.5	$1,857.2

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PART II

Item 6. Selected Financial and Operating Data.

ILLINOIS BELL TELEPHONE COMPANY AND SUBSIDIARY
SELECTED FINANCIAL AND OPERATING DATA
(Dollars in Millions)

	1997	1996	1995	1994	1993
Revenues					
Local service	$2,197.7	$2,105.9	$1,958.4	$1,919.4	$1,834.2
Interstate network access	780.3	773.1	757.5	734.9	701.5
Intrastate network access	157.0	103.5	95.0	92.3	80.4
Long distance	218.1	251.1	246.4	226.7	162.3
Other	455.1	429.5	356.7	304.7	297.0
Total revenues	3,808.2	3,663.1	3,414.0	3,278.0	3,075.4
Operating expenses*	2,770.9	2,676.7	2,396.8	2,648.6	2,307.5
Operating income	1,037.3	986.4	1,017.2	629.4	767.9
Interest expense	115.2	116.3	117.2	105.7	117.5
Other (income) expense, net	(14.7)	(10.7)	(7.5)	(9.0)	12.3
Income taxes	373.2	365.9	334.2	206.3	220.9
Income before extraordinary item	563.6	514.9	573.3	326.4	417.2
Extraordinary item **	-	-	-	(728.6)	-
Net income (loss)	$ 563.6	$ 514.9	$ 573.3	$ (402.2)	$ 417.2
Total assets	$5,515.9	$5,190.3	$4,980.3	$4,797.3	$6,176.2
Property, plant and equipment, net	$3,997.4	$3,829.9	$3,755.3	$3,809.5	$5,038.5
Capital expenditures, net	$ 672.0	$ 631.8	$ 489.8	$ 503.0	$ 536.9
Long-term debt	$1,011.7	$1,012.3	$1,061.2	$1,062.2	$1,077.0
Debt ratio	59.9 %	57.7 %	56.5 %	58.9 %	47.6 %
Return on average equity	40.4 %	40.8 %	51.7 %	(22.8)%	22.3 %
Return on average total capital	21.3 %	20.9 %	24.8 %	(8.3)%	14.7 %
Pretax interest coverage	9.1	8.6	9.0	6.1	6.4
Customer lines, end of year (000s)	6,838	6,473	6,258	5,983	5,763
Customer lines served by -					
Digital electronic offices	83.5 %	82.6 %	82.0 %	81.5 %	64.6 %
Analog electronic offices	16.5 %	17.4 %	18.0 %	18.5 %	35.4 %
Customer lines per employee	458	438	423	382	324
Employees, end of year	14,929	14,785	14,791	15,678	17,785

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PART II

Item 6. Selected Financial and Operating Data.

INDIANA BELL TELEPHONE COMPANY, INCORPORATED
SELECTED FINANCIAL AND OPERATING DATA
(Dollars in Millions)

	1997	1996	1995	1994	1993
Revenues					
Local service	$ 676.3	$ 634.1	$ 572.1	$ 531.2	$ 506.7
Interstate network access	272.1	258.9	242.9	243.2	230.6
Intrastate network access	78.5	81.5	89.8	103.6	107.6
Long distance	140.3	151.6	150.7	152.3	148.7
Other	132.7	125.7	156.9	137.8	130.6
Total revenues	1,299.9	1,251.8	1,212.4	1,168.1	1,124.2
Operating expenses*	866.4	836.3	799.4	951.3	832.9
Operating income	433.5	415.5	413.0	216.8	291.3
Interest expense	17.5	16.1	17.4	17.3	28.3
Other income, net	5.1	3.8	2.1	4.8	5.7
Income taxes	159.5	141.8	146.8	67.3	87.2
Income before extraordinary items	261.6	261.4	250.9	137.0	181.5
Extraordinary items **	-	-	-	(220.7)	(14.7)
Net income (loss)	$ 261.6	$ 261.4	$ 250.9	$ (83.7)	$ 166.8
Total assets	$1,594.4	$1,595.7	$1,568.2	$1,541.5	$1,987.5
Property, plant and equipment, net	$1,197.0	$1,215.3	$1,192.2	$1,227.6	$1,662.3
Capital expenditures, net	$ 178.4	$ 203.2	$ 153.6	$ 140.1	$ 162.9
Long-term debt	$ 233.9	$ 234.0	$ 85.8	$ 86.1	$ 85.2
Debt ratio	28.5 %	30.4 %	27.3 %	34.1 %	31.8 %
Return on average equity	37.8 %	38.8 %	39.3 %	(12.0)%	20.5 %
Return on average total capital	29.0 %	29.1 %	28.8 %	(5.8)%	15.7 %
Pretax interest coverage	25.1	29.8	26.2	14.1	10.7
Customer lines, end of year (000s)	2,167	2,086	2,018	1,924	1,855
Customer lines served by -					
Digital electronic offices	87.6 %	82.1 %	80.3 %	78.3 %	74.7 %
Analog electronic offices	12.4 %	17.9 %	19.7 %	21.7 %	35.3 %
Customer lines per employee	541	515	482	438	365
Employees, end of year	4,002	4,052	4,188	4,398	5,077

