Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers	**WC Docket No. 03-173**

Declaration

of

LEE L. SELWYN

on behalf of

AT&T Corp.

December 16, 2003

TABLE OF CONTENTS

DECLARATION OF LEE L. SELWYN

Qualifications and assignment 1

Summary 3

The 1996 Act seeks to promote *efficient* competition, and thus expresses no preference for facilities-based entry over competition based upon resale or the use of ILEC-provided UNEs. 9

Price caps as applied in both federal and state jurisdictions does not eliminate ILEC inefficiencies nor prevent ILECs from shifting costs from competitive to monopoly services. 15

To be effective in eliminating inefficiencies, the price adjustment mechanism must accurately reflect all reasonably achievable productivity gains, permitting the ILEC to retain for itself only the benefits of any *additional efficiencies* that it is able to realize. 19

Price cap ILECs are still able to increase rates to flow through increased costs to ratepayers. 21

Pricing flexibility, service reclassification, and the use of broadly-defined "service baskets" all work to facilitate cost shifting from competitive to monopoly services. 23

Regulatory oversight and cost accounting requirements have proven insufficient to forestall cost shifting incentives that remain under price caps. 25

Current price cap and cost allocation rules do nothing to ensure that joint costs of monopoly local services and competitive services such as broadband or long distance are shared in such a manner that monopoly (or less competitive) services recognize some portion of the carrier's economies of scope. 30

TABLE OF CONTENTS (continued)

By limiting ILECs' obligations to provide UNEs at TELRIC-based prices only where CLECs would be impaired, the *Triennial Review Order* assures that TELRIC-based UNEs will *never* be subject to competitive market conditions. 32

The increase in beta values for RBOC stocks that has occurred in recent years is explained by RBOC diversification into non-ILEC lines of business, and is decidedly *not* the result of increased "competition" for core ILEC local exchange and intraLATA transport services. 36

a. The effect of competition on risk 51

b. Separating out the risk of a "pure LEC" from that of the diversified RBOCs 57

The wholesale discount should be based upon the forward-looking costs associated with the efficient provision of wholesale services for resale, reflecting increased use by resellers of mechanized ILEC systems and the fact that ILECs themselves have expanded the scope of their own retailing operations, raising ILEC retailing costs that "will be avoided" when service is provided at whole. 62

Conclusion 68

Verification 72

Tables

1 Regression Results 7 period semi-annual data 1H00–1H03

2 Alternative Regression Specification excluding facilities-based competition annual data 1997–2003

3 Average Company Beta Value by Industry — 2003

TABLE OF CONTENTS (continued)

Figures

1 Commercial Airline Beta Values, 1998–2003

2 Eastman Kodak Weekly Stock Price and Beta Values, January 1999–November 2003

3 Average percentage of non-ILEC RBOC assets with corresponding average Betas, 1997–2003

4 US West/Qwest average percentage of non-ILEC RBOC assets with corresponding Betas, 1999 - 2003

Attachments

1 Statement of Qualifications — Dr. Lee L. Selwyn

2 Technical Description of Regression Analysis

3 Data sources

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers	**WC Docket No. 03-173**

DECLARATION OF LEE L. SELWYN

Qualifications and Assignment

Lee L. Selwyn declares and says as follows:

1. My name is Lee L. Selwyn; I am President of Economics and Technology, Inc. ("ETI"), Two Center Plaza, Suite 400, Boston, Massachusetts 02108. ETI is a research and consulting firm specializing in telecommunications and public utility regulation and public policy. My Statement of Qualifications is annexed as Attachment 1 of this declaration. I have been asked by AT&T Corp. to address certain issues raised in the *Notice of Proposed Rulemaking* ("NPRM" or "Notice") issued by the Commission in this proceeding.

2. I have participated in proceedings before the Federal Communications Commission ("FCC" or "Commission") dating back to 1967 and have appeared as an expert witness in hundreds of state proceedings before more than forty state public utility commissions. I have participated in numerous FCC and state regulatory proceedings involving cost of service, rate design, cost allocation, UNE pricing and TELRIC, resale of ILEC services, access charges, intercarrier compensation, price caps and other forms of "alternative" regulation, and ILEC affiliate relationships and inter-affiliate transactions and transfers. I participated in all of the FCC price cap proceedings, commencing with CC Docket No. 87-313, and the various price cap reviews and related access charge reforms under CC Docket Nos. 94-1 and 96-262. I have also testified in more than thirty price caps and alternative regulation proceedings in some seventeen state jurisdictions as well as several in Canada. In the area of affiliate relationships and transactions, I testified in merger proceedings before the California PUC involving Pacific Telesis Group and SBC, and Bell Atlantic and GTE, before the Illinois Commerce Commission involving SBC and Ameritech, before the Connecticut Department of Public Utility Control involving SBC and SNET, and before the Maine PUC involving NYNEX and Bell Atlantic. I also participated in written comments filed with the FCC regarding both the SBC/Ameritech and Bell Atlantic/GTE merger applications. I have participated in a number of Section 271 proceedings, including those in Pennsylvania, New Jersey, California, Minnesota, Delaware and Virginia. I have also submitted testimony before several state commissions addressing proposals for structural separation of ILEC wholesale and retail operations. I participated in proceedings before the California PUC involving Pacific Bell's reorganization of its Information Services (primarily voice mail) business into a separate subsidiary, and the spin-off of Pacific Telesis

Group's wireless services business into a separate company. I have participated in a number of matters involving the treatment of transfers of yellow pages publishing from the ILEC to a separate directory publishing affiliate, including the recent case before the Washington Utilities and Transportation Commission addressing imputation of (then) US WEST yellow pages revenues.

Summary

3. This Declaration addresses the following specific issues raised by the NPRM:

(1) *The 1996 Act does not favor facilities-based entry over other entry vehicles.* The 1996 Act expressly contemplates three forms of CLEC entry — facilities-based, resale of ILEC services ("total service resale"), and through the use of unbundled network elements ("UNEs") leased from ILECs either in conjunction with CLEC-owned facilities or as components of a complete CLEC service (e.g., UNE-P). Importantly, nowhere does the 1996 Act express any preference for one form of entry over any other, nor suggest or require any policy bias specifically encouraging CLEC investment in facilities that are duplicative of ILEC facilities already in place. ILECs have been permitted to operate as government-subsidized and government-protected monopolies for more than a century, gaining "first mover" access to public rights-of-way (and in some states even condemnation rights) with little or no business, technological, or financial risk to investors. ILECs have acquired ubiquitous networks with sufficient capacity to

1 serve the entire demand, and control most network hubs — so-called "wire centers"
2 where subscriber distribution plant is concentrated and interconnected via ILEC-owned
3 switches with interoffice and interexchange network transport facilities. Congress
4 correctly understood that replication of such facilities was impractical and inefficient,
5 and would be extraordinarily wasteful of the nation's economic resources. The Act thus
6 intends that CLECs be encouraged to invest in their own facilities only when it is
7 efficient for them to do so. Pricing such access to ILEC facilities at forward-looking
8 incremental cost (TELRIC) assures efficient CLEC "build or buy" decisions. The
9 NPRM appears to recognize that "forward-looking [TELRIC] costs were intended to
10 send appropriate economic signals," but apparently believes that those principles need
11 to be modified so as to affirmatively encourage more facilities-based entry by CLECs.
12
13 (2) *Price cap regulation and ILEC ability to engage in cross-subsidization.* ILECs have
14 argued that price cap regulation provides neither the ability nor the incentive to engage
15 in cross-subsidization of competitive services by raising the prices of monopoly
16 services. That claim, however, presupposes that the price adjustment mechanism has
17 been properly set to reflect accurately, and flow through to customers of ILEC mono-
18 poly services, all reasonably achievable productivity gains, permitting the ILEC to
19 retain for itself only the benefits of any *additional efficiencies* that it is able to realize.
20 This assumption is false. The Commission has on several occasions increased the
21 productivity offset ("X") factor specifically in recognition of the fact that the previous
22 lower value did not accomplish the flow-through requirement. The FCC last set the X-

1 factor applicable to ILEC *interstate* services at 6.5%, specifically reflecting a "total
2 company" productivity growth rate based upon ILEC contentions that separate inter-
3 state and intrastate productivity growth rates could not be identified. While the FCC
4 price cap regime has now been superseded by the so-called *CALLS* settlement,[1] that
5 same 6.5% annual productivity offset was incorporated into the CALLS rate adjustment
6 mechanism. Significantly, and despite the fact that the 6.5% value was derived from
7 *total company* productivity experience, *no state PUC price cap plan has adopted an X-*
8 *factor even remotely close to the 6.5% level.* In fact, most state price cap plans involve
9 productivity offsets in the 2%-3% range, *or in some cases none at all*. In addition, state
10 price cap regulation plans typically apply only to "basic" services, with services
11 classified as "discretionary" or "competitive" being afforded greater pricing flexibility
12 or, in many cases, no regulatory price constraints whatsoever. Moreover, price cap
13 regulation fails to "de-link" prices and costs for an additional reason: price cap systems
14 are subject to periodic reviews at both the state and federal levels. ILECs have a strong
15 incentive *and the opportunity* to misallocate costs incurred for the production or
16 marketing of competitive services over to basic monopoly services. Such
17 misallocations provide ILECs with the three-fold benefit of (a) reducing the costs
18 charged to their competitive operations, (b) increasing prices for monopoly services,

1. *In the Matters of Access Charge Reform Price Cap Performance for LECs, Low-Volume Long-Distance Users*, Federal-State Joint Board on Universal Service, *Sixth Report and Order* in CC Docket Nos. 96-262 and 94-1, *Report and Order* in CC Docket No. 99-249, *Eleventh Report and Order* in CC Docket No. 96-46, 15 FCC Rcd. 12,962, FCC 00-193 (rel. May 31, 2000) ("*CALLS Order*").

such as UNEs and access, that are furnished to competing providers, and (c) portraying a financially weakened monopoly services segment so as to support claims for further regulatory accommodations in subsequent price cap review proceedings. Price cap regulation thus works to *facilitate*, rather than to prevent, cross-subsidization, predatory pricing, and other anticompetitive conduct by ILECs, and thus demands more, not less, oversight of ILEC business practices.

(3) *Competition and risk*. The Commission has suggested that the cost of capital to be used in TELRIC studies should be adjusted to reflect the increased risk confronting ILECs in markets subject to facilities-based competition. I demonstrate that, *by definition*, those UNEs that ILECs will be required to provide — i.e., those that satisfy the "impairment" standard as set forth in the Commission's *Triennial Review Order* ("TRO")[2] — do not confront facilities-based competition, since if they did the "impairment" standard would not be satisfied and ILECs would not be required to offer such elements as UNEs subject to TELRIC-based prices. I also demonstrate that the mere presence of competition in a market is not in and of itself a material source of increased systematic risk, and hence has little if any effect upon a firm's beta coefficient and cost of capital. Although RBOC beta values have increased in recent years, the principal driver of this increased

2. *Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers* (CC Docket No. 01-338); *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996* (CC Docket No. 96-989); *Deployment of Wireline Services Offering Advanced Telecommunications Capability* (CC Docket No. 98-147), FCC No. 03-36, rel. Aug. 21, 2003 ("*Triennial Review Order*" or "*TRO*").