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PART II

Item 6. Selected Financial and Operating Data.

MICHIGAN BELL TELEPHONE COMPANY
SELECTED FINANCIAL AND OPERATING DATA
(Dollars in Millions)

	1997	1996	1995	1994	1993
Revenues					
Local service	$1,524.4	$1,405.9	$1,258.9	$1,165.6	$1,092.1
Interstate network access	631.1	591.5	555.2	547.7	512.6
Intrastate network access	205.5	187.5	189.6	202.3	201.5
Long distance	737.1	761.7	724.1	709.7	695.8
Other	286.7	291.7	236.6	229.4	287.5
Total revenues	3,384.8	3,238.3	2,964.4	2,854.7	2,789.5
Operating expenses*	2,349.8	2,244.5	2,106.9	2,379.7	2,195.0
Operating income	1,035.0	993.8	857.5	475.0	594.5
Interest expense	82.9	85.1	90.3	97.1	104.8
Other (income) expense, net	(14.4)	(9.4)	(3.4)	(4.8)	6.0
Income taxes	336.7	316.0	259.2	103.4	140.5
Income before extraordinary item	629.8	602.1	511.4	279.3	343.2
Extraordinary item **	-	-	-	(599.1)	-
Net income (loss)	$ 629.8	$ 602.1	$ 511.4	$ (319.8)	$ 343.2
Total assets	$4,072.5	$4,137.8	$4,135.6	$4,033.8	$5,259.2
Property, plant and equipment, net	$2,937.2	$3,041.0	$3,118.2	$3,228.3	$4,382.8
Capital expenditures, net	$ 416.2	$ 436.9	$ 377.6	$ 364.7	$ 452.1
Long-term debt	$ 993.8	$1,094.2	$1,093.1	$1,128.9	$1,132.4
Debt ratio	43.8 %	47.0 %	46.1 %	52.9 %	46.3 %
Return on average equity	42.9 %	42.8 %	40.3 %	(19.5)%	19.6 %
Return on average total capital	27.1 %	26.3 %	23.5 %	(7.0)%	13.2 %
Pretax interest coverage	12.7	11.9	9.7	5.0	5.3
Customer lines, end of year (000s)	5,316	5,124	4,979	4,747	4,563
Customer lines served by -					
Digital electronic offices	82.8 %	82.5 %	80.5 %	76.0 %	68.0 %
Analog electronic offices	17.2 %	17.5 %	19.5 %	24.0 %	31.0 %
Customer lines per employee	434	426	401	372	313
Employees, end of year	12,249	12,026	12,405	12,761	14,561

PART II

Item 6. Selected Financial and Operating Data.

THE OHIO BELL TELEPHONE COMPANY
SELECTED FINANCIAL AND OPERATING DATA
(Dollars in Millions)

	1997	1996	1995	1994	1993
Revenues					
Local service	$1,369.4	$1,311.8	$1,241.2	$1,204.2	$1,144.7
Interstate network access	519.8	480.9	449.2	446.0	434.4
Intrastate network access	121.3	140.4	125.0	136.8	144.3
Long distance	141.3	161.6	166.6	182.4	186.8
Other	188.1	166.0	231.3	209.2	201.5
Total revenues	2,339.9	2,260.7	2,213.3	2,178.6	2,111.7
Operating expenses*	1,840.0	1,766.3	1,671.1	1,919.2	1,666.8
Operating income	499.9	494.4	542.2	259.4	444.9
Interest expense	62.5	57.4	58.4	59.5	58.8
Other (income) expense, net	(11.2)	(9.4)	(5.3)	(10.6)	1.4
Income taxes	157.3	147.1	163.3	58.7	104.3
Income before extraordinary item	291.3	299.3	325.8	151.8	280.4
Extraordinary item **	-	-	-	(445.2)	-
Net income (loss)	$ 291.3	$ 299.3	$ 325.8	$ (293.4)	$ 280.4
Total assets	$3,172.9	$3,086.6	$3,130.7	$3,051.5	$3,793.0
Property, plant and equipment, net	$2,349.4	$2,330.2	$2,293.5	$2,358.7	$3,191.5
Capital expenditures, net	$ 429.6	$ 425.5	$ 315.7	$ 286.0	$ 327.1
Long-term debt	$ 834.9	$ 834.9	$ 834.7	$ 834.9	$ 837.1
Debt ratio	51.9 %	49.9 %	49.0 %	52.2 %	41.5 %
Return on average equity	30.7 %	32.8 %	38.2 %	(25.4)%	22.3 %
Return on average total capital	18.2 %	19.4 %	21.8 %	(10.7)%	14.9 %
Pretax interest coverage	8.2	8.9	9.6	4.6	7.4
Customer lines, end of year (000s)	4,012	3,884	3,754	3,609	3,481
Customer lines served by -					
Digital electronic offices	92.9 %	86.6 %	80.1 %	78.9 %	69.4 %
Analog electronic offices	7.1 %	13.4 %	19.9 %	21.1 %	30.6 %
Customer lines per employee	477	453	449	397	347
Employees, end of year	8,419	8,579	8,360	9,084	10,023

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PART II

Item 6. Selected Financial and Operating Data.

WISCONSIN BELL, INC.
SELECTED FINANCIAL AND OPERATING DATA
(Dollars in Millions)

	1997	1996	1995	1994	1993
Revenues					
Local service	$ 645.1	$ 610.3	$ 555.5	$ 516.6	$ 487.7
Interstate network access	282.2	260.9	249.5	245.8	239.1
Intrastate network access	56.7	60.1	62.1	77.5	88.6
Long distance	140.1	164.4	168.7	184.7	206.8
Other	96.4	105.6	96.4	105.2	110.5
Total revenues	1,220.5	1,201.3	1,132.2	1,129.8	1,132.7
Operating expenses*	868.6	854.7	786.3	938.7	877.7
Operating income	351.9	346.6	345.9	191.1	255.0
Interest expense	30.3	28.1	29.5	28.5	31.6
Other income, net	(5.7)	(2.4)	(2.0)	(2.2)	11.1
Income taxes	130.9	126.6	122.9	57.5	74.3
Income before extraordinary item	196.4	194.3	195.5	107.3	138.0
Extraordinary item **	-	-	-	(240.4)	-
Net income (loss)	$ 196.4	$ 194.3	$ 195.5	$ (133.1)	$ 138.0
Total assets	$1,617.3	$1,568.7	$1,556.9	$1,577.9	$2,038.3
Property, plant and equipment, net	$1,208.2	$1,175.7	$1,166.9	$1,185.8	$1,658.2
Capital expenditures, net	$ 207.6	$ 186.7	$ 153.3	$ 145.4	$ 145.4
Long-term debt	$ 430.1	$ 430.0	$ 305.8	$ 305.9	$ 306.5
Debt ratio	47.3 %	45.6 %	44.3 %	51.6 %	44.6 %
Return on average equity	35.0 %	35.8 %	39.1 %	(20.9)%	20.9 %
Return on average total capital	22.3 %	22.3 %	23.2 %	(8.7)%	13.8 %
Pretax interest coverage	11.8	12.6	12.0	6.7	7.4
Customer lines, end of year (000s)	2,211	2,137	2,048	1,976	1,898
Customer lines served by -					
Digital electronic offices	89.6 %	84.1 %	81.6 %	76.6 %	64.3 %
Analog electronic offices	10.4 %	15.9 %	18.4 %	23.4 %	35.7 %
Customer lines per employee	542	507	472	425	369
Employees, end of year	4,080	4,216	4,336	4,651	5,137