1 risk is diversification by RBOC *parent companies* into inherently riskier *non-ILEC*
2 lines of business, not the onset of the extremely limited facilities-based competition that
3 the ILECs presently confront. Accordingly, for TELRIC pricing of those UNEs that the
4 ILECs are required to provide, no risk-related additive is appropriate, and the inclusion
5 of such a risk premium in the ILEC cost of capital will result in excessive UNE rates,
6 and inefficiently low rates of entry by CLECs.
7
8 (4) *Resale discounts required by Sec. 252(d)(3)*. The NPRM notes that the Eighth Circuit
9 vacated the Commission's original resale pricing rules, finding that the appropriate
10 standard for determining avoided costs is not those costs that "can be avoided," but
11 rather "those costs that the [ILEC] will actually avoid incurring in the future," based
12 upon the assumption that the incumbent LEC will continue to be engaged in providing
13 both wholesale and retail services. As with UNEs and as implied by the "will be
14 avoided" language of the statute, the wholesale discount should similarly be based upon
15 the *forward-looking costs* associated with the efficient provision of wholesale services
16 for resale. The use of "avoidable cost," calculated by excluding that portion of an
17 ILEC's operating expenses that are associated with retailing functions, provided a
18 reasonable surrogate for forward-looking long run incremental costs since, in the long
19 run, all costs are assumed to be variable and hence "will be avoided" if the ILEC
20 reduces the extent of its retailing activities or exits the retail sector altogether. Indeed,
21 ILECs have themselves argued that *embedded cost relationships*, such as embedded

1 outside plant utilization, can provide an indication of plant utilization going forward.[3]
2 At the time of enactment of Sec. 252(d)(3) and the issuance of the Commission's resale
3 rules six months later, ILECs had not had the opportunity to make permanent adjust-
4 ments to their operations and organizations to accommodate the resale requirement.
5 Hence, in the *short run*, few costs were "avoided," and the use of embedded
6 "avoidable" costs as a surrogate for forward-looking costs that "will be avoided" was
7 not unreasonable. In the intervening years, ILECs have made numerous adjustments to
8 their operations support systems and organizational structures so as to facilitate the
9 provision of services for resale. Many ILECs have by now mechanized much of the
10 wholesale service ordering and provisioning processes, affording resellers the ability to
11 communicate directly via mechanized systems with ILEC databases and order entry
12 systems, such that ILECs are now able to avoid substantial personnel and other costs.
13 Similarly, the billing and collection functions have been modified so as to provide
14 resellers with billing information in electronic form, thereby permitting ILECs to avoid
15 the costs of bill preparation, mailing, and collection processing. Thus, "avoidable" and
16 "avoided" costs are clearly converging, and the original bases used by state commis-
17 sions in setting wholesale rates may well approximate the "avoided cost" standard
18 adopted by the Court. At the same time, ILECs have themselves significantly expanded

3. This point was recently addressed by the Seventh Circuit in *AT&T Communications of Illinois v. Illinois Bell Telephone Co. and Ameritech Corp.,* 03-2735 and 03-2766 (7th Cir.) Decided November 10, 2003 ("*Seventh Circuit Ruling*"), in which the Court determined that "[t]he Commission, therefore, shall employ current actual fill factors that reflect such existing actual total usage on a going forward basis in establishing cost based rates for such unbundled network elements."

the scope of their own retailing activities to include new, nonregulated services such as ADSL, Internet access, voice mail, and long distance. Examination of the aggregate change in embedded ILEC retailing costs over the past several years cannot be used to provide an indication of the retailing costs actually avoided through mechanization of the wholesale service provisioning, billing and collection processes, because additional and unrelated ILEC retailing costs have by now been introduced. While the Court has required that "avoided costs" be determined on the assumption that ILECs continue themselves to provide services at retail, there would be no rational basis for permitting ILECs to apply these *additional* retailing costs as an offset to costs specifically "avoided" when furnishing basic services at wholesale. Before the Commission considers establishing new resale rules, all of these ramifications of the Court's ruling and subsequent events must be considered.

The 1996 Act seeks to promote *efficient* competition, and thus expresses no preference for facilities-based entry over competition based upon resale or the use of ILEC-provided UNEs.

4. The NPRM appears to suggest that the 1996 Act expresses a preference for facilities-based competition over the other forms of entry.[4] In fact, the 1996 Act contemplates three forms of CLEC entry — facilities-based entry, resale of ILEC services ("total service resale"), and

4. *In the Matter of Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers*, WC Docket No. 03-173, *Notice of Proposed Rulemaking,* 18 FCC Rcd 18945 (2003) (*"NPRM")*, 18975, at para. 83.

1 entry through the use of unbundled network elements ("UNEs") leased from ILECs, either in
2 conjunction with CLEC-owned facilities or as components of a complete CLEC service (e.g.,
3 UNE-P). Importantly, nowhere does the 1996 Act express any preference for one form of entry
4 over any other, nor suggest or require that the non-facilities-based forms of entry be viewed as
5 "transitions" leading ultimately to facilities-based competition. The Act's unambiguous
6 neutrality with respect to the form of CLEC entry is well-founded: ILECs have been permitted to
7 operate as government-subsidized and government-protected monopolies for more than a
8 century, gaining "first mover" access to public rights-of-way (and in some states even condem-
9 nation rights) with little or no business, technological, or financial risk to investors. ILECs have
10 constructed and acquired ubiquitous network infrastructure involving high fixed (sunk) costs and
11 often sufficient capacity to serve the entire demand. That same "first mover" advantage has also
12 support the ILEC acquisition of network hubs — so-called "wire centers" or points of concen-
13 tration of subscriber distribution plant where that distribution plant is interconnected with
14 interoffice and interexchange network transport facilities utilizing often massive "central office
15 switches" also acquired by the ILEC with little or no risk to its investors. Congress correctly
16 understood that replication of such facilities was both impractical and inefficient, and would be
17 extraordinarily wasteful of the nation's economic resources. CLECs should be encouraged to
18 invest in their own facilities only when it is efficient for them to do so, and should be afforded
19 unfettered and nondiscriminatory access to the ILECs' government-subsidized infrastructure
20 when its use is the more efficient course of action. The NPRM appears to recognize the core
21 principle of the 1996 Act — "forward-looking [TELRIC] costs were intended to send

appropriate economic signals" — but apparently believes that those principles need to be modified so as to affirmatively encourage more facilities investments by CLECs.

5. As I have noted, in its *Triennial Review Order* the Commission has determined that ILECs are required to provide UNEs only in those cases where the CLECs' ability to compete would be "impaired" if the UNE were not available. With respect to mass market residential and small business services, the Commission has made "national findings" that UNE-L and UNE-switch and, by extension, UNE-P, satisfy this requirement. In the case of UNE-switch and UNE-P, state PUCs are directed to make specific findings as to whether the "impairment" standard applies within their respective jurisdictions.[5]

6. For a number of other network elements, the *TRO* either makes national findings of "non-impairment" or, alternatively, concludes that Sec. 706, in effect, trumps the "impairment" standard for advanced services, and on that basis concludes that ILECs will not be required to provide those elements as UNEs at TELRIC-based prices.[6] (BOCs are still required to provide unbundled access to many such elements pursuant to Sec. 271(c)(2)(B), but not at Sec. 251/252 TELRIC-based prices.) Thus, under the rules adopted in the *TRO*, ILECs are required to provide as UNEs at TELRIC rates only a subset of all potential network components. ILECs are *not* required to provide as UNEs:

5. See, *TRO*, at paras. 455, 460.

6. See, *Id*., at paras. 173, 234, 242, 272, 359, and 537.

a. UNE-switch or UNE-P where the state PUC has determined that CLECs will not be "impaired" by their non-availability.

b. Access to mass market broadband facilities, except for certain narrowband services that may be furnished via such facilities.

c. Access to packet-switched services.

d. Enterprise loops to any single customer location at a capacity level greater than two DS-3s (i.e., greater than 90 mbps).

e. Dedicated transport facilities with capacities in excess of twelve (12) DS-3s.

f. Access to the ADSL channel associated with UNE-L or UNE-P if there is no available copper in the feeder segment of the loop.

7. With respect to mass market DS-0 loops, the *TRO* all but states that loops remain a natural monopoly:

> Constructing loop plant is both costly and time consuming, regardless of the type of loop being deployed. Notably, both the Supreme Court and the D.C. Circuit recognized that incumbent LECs may be required to unbundle loop facilities because they are "very expensive to duplicate." Because the distribution portion

> of the loop serves a specific location, and installing and rewiring that loop is very expensive, most of the costs of constructing loops are sunk costs.[7]

If facilities-based competition for mass market loops is not realistic in view of the economics of loop deployment (particularly with respect to distribution cable), then imputing "risk" arising from facilities-based competition that is unlikely to develop results in an overstatement of the actual cost of capital required to support such investment. The result would be overpriced UNEs, with the potential to stimulate inefficient loop overbuilds and/or force CLECs out of the mass market altogether.

8. The Commission has also made "national findings" of impairment for mass market switching, but has directed the states to assess the level of impairment on a more localized level. Switch investment is a much smaller component of the total ILEC asset base than loop investment. Switching capacity is also far more fungible than loop capacity, and can be redeployed to serve demand in a different geographic area or market segment if, for example, some switch capacity is idled due to facilities-based (switch) competition. As such, the incremental risk attributable to facilities-based competition is not substantial, even if consequential facilities-based competition for switching were actually present.

9. The economics of facilities-based switch entry are intimately linked to the conditions associated with mass market loops. Interconnection and various other essentially deadweight costs are involved in connecting UNE-L to CLEC-owned switches, costs that do not exist when

7. *Id.*, at para. 205, footnotes omitted.

the UNE-L is connected to the ILEC switch in the same wire center. To justify investment in switching for use in connection with UNE-L, a CLEC would need to be not just slightly more efficient than the ILEC with respect to switching, but sufficiently more efficient so as to overcome the deadweight interconnection costs.

10. In fact, the *TRO*'s finding of national impairment with respect to mass market circuit switching reflects this condition. As with loops, imputing "risk" arising from facilities-based competition that is unlikely to develop results in an overstatement of the actual cost of money required to support such investment, and would produce an excessive price that would have the potential to stimulate inefficient switch investments and/or force CLECs out of the mass market altogether.

11. While the Commission expresses concern about a potential mismatch between the use of forward-looking investment costs (per TELRIC) and an ILEC's embedded cost of capital (and risk), it is the Commission's proposal that creates the real mismatch. There is a basic contradiction between assuming *current* investment cost and demand conditions as the basis for a TELRIC analysis, while assuming a theoretical risk level that might prevail in some future world of facilities-based competition, a world whose actual arrival is, at best, highly speculative. Moreover, the latter assumption is fundamentally inconsistent with the analysis of mass market loop and switch economics that is contained in the *TRO* and that will likely be further developed in the state impairment proceedings. If UNE prices are to reflect the market risks and cost of capital of hypothetical markets with multiple facilities-based competitors, consistency requires

also assuming the corresponding investment cost, market structure, and market demand conditions of multiple facilities-based competition. In such markets, however, prices will not cover TELRIC. Rather, competition is likely to force prices down to short run *marginal* cost — a much lower measure of cost when, as appears likely for the foreseeable future, capacity exceeds demand.

Price caps as applied in both federal and state jurisdictions does not eliminate ILEC inefficiencies nor prevent ILECs from shifting costs from competitive to monopoly services.

12. While overall the Commission appears to maintain its commitment to base UNE rates on forward-looking costs and reiterates its rejection of embedded costs as a basis for UNE pricing, the NPRM nonetheless advances the notion that the adoption of price cap regulation at both the federal and state levels has somehow weeded out the "past inefficiencies" of the ILECs' embedded networks:[8] "One of the reasons that the Commission moved from rate-of-return regulation to price cap regulation of some carriers was to create a strong incentive for carriers to operate as efficiently as possible." Thus, in the *NPRM*, the Commission poses the question, "given that most large incumbent LECs have been subject to forms of price cap regulation at the state level for some time and at the federal level since 1991, is there reason for the Commission to find that an incumbent LEC's practices presumptively are efficient?" The concept that implementation of price cap regulation somehow results in a "sea change" in ILEC network efficiency presupposes that price cap regulation represents so fundamental a change from traditional cost-plus rate-of-return ("ROR") regulation that all ILEC "gold plating" and

8. *NPRM*, at para. 58.

overcapitalization incentives are erased. As I show in the paragraphs that follow, actual experience at both the state and federal levels under price caps or other forms of incentive regulation demonstrate quite the contrary — that in reality so-called "incentive" regulation plans are little more than a variant on traditional ROR regulation, albeit with a somewhat elongated "regulatory lag," and actually introduce new incentives *and opportunities* to *shift costs* from competitive and other nonregulated lines of business onto monopoly basic local services. Even if this is not "gold plating" in the traditional sense, the effect is no less insidious, because it results in a gross overstatement of embedded costs associated with regulated monopoly services. Unfortunately — and contrary to the RBOCs' persistent claims — there is no assurance that price cap regulation will by itself work to eliminate inefficiencies or foreclose the incentive and opportunity to engage in such cost-shifting. Moreover, to the extent that price cap and other forms of "incentive regulation" typically involve far less regulatory oversight with respect to ILEC actions, this form of regulation may well work to *facilitate*, rather than prevent, cross-subsidization and excessive costs of monopoly services.

13. The FCC and the RBOCs thus invoke incentive regulation and price caps not merely in the cost of capital or risk context, but to argue more broadly that the efficiency incentives present under price caps have caused embedded costs and forward-looking costs to converge. More specifically, the NPRM advances the possibility that plant acquired since the onset of price caps could be considered "presumptively efficient:" "We ask incumbent LECs to comment on what portion of their networks were installed since the onset of price cap regulation" and

"What would be the effect of a presumption of efficiency on a state commission's pricing proceeding?"[9]

14. In fact, price cap regulation does little or nothing to assure that RBOCs will operate efficiently, so it does not matter whether plant was acquired before or following the onset of price cap regulation. Price cap plans — and particularly those implemented at the state level — suffer from a common set of deficiencies:

- Productivity adjustments are not sufficient to capture all reasonably achievable efficiency gains and flow them through in rates for monopoly services;

- Periodic "reviews" relink rates with RBOCs reported costs, and provide RBOCs with a powerful incentive to maintain those costs at levels fully comparable to those extant under RORR;

- Ad hoc and purportedly "cost-based" rate increase requests dealing with specific services, made outside of the established rate adjustment mechanism, and requests for rate increases reflecting "exogenous" cost changes, occur with surprising regularity;

- Broadly defined market baskets allow extensive within-basket cost shifting;

9. *Id.*

- RBOCs have been allowed to reduce reported earnings (and thereby get higher rates) by removing highly profitable noncompetitive services from price cap regulation; and

- recent FCC and state PUC audits confirm the persistence of unused plant and excessive expenses in RBOC embedded rate base accounts.

15. The inclusion of systematic risks engendered by RBOC pursuit of *non-ILEC* businesses and non-core ILEC services into the cost of capital for TELRIC would work to force customers of UNEs to cross-subsidize these competitive undertakings. This cross-subsidization would be accomplished by applying a companywide average cost (of capital, in this case) where the UNE-specific cost (of capital) would actually be lower. The selective use of broad averages rather than UNE-specific costs is one of several devices available to ILECs to create a *de facto* cross-subsidy from monopoly to competitive services, accomplished by elevating the costs of the monopoly element and correspondingly understating the cost applicable to the competitive service. Other cost-shifting devices include the failure to account properly for inter-affiliate and intracompany transfers — e.g., by treating the services provided by the ILEC to an affiliate as "free," or limiting the transfer price to just the specific additional costs that are involved in providing the specific function, while excluding all costs incurred by the ILEC that jointly benefit the ILEC and the affiliate (where the competitive service is furnished by an affiliate) or the monopoly and competitive ILEC services (where both are furnished by the ILEC entity).

To be effective in eliminating inefficiencies, the price adjustment mechanism must accurately reflect all reasonably achievable productivity gains, permitting the ILEC to retain for itself only the benefits of any *additional efficiencies* that it is able to realize.

16. ILECs have consistently argued that under price cap regulation they would have neither the ability nor the incentive to engage in cross-subsidization of competitive services by raising the prices of monopoly services or other, less detectible, forms of cost-shifting. That claim, however, presupposes that the price adjustment mechanism has been properly set so as to accurately reflect, and flow through to customers of ILEC monopoly services, all reasonably achievable productivity gains, permitting the ILEC to retain for itself only the benefits of any *additional efficiencies* that it is able to realize.

17. The Commission has similarly concluded that under price cap regulation the BOCs would have neither the ability nor the incentive to engage in cross-subsidization of competitive services by raising the prices of monopoly services:

> We also conclude that the implementation of LEC price cap regulation as of January 1, 1991, is a significant regulatory development since the BOC Separation Order that reduces BOC incentives to cross-subsidize enhanced services with basic services. Under rate-of-return regulation, a regulated carrier is entitled to charge basic service rates that reflect regulated costs plus a reasonable rate of return on investment. As a practical matter, misallocation of nonregulated costs to regulated operations under rate-of-return regulation increases a carrier's regulated costs and therefore permits higher regulated rates to recover the improperly allocated nonregulated costs. By contrast, because price cap regulation severs the direct link between regulated costs and prices, a carrier is not able automatically to recoup misallocated nonregulated costs by raising basic

> services rates, thus reducing the incentive for the BOCs to shift nonregulated costs to regulated services.[10]

ILECs consistently point to this and other similar statements by the Commission in support of their contention that price cap regulation removes incentive for cost shifting.

18. Concurrently with this finding, however, the Commission qualified its understanding of price cap effects on cost allocation. A footnote to the above paragraph recognizes:

> Several parties claim that the BOCs have an incentive, pending the price cap review of the productivity offset in 1994, to load up their regulated operations with additional costs in order to avoid an increase in their productivity offset. ... Furthermore, as recognized in the Notice, there may be some incentive remaining under price cap regulation for LECs whose earnings are approaching the sharing mark to try to shift costs to the regulated side of its operations. ... *We do not find here that LEC price cap regulation eliminates all possible incentive to shift costs.* We find, rather, that these incentives under price caps are much less significant than under rate-of-return regulation, for the BOCs are no longer automatically entitled to increase rates to recoup cost increases.[11]

A similar finding was recently made by the U.S. Supreme Court, which, while acknowledging the incentive for productivity gains included in price cap plans, noted that "price caps do not eliminate gamesmanship."[12]

---

10. *In the Matter of Computer III Remand Proceedings: Bell Operating Company Safeguards and Tier 1 Local Exchange Company Safeguards*, CC Docket No. 90-623, *Report and Order,* 6 FCC Rcd 7571, (1991) ("*Computer III Remand Order*"), 7596, at para. 55, footnotes omitted.

11. *Id*, at fn. 95, emphasis supplied.

12. *Verizon v. FCC*, 535 US 467, at 487.

Price cap ILECs are still able to increase rates to flow through increased costs to ratepayers.

19. Cost shifting under current price caps occurs precisely because ILECs are *de facto* "automatically entitled to increase rates to recoup cost increases." Periodic review and reevaluation of state price cap plans is common, and more often than not, the result of such reviews *increases* the earnings of the ILEC. State Commissions have in recent years reviewed price cap plans in California, Connecticut, Illinois, Iowa, Kansas, Massachusetts, New Jersey, Pennsylvania, Utah and Wisconsin, among others. Several of these states, and others including Alabama, Arizona, Colorado, Maryland and Oklahoma, have price cap review proceedings currently underway or planned for 2004. In addition to these periodic reviews, ILECs have requested and been granted *ad hoc* adjustments to their price cap rate levels. In California, for example, Pacific Bell requested and received permission to increase its directory assistance rates based upon purported increases in the cost of providing this service, and was not required to make offsetting ("revenue neutral") reductions in other rates.[13] The result was a net increase in revenues and earnings under what, at that time, was nominally a "rate freeze" applicable to SBC Pacific Bell rate levels.[14] These reviews frequently involve examination of earnings under price

---

13. *Application of Pacific Bell for Authority for Pricing Flexibility and to Increase Prices of Certain Operator Services, to reduce the Number of Monthly Directory Assistance Call Allowances, and Adjust Prices for four Centrex Optional Features*, D. 99-11-051, *Summary,* 1999 Cal. PUC LEXIS 776, Rel. November 18, 1999.

14. In its *Third Triennial Review of the New Regulatory Framework*, the California PUC effectively eliminated the preexisting productivity offset (X) factor by setting it equal to the change in the GDP-PI. *Third Triennial Review of the Regulatory Framework Adopted for GTE California Inc.*, D. 98-10-026, *Final Opinion,* Cal PUC 335, Rel. October 8, 1998, at 378.

caps, realized productivity growth, and other measures whose values would be directly influenced by a misallocation of costs between services. Notably, RBOCs do not hesitate to stake their claim to additional revenues even where the amounts involved are barely above the noise level. A case in point is Verizon's December 2, 2003 filing with the Connecticut Department of Public Utility Control seeking a revenue increase of all of $21,028 to "recover as an exogenous cost the $21,028 revenue reduction Verizon experienced when it lowered its switched access charge rates earlier this year in compliance with the Department's November 7, 2001 Decision in Docket No. 00-11-11.[15]

20. Where a BOC is subject to price cap or another form of incentive-based regulation under which its earnings are not constrained, misallocation of costs to core regulated services will conceal potentially excessive earnings, a condition that might lead regulators to revise the parameters of the price adjustment mechanism (e.g., the X-factor) or perhaps even reinitialize rates periodically to produce no more than the "authorized" rate of return. *No* state PUC price cap plan of which I am aware has established an X-factor even remotely close to the 6.5% last adopted by the FCC, which was itself expressly based upon *total company unseparated results,* i.e., specifically *not* interstate-only productivity. Hence, any state price cap plan with an X-factor less than 6.5% will result in excessive earnings. The fact that many BOCs report intra-state RORs below the interstate levels serves only to confirm the likely effectiveness of their

15. *Application of New York Telephone Company for Alternative Rate Regulation*, Connecticut DPUC Docket No. 99-03-06, Proposal of Verizon New York Inc. to Recover Exogenous Costs, filed December 2, 2003, at 2.

cost-shifting efforts. An appropriately set X-factor would, in theory, discipline the BOCs sufficiently so as to avoid their reporting excessive returns.

Pricing flexibility, service reclassification, and the use of broadly-defined "service baskets" all work to facilitate cost shifting from competitive to monopoly services.

21. Price cap plans often allow upward price movements on individual services, either as a result of reclassification or by defining and separately treating individual "baskets" of services. For example, the BOCs' creation of local/long distance service bundles easily overcomes any price cap limitation, if indeed it is actually present at all. Under price caps, only the overall *rate level* is capped; ILECs are afforded considerable flexibility with respect to the pricing of *individual* services within so-called "service baskets." Many state price cap plans permit the ILEC to "reclassify" services as "competitive" upon a demonstration of the presence of some limited number of alternative providers. In seeking such reclassifications, the BOCs are generally not required to demonstrate affirmatively that the level of competition that they claim to exist is sufficient to limit their ability to increase prices, i.e., to constrain their exercise of market power. Indeed, upon such reclassifications of putatively "competitive" services, BOCs are afforded pricing flexibility in both the *upward* as well as in the downward direction, and have indeed taken advantage of that *upward* pricing flexibility to increase rates on services reclassified as "competitive" in some cases almost immediately after the reclassification has been granted.[16] Such practices are not confined to the state jurisdictions. BOCs have increased

16. Telecommunications Division, Illinois Commerce Commission, *Staff Report on*

(continued...)

1 rates for *interstate* special access services in markets for which they have qualified for pricing
2 flexibility, to the point where special access rates applicable in so-called "competitive" MSAs
3 are in many instances *higher* than the corresponding rates in noncompetitive MSAs where the
4 special access rates remain subject to price caps.[17] The "baskets" of services method of price cap
5 regulation allows the BOC to use the excess profits from special access services to subsidize
6 truly competitive services in the same basket.
7
8 22. In some states, BOCs have been permitted to remove highly profitable yet largely
9 noncompetitive services from their price cap plans (e.g., the yellow pages directory publishing
10 operations) and have then sought reductions in or elimination of the productivity offset ("X")
11 factor as a result of the (seemingly) reduced level of earnings.[18] Because BOCs often retain

---

(...continued)
Competitive Reclassification, issued November 25, 1998. The ICC Staff found (at 5) that "[b]etween March of 1997 and November of 1998, Ameritech Illinois filed twelve tariff filings in which it reclassified several of its business and residential services as competitive." These were all in the form of tariff filings made on one day's notice, and were permitted to go into effect. As the Staff Report notes (at 10), "[a]fter declaring some of the services listed above as competitive, Ameritech increased the retail and wholesale rates for those services." In some cases, *the prices of services that were already set well in excess of cost*, such as local usage, were increased.

17. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, RM No. 10593, Declaration of Joseph M. Stith on Behalf of AT&T, October 15, 2002.

18. In 1997, then-Bell Atlantic was permitted by the Pennsylvania PUC to shift its Pennsylvania directory publishing activity out of regulation, and in so doing reduced its reported intrastate rate of return from 16.07% in 1996 to 11.02% in 1997 (from Verizon 10-K Annual Reports). Verizon is currently asking the Pennsylvania legislature to eliminate altogether the X-
(continued...)

1 considerable market power with respect to any newly "reclassified" services, they can increase
2 rates for those services, price caps notwithstanding, and use the excess profits derived therefrom
3 to cross-subsidize services for which effective competition is actually present. An example of
4 this is the unlimited local and long distance bundles offered now by the ILECs. These packages
5 are undoubtedly quite profitable as a whole, even though the incremental price for the long
6 distance calling feature is, in many cases, less than the applicable access charges. This is the
7 case because the various vertical service features that are included in the bundle (e.g., call
8 waiting, three-way calling, call block, caller ID and voice mail) are so enormously profitable that
9 their inclusion in the "bundle" is more than sufficient to offset the loss arising from the below-
10 cost pricing of long distance. And, because these services are inextricably linked to the local
11 exchange service platform, they cannot be offered by an IXC that does not also provide local dial
12 tone to its long distance customer.
13
14 **Regulatory oversight and cost accounting requirements have proven insufficient to**
15 **forestall cost shifting incentives that remain under price caps.**
16
17 23. The Commission's 1991 recognition that price caps retained incentives for cost mis-
18 allocation specifically relied upon price cap regulation as a "complement to cost accounting,
19 reporting, auditing, and enforcement safeguards."[19] Since that time, however, several audits

---

(...continued)
factor from its price cap plan. Penna. Telephone Assn. draft legislation, H.B. 30. Section 3015.

19. *Computer III Remand Order*, at fn. 95.

conducted at both the state and federal level prove that the Commission's reliance upon accounting and audit safeguards has been misplaced.

24. Price caps, cost accounting, reporting, and auditing did not remove the ability or incentive for Verizon New York to abide by the Commission's transactional requirements between local and long distance services, as is evidenced by Verizon New York's violations of Section 272. In its recent *Order* in the New York Section 272 Audit proceeding, the Commission found that Verizon "failed to justify is accounting entries for approximately $16 million in services provided to its section 272 affiliates in 2000."[20] Sanctions for these violations (some of which may never have been corrected)[21] were set at $283,800. Of course, a fine of $283,800, representing less than 2% of the monetary gain realized by Verizon as a direct result of its infraction, hardly an effective deterrent.

25. A recent regulatory audit of SBC-Pacific Bell undertaken by the California Public Utilities Commission[22] provides further demonstration of the utter ineffectiveness of price cap regulation — which has been in effect for Pacific Bell in California since January 1, 1990 — in preventing the transfer of monopoly revenues out of the operating company for the benefit of its

---

20. *In the Matter of Verizon Telephone Companies, Inc. Apparent Liability for Forfeiture*, File No. EB-03-IH-0245, *Notice of Apparent Liability for Forfeiture* (FCC 03-199), Rel September 8, 2003, at para. 13.

21. *Id*, at fn. 46.

22. California PUC, *Regulatory Audit of Pacific Bell For The Years 1997, 1998, and 1999*, Overland Consulting, issued Feb. 21, 2002 and supplemented May 8, 2002 and June 20, 2002.

1 nonregulated affiliates, *despite the nominal "de-linking" of revenues and costs*. The Audit
2 Report found, among other things, that SBC-Pacific Bell and its affiliates had engaged in
3 improper cross-subsidization, allowing SBC-Pacific Bell to substantially understate its operating
4 income by, for example, transferring SBC-Pacific Bell Customer Proprietary Network
5 Information ("CPNI") for use by affiliates without reimbursement to SBC-Pacific Bell, and by
6 paying the parent company SBC $400-million annually for SBC-Pacific Bell's use of the SBC
7 brand name in California despite the transactions providing no apparent benefits to SBC-Pacific
8 Bell. The California *New Regulatory Frameworks* ("NRF") price cap plan is subject to periodic
9 (typically triennial) reviews by the California PUC. Hence, the creation of such bogus "costs"
10 and uncompensated transfers of value to an affiliate works to understate both realized produc-
11 tivity *and* realized earnings. These (apparent) outcomes can then be advanced by SBC to
12 support sought-after modification to the price adjustment mechanism, such as reduction or
13 elimination of the productivity target (X-factor), elimination of any earnings sharing require-
14 ment, or other changes beneficial to SBC. If successful, SBC will have been able to shift costs
15 attributable to its competitive long distance business over to its monopoly local exchange service
16 customers.
17
18 26. In February 1999, the FCC released the results of audits its staff had conducted of the
19 RBOCs' Continuing Property Records ("CPRs") as these existed on June 30, 1997.[23] The audits

---

23. FCC Releases Audit Reports on RBOCs' Property Records, Report No. CC 99-3, Common Carrier Action, February 25, 1999. See also *Audit of The Continuing Property Records of Ameritech Corporation, as of July 30, 1997,* FCC Accounting Safeguards Division,
(continued...)

1 revealed a pattern of systematic overstatements of capital investments on the RBOCs' books
2 relative to assets physically present in their networks. In conducting these audits, the
3 Commission staff unearthed a staggering history of BOC overstatement of capital investment,
4 translating into the estimate of $5-billion worth of "missing" assets that could not be located
5 either by the auditors or by the BOCs' own plant technicians.[24] The regulatory implications of
6 overstated plant accounts, especially an overstatement of the magnitude of 20%,[25] are substan-
7 tial. To the extent that an ILEC's rate levels — in both the state and federal jurisdictions — are
8 linked, even indirectly, to the net book value of plant in service, an overstatement of such book

---

23. (...continued)
December 22, 1998 ("Ameritech CPR Audit"); *Audit of The Continuing Property Records of NYNEX Telephone Operating Companies also known as Bell Atlantic North, as of March 31, 1997,* FCC Accounting Safeguards Division, December 22, 1998 ("Bell Atlantic North CPR Audit"); *Audit of The Continuing Property Records of Bell Atlantic Telephone Operating Companies, also known as Bell Atlantic South, as of March 31, 1997,* FCC Accounting Safeguards Division, December 22, 1998 ("Bell Atlantic South CPR Audit"); *Audit of The Continuing Property Records of BellSouth Telecommunications, Inc., as of July 31, 1997,* FCC Accounting Safeguards Division, December 22, 1998 ("BellSouth CPR Audit"); *Audit of The Continuing Property Records of Pacific Bell and Nevada Bell Telephone Companies, as of June 30, 1997,* FCC Accounting Safeguards Division, December 22, 1998 ("Pacific Bell CPR Audit"); *Audit of The Continuing Property Records of Southwestern Bell Telephone Company as of June 30, 1997,* FCC Accounting Safeguards Division, December 22, 1998 ("SWBT CPR Audit"); *Audit of The Continuing Property Records of US West Telephone Operating Companies, as of June 30, 1997,* FCC Accounting Safeguards Division, December 22, 1998 ("US West CPR Audit"); Sections VI. Collectively, the seven RBOC CPR audits ("The RBOC CPR Audits").

24. FCC Public Notice,"FCC Releases Audit Reports on RBOCs' Property Records," CC Docket No. 99-3, February 25, 1999.

25. *See* Ameritech CPR Audit, at ¶ 19; Bell Atlantic North CPR Audit, at ¶ 19; Bell Atlantic South CPR Audit, at ¶ 18; BellSouth CPR Audit, at ¶ 18; Pacific Bell CPR Audit, at ¶ 19; SWBT CPR Audit, at ¶ 19; and US West CPR Audit, at ¶ 19.

value would necessarily result in excessive prices for the ILEC's services. While the FCC's CPR audits had focused specifically upon the BOCs, a joint state-FCC audit team undertook a similar investigation of the GTE Corporation's Telephone Operating Companies ("GTOCs"), which also found significant gaps between booked capital investments and those that could actually be verified.[26] According to the GTE auditors' report:

> In the physical verification phase of the audit, 2,286 items were reviewed. Based upon book values, 21.7% of the sampled items was missing and another 14.6% was unverifiable. Thus, 36.3% of the book value was questionable. Of the 2,286 line items included in the physical verification phase of the audit, 693 (30.3%) of the line items were out of compliance with the requirements of Part 32.[27]

Although both the RBOC and GTE audits identified substantial and seemingly systematic rate base inflation, no penalties were ever imposed upon, or rate base adjustments ever required of, the offending companies. The FCC ultimately terminated its CPR audit investigation as part of the negotiated settlement of interstate access rate issues known as the "CALLS" plan,[28] and as a

---

26. Joint Audit Report on the Basic Property Records of GTE Corporation's Telephone Operating Companies, December 1997 ("GTE Joint Audit Report"), Executive Summary at 1. The Executive Summary of this report was downloaded from http://www.fcc.gov/Bureaus/Common_Carrier/Reports/gteaudit.html, and is reproduced as Exhibit LLS-10 to my testimony. Note that 47 CFR Part 32 sets forth the rules for the Uniform System of Accounts for Telecommunications Companies ("USoA").

27. *Id*., at 2.

28. *In the Matter of Performance Review for Local Exchange Carriers*, FCC CC Docket No. 94-1; *Low-Volume Long Distance Users*, FCC CC Docket No. 99-249; *Federal-State Joint Board On Universal Service*, FCC CC Docket No. 96-45, *Sixth Report and Order in CC Docket Nos. 96-262 and 94-1; Report and Order in CC Docket No. 99-249; Eleventh Report and Order in CC Docket No. 96-45*, Rel. May 31, 2000 ("CALLS Order"). See, *infra*, Statement of

(continued...)

result the RBOCs have never been held to account or penalized for their overstatement of rate base. Perhaps even worse, despite the fact that more than one-third of GTE's reported book value was found to be questionable, an investigation was never even initiated into the findings of the GTE Audit, and nothing more than the executive summary was ever released to the public. After the completion of the RBOC and GTE audits, the "Accounting and Audits Division" of the Commission's Common Carrier Bureau was "reorganized" into two functionally separate divisions, the "Accounting Policy" and "Accounting Safeguards" Divisions,[29] neither of which had auditing ILEC accounting records as its primary responsibility. As of this date, the nonexistent plant identified by the Commission's own auditors is still being carried on the books of the BOCs and (the now-former) GTOCs, resulting in permanently excessive prices for BOC monopoly services and helping to finance the RBOCs' cross-subsidization initiatives.

Current price cap and cost allocation rules do nothing to ensure that joint costs of monopoly local services and competitive services such as broadband or long distance are shared in such a manner that monopoly (or less competitive) services recognize some portion of the carrier's economies of scope.

27. With the decrease in overall regulatory oversight that accompanies price caps, the ILEC has no incentive to flow-through any efficiency gains it achieves in the production of non-competitive services — and particularly those that are furnished as UNEs or as access services to

---

28. (...continued)
Commissioner Harold Furchtgott-Roth, Concurring in Part and Dissenting in Part, at 2.

29. FCC News Report No. CC 98-8, *FCC Reorganizes Common Carrier Bureau's Accounting and Audits Division,* released April 6, 1998.

ILEC competitors — beyond what is expressly required, if any, by the price adjustment mechanism. If the price adjustment mechanism does not reasonably reflect actual and achievable productivity gains — which is the typical situation, especially in *state* price cap plans — ILECs can retain the financial benefits of most, if not all, of their efficiency gains, and are then able to divert the excessive profits derived therefrom to support tactics such as predatory pricing and cross-subsidization. Moreover, to the extent that periodic price cap reviews are confined solely to nominally "regulated" services, the diversion of excessive revenues to nonregulated parts of the ILEC's business — especially if accomplished via a misallocation of costs — affords the ILEC the added benefit of removing the achieved efficiency gains and excess profits from the state commission's purview altogether, thus providing still more fodder for ILEC claims as to the need for additional revenue and price cap relief.

28. Price caps give ILECs the incentive to channel the maximum productivity increases to *competitive* services through cross subsidization and incremental pricing, leaving both apparent and actual productivity gains in the ILEC either unchanged or in some cases degraded. For price cap regulation to prevent or even limit a BOC's ability to engage in cross-subsidization of competitive services by supranormal profits generated from monopoly services, the price adjustment mechanism would itself need to be properly specified to limit both the BOC's ability to earn supranormal profits (and thereby acquire the "engine" for cross-subsidization), and the BOC's ability to seek extraordinary rate relief or a major revision in the price adjustment mechanism in the event that, having shifted costs of its competitive operations to its monopoly services, it sustains an earnings deficiency in the monopoly service category.

By limiting ILECs' obligations to provide UNEs at TELRIC-based prices only where CLECs would be impaired, the *Triennial Review Order* assures that TELRIC-based UNEs will *never* be subject to competitive market conditions.

29. At ¶ 2 of the NPRM, the Commission, referring to the 1996 *Local Competition Order*, reiterates its conclusion there that "[i]n stating that forward-looking [TELRIC] costs were intended to send appropriate economic signals, we mean that UNE prices in excess of forward-looking costs would encourage competitors to build facilities when the more efficient course might be to lease facilities from the incumbent LEC, while prices below forward-looking costs might encourage them to rely on the incumbent's facilities when the more efficient course might be to construct their own facilities." However, at para. 3, the Commission expresses a concern that the application of the current TELRIC rules "distorts our intended pricing signals by understating forward-looking costs," and as such "can thwart one of the central purposes of the Act: the promotion of facilities-based competition." One area in which the Commission seems to have particular concerns is with respect to the "cost of capital" that is used in calculating TELRIC costs. The NPRM, at para. 83, notes that "In the *Triennial Review Order*, the Commission clarified that a TELRIC-based cost of capital should reflect the risks of a competitive market." And that "[b]ecause the objective of TELRIC is to establish a price that replicates the price that would exist in a market in which there is facilities-based competition, the Commission held that TELRIC prices should reflect the risk of losing customers to other facilities-based carriers."

30. As other witnesses for AT&T (Robert Willig and Terry Murray) explain in their own declarations, the supposed contradiction that troubles the Commission rests upon a mistaken theoretical premise. The theoretical market whose performance the TELRIC standard seeks to replicate is not a market of atomistic competition, or even multiple facilities-based competitors, but a *contestable* market, in which the threat of instantaneous and costless entry holds an incumbent's prices down to efficient levels even when the incumbent supplies the entire market. I will not repeat the Willig and Murray analyses here. Instead, I wish to show that, as a matter of fact, the business of supplying UNEs at wholesale does not, and by definition will not, face high competitive risks.

31. First, the *TRO* makes a number of material changes in the ILECs' obligations to provide Unbundled Network Elements ("UNEs") at TELRIC-based prices. Specifically, the *TRO* limits the ILECs' Section 251/252 unbundling obligations to only those cases where the nonavailability of a UNE would "impair" CLECs' ability to compete.[30] Such "impairment" arises only when the functionality afforded by any given UNE is not generally available from a source other than the ILEC. *By definition*, then, UNEs priced at TELRIC are only provided in those cases where the ILEC maintains a *de facto* monopoly over that UNE since, if it did not maintain such a monopoly, it would not be required to provide the UNE at a TELRIC-based price in the first place. Thus, for those network functions that the ILEC will continue to be required to provide as UNEs and to price based upon TELRIC, "the risk of losing customers to other facilities-based carriers"

30. See, generally, *TRO*, at para. 84.

is *by definition* minimal or nonexistent even where *other* ILEC services may confront facilities-based competition.

32. Indeed, at para. 89, the Commission has expressly recognized that different UNEs may present different levels of risk: "In the *Triennial Review Order*, the Commission also clarified that a TELRIC-based cost of capital should reflect any unique risks (above and beyond the competitive risks discussed above) associated with new services that might be provided over certain types of facilities.[31] The Commission reiterated its finding from the *Local Competition Order* that different UNEs may have different costs of capital[32] and clarified that the use of UNE-specific costs of capital is an acceptable method of reflecting in UNE prices any risk associated with new facilities that employ new technology and offer new services."

33. If different UNEs can have different costs of capital, then it certainly follows that services that are not offered as UNEs can have different — and potentially higher — costs of capital than the UNEs that the ILECs are required to provide because of a lack of market alternatives. To the extent that risk affects cost, the actual risk that the ILEC, by virtue of its incumbency and market dominance, confronts in the provision of UNEs should be accurately captured in the pricing of each UNE. Ascribing excessive (or insufficient) risk in the costing of

---

31. *Id.*, at para. 683.

32. *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket 96-98, 11 FCC Rcd 15499 (" *Local Competition Order*"), at 15856, para. 702 ("We note that the risk-adjusted cost of capital need not be uniform for all elements.").

1 any specific UNE would inefficiently elevate (or depress) the UNE's price, thereby sending
2 incorrect pricing signals to competing carriers and in so doing distort their make/buy decisions,
3 resulting in inefficient investment choices. Put another way, just as the ILEC is often the most
4 efficient (least cost) provider of certain network elements (e.g., mass market DS-0 subscriber
5 loops) because of the pervasive economies of scale and scope and the existing legacy distribu-
6 tion network, all of which are uniquely available solely to the ILEC as the dominant incumbent
7 service provider, the inability, as an economic matter, of rivals to efficiently provide comparable
8 functionalities at comparably efficient costs works to insulate the ILEC from much, perhaps
9 most, of "the risks of a competitive market."
10
11 34. While firms operating under competitive market conditions likely confront greater risks
12 than would prevail under conditions of regulated monopoly (all else being equal), the effect of
13 competition on risk applies differently to different firms, and to different products/services
14 offered by any one firm. For example, the risks associated with the existing base of mass market
15 copper loops are undoubtedly a good deal lower than for the yet-to-be-constructed broadband
16 facilities, the demand for which is at best highly uncertain. The determination of a "cost of
17 capital" based upon "total firm risk" or "industry risk" will overstate both the level of risk and
18 the associated cost of capital for those specific *monopoly* network elements that ILECs continue
19 to be required to provide as UNEs. Not only would this result in an effective cross-subsidy
20 flowing from monopoly UNEs to competitive — and risky — ILEC activities, it would run
21 directly counter to the Commission's stated goal of "send[ing] appropriate economic signals" to
22 CLECs.

35. The goal of sending appropriate economic signals requires that prices for those elements that will continue to be provided as UNEs (i.e., where the "impairment" standard continues to apply) be set at the forward-looking costs — including cost of capital — that the ILEC actually confronts in providing *those specific UNEs*. Consider the following example: Suppose that a "pure" ILEC — i.e., one that only provides regulated monopoly basic telecommunications services — confronts a forward-looking weighted average cost of capital of 10%. Suppose that a "pure" broadband service provider confronts a forward-looking cost of capital of 20%. An ILEC engaged in both lines of business would presumably confront a cost of capital somewhere between 10% and 20%, say 12% for purposes of discussion. If the firm-wide cost of capital (12%) were used to set UNE rates rather than the 10% that would apply to a ILEC that only provided basic monopoly services, UNE prices would be overstated and purchasers of UNEs would be forced to, in effect, cross-subsidize the ILEC's broadband business. The overstated UNE prices would also send incorrect and hence inefficient pricing signals to competing service providers, potentially operating to stimulate inefficient "make/buy" decisions on the part of competing CLECs.

The increase in beta values for RBOC stocks that has occurred in recent years is explained by RBOC diversification into non-ILEC lines of business, and is decidedly *not* the result of increased "competition" for core ILEC local exchange and intraLATA transport services.

36. In its *Virginia Arbitration Order* and in this *NPRM*, the Commission appears to ascribe the increase in systematic risk confronting the BOCs principally to the growth in competition for

core ILEC services.[33] "Beta" is a widely-recognized index of *systematic* risk — i.e., the degree to which a particular company's performance exhibits lesser or greater variability vis-à-vis a composite of firms across the economy as a whole, as measured by the S&P 500. The Commission has described beta as an index that "measures the degree to which a company's stock price varies relative to the market as a whole, i.e. it represents the systematic or non-diversifiable risk of the stock."[34] "In other words, it is an elasticity measure that determines how changes in the economy [such as inflation, interest rates, GDP, etc.] affect the profitability of the project."[35] Firms whose earnings are thus less volatile than the S&P 500 companies overall will have a beta value less than 1.0; those exhibiting greater variability will have a beta value in excess of 1.0.

37. The capital-asset-pricing model (CAPM) implies a linear relationship between the cost of capital and a company's beta coefficient.[36] While both economy-wide risks (systematic) and company-specific risks (unsystematic) affect the value of an individual company's equity, the

---

33. *In the Matter of Petition of Worldcom and AT&T for Preemption of the Jurisdiction of the Virginia Corporation Commission Regarding Interconnection Disputes With Verizon Virginia*, CC Docket Nos. 00-218 and 00-251, *Memorandum Opinion and Order*, 18 FCC Rcd 17722 (2003) ("*Virginia Arbitration Order*"), at para. 93; *TELRIC NPRM*, at para. 86.

34. *Id.,* at para. 87.

35. Hinojosa, Sergio A, *New issues in Natural Monopoly Regulation: The Financial Side in Infrastructure Projects Through Public Private Ownership*, The World Bank, at pages 11-12.

36. WACC = $P_D*R_D + P_E*(b_E(R_M-R_{RF}))$, where P_D and P_E are the percent equity finance and percent debt finance of the company, R_D is the average cost of debt, R_M is the average market return, and R_{RF} is the risk free rate.

CAPM reflects only a company's systematic risk to determine a cost of capital. The CAPM theory relies heavily upon the notion that "the best estimate for a risk premium in the future is the average risk premium in the past."[37] Since all companies are affected by economy-wide changes, the correlation among these various effects can be measured on an individual stock. By definition, beta is equal to this measurement.[38] However, since company-specific risks rarely affect more than a single company or industry, there is no measurable correlation between these risks and the returns of the entire market. Therefore, systematic risks are "economy-wide factors which affect all securities simultaneously, although to varying degrees."[39]

38. Systematic risk is influenced by a number of factors; the "competitiveness" of a particular industry or market, as it turns out, appears to have far less impact upon systematic risk than do other factors. Firms and industries that confront highly stable demand — demand that does not vary significantly across a business cycle — tend to have low systematic risk. For example, the demand for and supply of water are minimally impacted by macroeconomic factors; not surprisingly, water utilities such as American States Water and California Water

---

37. Ross, Stephen A., Westerfield, Randolph W., and Jaffe, Jeffrey. *Corporate Finance*, Irwin McGraw-Hill, 1999, at p. 259.

38. Expressed mathematically, $b = Cov(R_i, R_M)/(s^2(R_M))$, where $Cov(R_i, R_M)$ is the covariance between the return on asset *i* and the return on the market portfolio, and $s^2(R_M)$ is the variance of the market.

39. *Regulating Structure and Risk: An International Comparison*, Oxford Economic Research Associates, p. 4.

1 have beta values in the 0.6 to 0.65 range.[40] Firms in markets that are heavily impacted by busi-
2 ness cycle or other exogenous effects — such as firms that produce capital equipment used in the
3 production of other goods and services — generally exhibit relatively high betas.[41] One source
4 of systematic risk — not fully recognized by investors until September 11, 2001 — is national
5 security. This new risk in our economy caused serious harm to many industries, yet none were
6 as harmed as much as the airline industry. Figure 1 depicts the impact of this new systematic
7 risk on the beta values of the already risky airline stocks. Not surprisingly, the beta values of all
8 the major airlines spiked upward after the terrorist attacks. The development or ongoing
9 presence of competition has far less effect specifically because it is *diversifiable* — an investor
10 can acquire equity positions in several competing firms in the same industry, thereby
11 diversifying away any impact of inter-firm rivalry.
12

40. *Value Line Investment Survey*, October 31, 2003, at 1421-1422.

41. For example, the semiconductor industry has an average company beta of 1.49. Value Line Investment Survey, October 17, 2003, at 1052-1090.

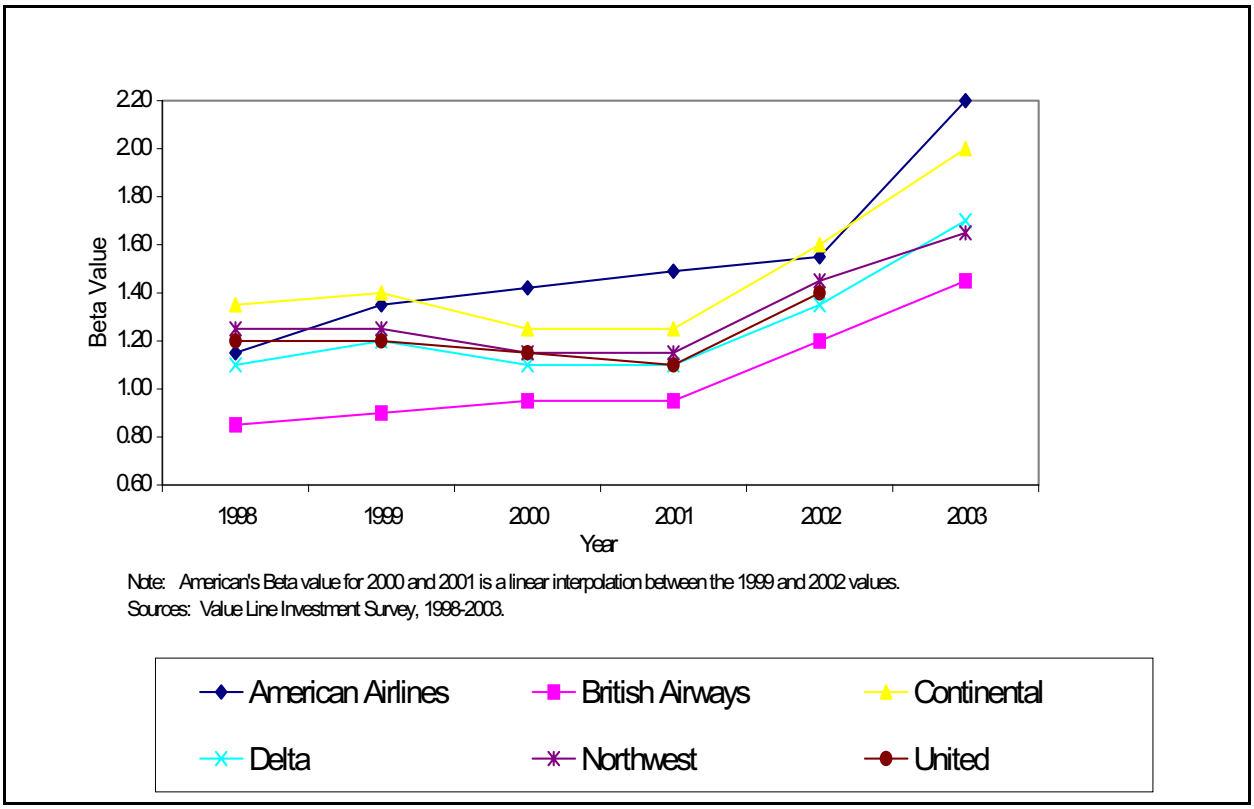

Figure 1 Commercial Airline Beta Values, 1998 - 2003.

39. Non-systematic or company-specific risks — such as news about a company's new president, its research, its sales, or the affairs of a rival — do impact a company's stock price, but tend to have little if any direct impact upon a firm's beta value, and thus its cost of capital. For example, for the past four or five years, the Eastman Kodak Company's traditional market and source of market power — film-based ("chemical") photography — has been ravaged by the development and growth of digital photography, where Kodak has no unique strengths and faces competition from domestic and foreign computer and electronics firms possessing far more extensive technological capabilities in this area. Kodak has thus become little more than a minor

"also-ran" player in the digital photography segment. Not surprisingly, Kodak's stock price fell from roughly $80 a share in May 1999 to $25 a share as of November 2001 — a 68% drop — reflecting investor assessments of the potential impact of digital photography upon Kodak's core business. However, during this same time period, Kodak's beta remained relatively constant, averaging 0.79 in 1999, 0.78 in 2000, and 0.80 in 2001 (see Figure 2).[42] This drastic drop in stock price and yet relatively stable beta value reflects a change in company-specific risk due to changes in the industry — not a change in systematic risk.[43]

40. Recognizing the potential impact of digital photography upon its traditional core market, Kodak began to shift its investment focus in 2000, entering the far riskier digital photography industry and expanding research into new technologies. In its 2002 Annual Report to Shareholders, Kodak reported:

> The downward trend in research and development expenditures in the Photography segment and the upward trend in the other reportable segments and All Other [over the 2000-2002 time period] reflect the shift in strategic focus from traditional products, such as color negative film and paper and color reversal films, to digital product areas, such as OLED technology, digital medical imaging and inkjet printing."[44]

---

42. *Value Line Investment Survey*, Eastman Kodak, 1999-2001.

43. During the same period, May 1999 to November 2001, the Dow Jones Industrial Average fell only 13% and the S&P 500 fell only 18%.

44. Eastman Kodak Company, *2002 10-K*, accessed 12/15/03 at http://www.sec.gov/Archives/edgar/data/31235/000003123503000017/ek10k0212.txt.

As a result of entering these new industries, Kodak's exposure to systematic risk increased and its beta value jumped from 0.80 in 2001 to 1.00 in 2003 (see Figure 2).[45] This type of reaction

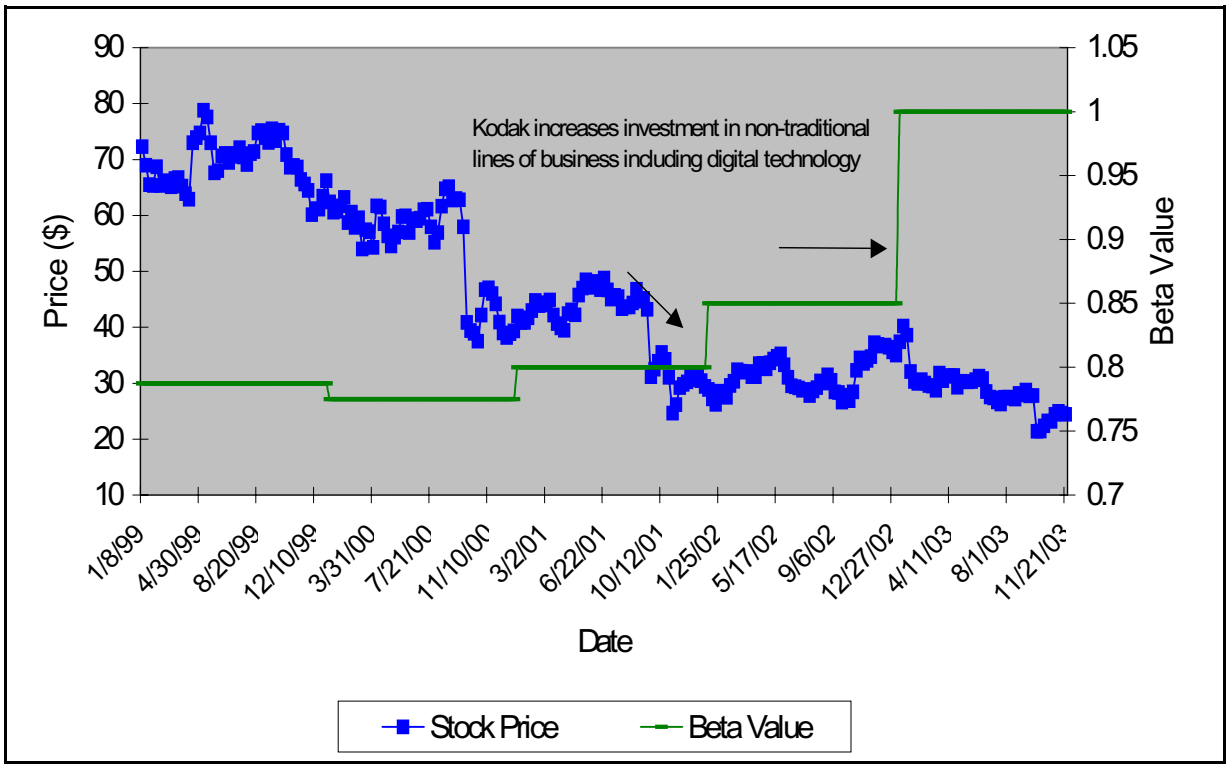

Figure 2 Eastman Kodak Weekly Stock Price and Beta Values, January 1999 - November 2003

— increased beta values — when firms enter into new riskier businesses, is not uncommon. Stephen Ross *et al.* report that "[t]he beta of a firm is likely to change if the firm changes its

45. Note, however, that during the 2001-2003 time frame, the Kodak stock price remained relatively stable, generally trading at between $25 and $40 a share.

industry."[46] Indeed, beta values respond to changes in economy-wide systematic risks, not company-specific risks. However, companies can increase their exposure to systematic risk by entering new industries or new markets such as, in the case of the RBOCs, foreign telecommunications markets, wireless, long distance, and broadband.

41. The Commission most recently addressed the beta value issue in the August 2003 *Virginia Arbitration Order*.[47] There, the Commission first applied its own TELRIC principles and proposed a cost of capital for UNEs to be adopted in state proceedings. While it ultimately imputed a beta of 1.00, the FCC avoided adopting any definitive conclusions and raised some unanswered questions regarding imputed beta values applicable for TELRIC. The main inquiry, which probed competition's effect upon beta values, was reiterated in the *TELRIC NPRM*, where the Commission posed the specific question, "Is it always the case that supplying a given product or service in a fully competitive market is more risky than supplying the same product or service in a market in transition from monopoly to competition?"[48] As I have suggested, the answer appears to be in the negative.

42. In the *Virginia Arbitration Order*, the Commission concluded that competition would increase the systematic risk of a local exchange carrier, but offered no specific explanation or

---

46. Ross, Westerfield, and Jaffe, *op. cit.*, footnote 37, at 298.

47. *Virginia Arbitration Order*, at paras. 87-95.

48. *TELRIC NPRM,* at para. 86.

authority for that conclusion.[49] The Commission did explain, however, why it disagreed with both Verizon and AT&T's beta analyses, finding that neither company had addressed both essential foundations of TELRIC, *viz.,* (1) that the pricing model represents a facilities-based competitive market, and (2) that the model represents the actual service being provided — i.e., local telephone service. Verizon had argued that there were no real-world industry parallels with the TELRIC assumption and so the best way to capture the average risk of a competitive company is to average the betas of all S&P industrial companies. The Commission disagreed with Verizon's analysis because Verizon had only focused upon the first facet of TELRIC — a theoretical facilities-based competitive market. On the other hand, the Commission noted that AT&T had focused solely upon the "local telephone service" attribute, and had calculated a beta value for TELRIC based upon an average of recent betas of incumbent local service providers like BellSouth and SBC. The Commission had disagreed with AT&T's analysis because it did not include an examination of competition's impact upon the systematic risk of the incumbents. Ultimately, the Commission concluded that the introduction of facilities-based competition in the local service market would increase the systematic risk (beta values) of the incumbent providers and thus it 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."[50]

49. *Virginia Arbitration Order,* at para. 93.

50. *Id.*, at para. 90.

43. The FCC's conclusion rests on the following finding:

> Although the ILEC's current betas do reflect some risk associated with their participation in competitive markets, such as wireless, those betas likely understate the risk of selling UNEs in a competitive market because the ILEC continues to operate as regulated monopolies or near-monopolies in many of their markets.[51]

Unfortunately, this conclusion fails to properly explain specifically why the Commission believes that competition *per se* will increase systematic risk in the local service market.

44. RBOC parent company beta values have been increasing in recent years, but *not* as a result of increased facilities-based competition. In fact, a far more likely source of the increase in risk confronting the regional Bell holding companies, raising their betas and costs of capital, is the RBOCs' increased focus upon *non-ILEC* lines of business. Since the break-up of the former Bell System in 1984, all of the regional Bells have been pursuing a strategy of asset diversification into *non-ILEC* lines of business. After a few false starts in the late 1980s (e.g., NYNEX's retail computer stores; US West's real estate ventures), RBOC parent company diversification into non-ILEC and various foreign ventures has intensified in recent years, driven in part by the growth of globalization, broad technological innovation, increased profitability of and cash flow from their ILEC operations, and greater regulatory freedom. Today, non-ILEC RBOC holding company assets (i.e., assets that are not used to furnish traditional BOC core local and intra-LATA services), such as those associated with foreign ventures and non-regulated

51. *Id.*, at para. 93.

telecommunications business such as wireless, broadband, and retail long distance services, now comprise a majority of all RBOC assets (see Figure 3).

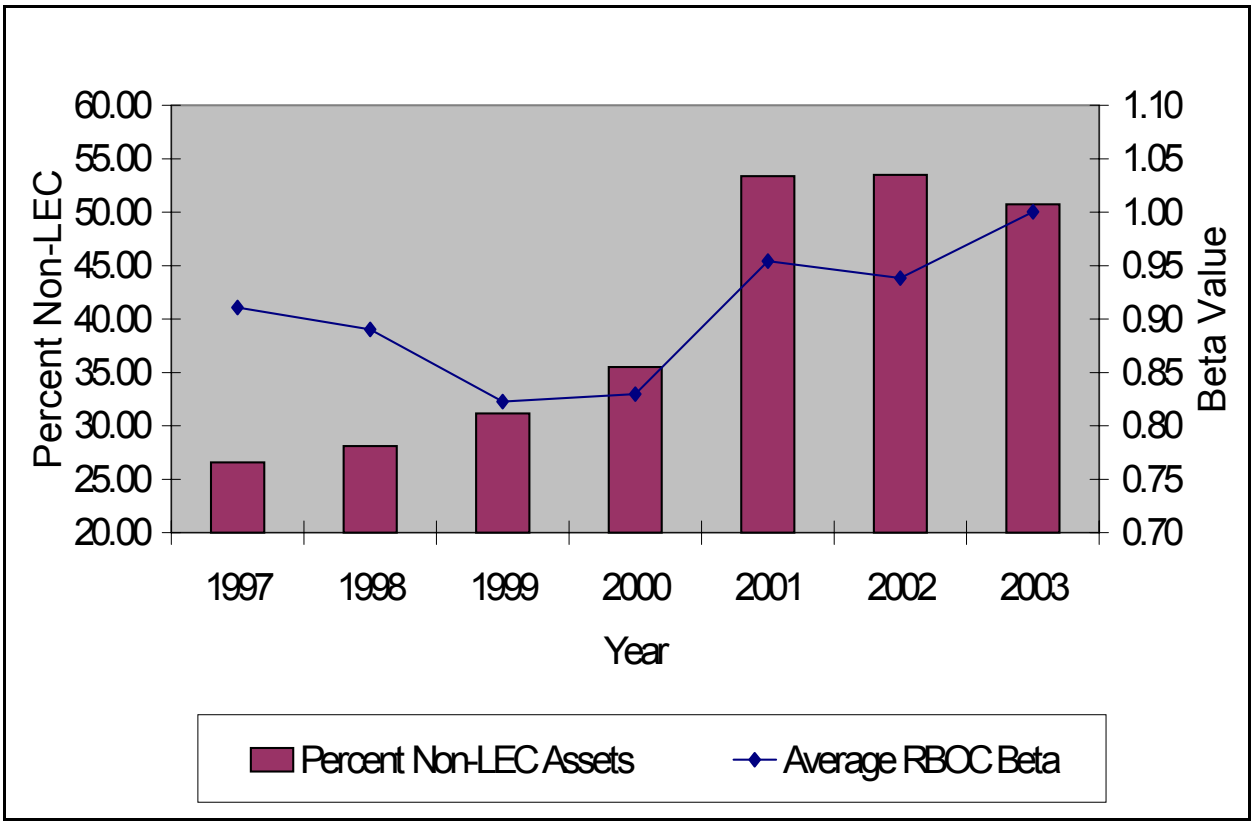

Figure 3 Average percentage of non-ILEC RBOC assets with corresponding average Betas, 1997 - 2003.

45. The wireless industry, for example, is quite risky. The three largest independently traded wireless companies (AT&T Wireless, Sprint PCS, and Nextel) have an average beta of 1.62.[52] Verizon, SBC and BellSouth all have major stakes in the wireless market. If we make the entirely reasonable assumption that the risk level reflected in the 1.62 average wireless

52. *Value Line Investment Survey*, AT&T Wireless, Nextel, Sprint PCS, October 17, 2003.

company beta is reflective of the risks associated with the RBOCs' wireless holdings, then the *non-wireless* components of Verizon, SBC and BellSouth will necessarily be less than the average overall beta of 0.96 for the three RBOCs' stocks. If other RBOC investments with greater-than-average risk were similarly excluded, the remaining, then-predominantly ILEC portions of the RBOCs would exhibit beta values far more similar to pre-diversification RBOC betas than to the current beta values.

46. To better understand these relationships — between systematic risk and diversification, and between systematic risk and competition — in the local service market, I developed several regression models that examined the relationship between Value Line RBOC beta values (the dependent variable) and several possible explanatory variables, including the percent of non-LEC assets in the RBOC (a measure of diversification),[53] the CLEC facilities-based market share in each RBOC region (a measure of competition), and the RBOCs' debt/equity ration (a measure of their financial leverage).[54] Since the data are both cross-sectional and time-series in nature, dummy variables were included for each company and each time period. As with Eastman Kodak, the regression model demonstrated that diversification into new industries increases exposure to systematic risks, while changes in company-specific variables like competition do

53. 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.

54. 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.

not impact systematic risk. According to the regression, diversification (with a coefficient of 1.64 and a *t*-statistic of 10.92) and financial leverage (with a coefficient of 0.55 and *t*-statistic of 3.16) had the largest impact upon the beta values, while facilities-based competition (with a coefficient of –12.23 and a *t*-statistic of –3.78) did not increase systematic risk.[55] In the *Virginia Arbitration* decision, the FCC had posited that competition would increase systematic risk and had used this theory as the basis of its imputation of a beta of 1.00 for UNEs. My regression model clearly refutes that notion. Moreover, the results show that the increase in RBOC beta values is primarily due to RBOC diversification into non-ILEC businesses. Table 1 presents these results.[56]

55. 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.

56. For a more in-depth description of the entire empirical analysis, see Attachment B.

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

Variable	Coefficient	*t*-Statistic
Constant	**0.42**	4.41
FB Competition	-12.23	-3.78
Percent Non-LEC	**1.64**	10.92
Leverage	**0.55**	3.16
2003 Dummy	**0.12**	2.29
Qwest Dummy	**0.15**	2.32
SBC Dummy	**-0.12**	-2.84
Adjusted R^2		0.972
Durbin-Watson		2.59

Notes: (1) With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 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.

47. To further support the conclusion that diversification has been the leading cause of increased RBOC betas, prior analysis 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. Not surprisingly, the results (presented in Table 2) were very similar. Diversification (with a coefficient of 1.26 and a *t*-statistic of 7.98) was the leading source of increased beta values. These two models, separately and collectively, provide empirical support for the

conclusion that RBOC diversification, and *not* facilities-based competition for basic local telephone service, is the principal source of elevated risk. As such, there is no basis to assume or to impute any adjustment to the cost of money that is used in calculating TELRIC to simulate the effects of facilities-based competition.

Table 2
Alternative Regression Specification excluding facilities-based competition
annual data
1997-2003

Variable	Coefficient	*t*-Statistic
Constant	0.14	1.20
Percent Non-LEC	**1.26**	7.98
Leverage	0.52	1.75
1997 Dummy	**0.17**	2.89
1998 Dummy	**0.17**	3.09
Qwest Dummy	**0.32**	3.49
Adjusted R^2		0.837
Durbin-Watson		2.03

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

48. The Commission's tentative conclusion that facilities-based competition in the local service market would increase the systematic risk of the ILECs is thus incorrect and ignores

many of the well-established conclusions about beta coefficients and the local service market. Furthermore, the current systematic risk faced by the RBOCs reflects the diversified state of the parent companies, not the nominal presence of or limited prospects for facilities-based competition for local services furnished by the BOC ILEC subsidiaries. For UNEs — which are the necessary elements to provide local service — the cost of capital should be based solely upon the systematic risk of providing local service. Thus, only the beta of a "pure ILEC" would accurately reflect the risk of providing service in the local market.

a. The effect of competition on risk

49. In the *TRO*, the FCC made "national findings" that competitors are "impaired" without access to UNE loops, UNE switch ports, and DS-1/DS-3 transport because the costs of constructing and acquiring their own competing facilities are prohibitively expensive.

> The inability to recover the significant fixed and sunk construction costs [associated with all loops smaller than OCn] impair the ability of requesting carriers to self-provision single loops [smaller than OCn].[57]

However, the FCC recommends a more localized analysis for UNE switch ports and transport) this "rebuttable" national finding — requiring the states to conduct an "impairment" analysis specific to conditions extant in their respective jurisdictions. Where there is impairment, the Commission concludes that ILECs must provide UNEs for competition to exist. Where there is

57. *TRO, at* para. 320.

no impairment, i.e., where competitors can economically build their own facilities to provide local service, ILECs are not required to provide UNEs.[58] New to TELRIC in this NPRM is the specific requirement that the prices for UNEs presume the existence of a competitive facilities-based market for those specific elements. However, under the "impairment" standard adopted in the *TRO*, UNEs are required to be offered *only where facilities-based competition is not otherwise present*.

50. The introduction of competition into a traditionally monopolized or highly concentrated market will not materially impact systematic risk — beta — if the competition entails only the substitution of one provider's service for that of another provider. The nature of aggregate market demand will not be affected, and investors may diversify their risk by investing in a portfolio of stocks of the competing firms. One potential source of elevated risk confronting RBOCs stems from their potentially massive investments in new technologies and the associated introductions of new services, such as those generally referred to as "broadband." However, as I noted earlier, the *TRO* has expressly exempted the RBOCs from making such "advanced

58. RBOCs, however, are required by Sec. 271(c)(2)(B) to provide UNEs, but only at prices based upon "fair market value" rather than upon TELRIC. What constitutes "fair market value" in this context has not been determined, but one can readily imagine that RBOCs would seek to include in their "fair market value" UNE prices the "opportunity costs" associated with their "competitive losses" of local service business to CLECs. Recovery of such "opportunity costs" is expressly prohibited by the Commission's UNE pricing rules. 47 CFR §51.505(d)(3) of the FCC's Rules includes "opportunity costs" among the "factors [that] shall not be considered in a calculation of the forward-looking economic cost of an element." The rule defines "opportunity costs" to "include the revenues that the incumbent LEC would have received for the sale of telecommunications services, in the absence of competition from telecommunications carriers that purchase elements."

1 services" available as UNEs to rival providers *without making any findings or determinations as*
2 *to whether or not the absence of such UNEs would "impair" those rivals' ability to compete with*
3 *the ILECs in the broadband and "advanced services" markets*.[59] If the elevated risks
4 attributable to the RBOC broadband investment are incorporated into a companywide "average"
5 cost of capital that is then utilized in setting UNE prices, the effect will be to force UNE
6 customers — i.e., RBOC competitors in the *basic services* market — to help to fund the RBOCs'
7 broadband initiatives. Inasmuch as CLECs are to be expressly excluded from the ability to
8 access RBOC broadband network assets, the shifting of *any* broadband costs to CLECs via UNE
9 prices constitutes cross-subsidy.[60] This result is patently unfair, grossly anticompetitive, and
10 discriminatory.
11
12 51. The presence of facilities-based competition for the specific network elements that are
13 to be offered as UNEs — those primarily associated with the provision of mass market DS-0
14 switched services — would not *by itself* be expected to increase the systematic risk confronting a
15 pure local exchange carrier. As discussed earlier, systematic risks stem from macro-factors such
16 as changes in GDP, interest rates, inflation, and national security. Companies respond to these

---

59. *TRO*, at para. 272.

60. Indeed, it is difficult to rationalize the exclusion of CLECs from access to ILEC broadband facilities as UNEs with the potential that prices for the UNEs that are to be offered to CLECs could reflect *any* costs attributable to the acquisition of broadband assets. Indeed, such a result would appear to be inconsistent with the doctrine of "benefits follow burdens, rewards follow risks" adopted by the DC Circuit Court of Appeals in *Democratic Central Committee v. Washington Metropolitan Transit Commission*, 485 F. 2d 786 (D.C. Cir. 1973), reh den, cert den, 415 US 935 (1973).

1 conditions differently based upon the nature of the products and services that they provide. A
2 beta coefficient measures this response. Hypothetically, assume a change in one systematic risk
3 factor, for example, GDP, and measure an ILEC's response under competitive and monopolistic
4 conditions. Assume that the GDP decreases for many successive months — perhaps over
5 several years. Disposable income of consumers decreases and then consumption decreases.
6 Certain more discretionary and durable goods tend to feel this impact more quickly and more
7 profoundly than, for example, necessities such as food and basic local telephone service. People
8 take less lavish vacations, buy new cars and new computers less often, and defer other less
9 necessary purchases. Producers of consumer products that are most impacted by an economic
10 downturn will respond by deferring their own capital equipment purchases, resulting in even
11 greater volatility among capital equipment manufacturers (e.g., aircraft, heavy machinery,
12 construction) and producers of the raw materials used in their manufacture (e.g., steel,
13 aluminum). The responsiveness of income on consumption of a good is known as its income
14 elasticity. Core basic local telephone service is generally viewed as a necessity and thus exhibits
15 very low income elasticity.[61] Therefore, systematic risks impacting disposable income of
16 consumers are not likely to impact the sales of local telephone service — whether provided by
17 an ILEC or by a CLEC. The potential for minor decreases in overall consumption are possible,
18 of course, but in general the "loss" of business by an ILEC to a rival CLEC cannot itself be
19 traced to conditions affecting systematic risk.

---

61. According to one study, the income elasticity of local telephone service is 0.1224. M. Ishaq Nadiri and Banani Nandi, "The Changing Structure of Cost and Demand for the U.S. Telecommunications Industry," National Bureau of Economic Research, Working Paper 5820, at 30.

52. It is also important to note that the mere presence of competition does not by itself imply a high level of systematic risk. Many competitive markets have average betas different than 1.00. For example, the housing industry is more responsive to changes in interest rates (and other macroeconomic variables) than the restaurant industry. Table 3 presents a series of average beta values for a number of key industries, measured as the weighted average of the individual company betas. Highly competitive industries such as Soft Drinks and Restaurants have industry betas of 0.67 and 0.87, respectively, well below the S&P 500 market-wide average.[62] Publicly traded firms in these sectors (which, in the case of Restaurants are predominated by low-end fast-food and "family restaurant" chains such as McDonald's, Applebee's, Wendy's and Yum! Brands, which owns KFC, Pizza Hut, and Taco Bell) likely confront very low income elasticities, which is also the case with local telephone service. These firms, like "pure" ILECs, tend to exhibit relatively less earnings variability than the market as a whole. Semiconductors also encounter fierce competition, yet have an industry beta of 1.5, perhaps because the demand for the end products in which they are utilized (e.g., personal computers) is itself heavily impacted by macroeconomic conditions. Systematic risk is thus subject to wide variation across different industries, influenced primarily by the varying effects of factors such as interest rates, GDP, consumer income levels and aggregate consumer demand. The presence and extent of facilities-based competition is not by itself a consequential source of systematic risk confronting individual firms.

---

62. *Value Line Investment Survey*, September-November, 2003. See Table 3.

Table 3
Average Company Beta Value By Industry
Fall 2003

Industry[1]	Number of Competitors	Weighted Average Beta
Soft Drink	8	0.67
Petroleum	21	0.79
Restaurant	29	0.87
Automobile	9	0.92
Paper Products	16	1.01
Tire	5	1.06
Insurance	25	1.07
Home Appliances	6	1.16
Computers	29	1.31
Semiconductors	37	1.49
Brokerage	9	1.67

Notes: (1) Each industry includes all of the companies listed by Value Line as competitors in that industry.
(2) The weighted average is weighted by the market capitalization presented in Value Line.

Source: Value Line Investment Survey, 2003

53. Significantly, whatever impact macroeconomic influences have on local exchange carrier risks is likely to fall much more heavily upon the smaller and less capitalized CLECs than upon the dominant incumbent local exchange carriers. Small CLECs — and even some larger players such as AT&T and MCI — lack the stability created by the RBOCs' embedded base of core service customers, and thus lack the same access to capital enjoyed by the RBOCs. The combined effect of high fixed (sunk) entry costs and often substantial debt places such firms in a

far more highly leveraged position than a typical RBOC (with the exception of Qwest), thus making such firms far more sensitive to macroeconomic events.[63]

b. Separating out the risk of a "pure LEC" from that of the diversified RBOCs

54. The Commission has also stressed the importance of focusing on the specific systematic risks associated with the local telephone service, and yet it has failed to do so in the *Virginia Order*. While the Commission had concluded that "[betas may be thought of a weighted average of the betas for each line of business in which the [RBOCs] operate,"[64] it ruled that "absent evidence of any unique risks associated with the telecommunications industry, or a *particular segment* of the industry," it 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

63. Indeed, the only condition under which the level of systematic risk confronting the RBOC ILEC entities might begin to approach that of the CLECs is in the absurd scenario in which the RBOCs have lost so much facilities-based market share and where LEC infrastructures become so highly fragmented that ILECs and CLECs become roughly comparable in size, capitalization, and overall capital structure. Of course, were that obviously far-fetched situation ever to arise, no one would be talking about UNEs, TELRIC, or "impairment," so the matters being addressed here would be entirely moot. More to the point, ILECs would no longer be serving anything remotely close to "total" demand — the economic assumption underlying the "T" in TELRIC — undermining all of the economic principles of the TELRIC methodology, not just the cost of capital. This patently unrealistic vision of "facilities-based competition" could not possibly have been what the Commission had in mind.

64. *Virginia Arbitration Order*, at para. 93.

competition."[65] A closer examination of the systematic risk faced by the RBOCs reveals different risk levels associated with each industry segment in which they compete. Wireless, for example, exhibits very high systematic risks. As I noted earlier, the three largest publicly traded wireless companies (AT&T Wireless, Sprint PCS, and Nextel) have an average beta of 1.62.[66] Local telephone service, on the other hand, by itself confronts little systematic risk as measured by its responsiveness to changes in disposable income or income elasticity.

55. The influence of new and highly risky ventures upon the systematic risk being exhibited by the RBOCs is apparent in their increasing asset allocations and beta values. The changes that have occurred since enactment of the 1996 legislation confirm this inescapable conclusion. As also depicted in Figure 3, from 1997 to the present the average RBOC increased its relative share of non-ILEC assets by more than 90%.[67] During the same period, the average beta value for the RBOCs climbed from the low point of 0.82 in 1999 to 1.00 in 2003.

56. The Commission has concluded that the

> Selection of a beta is the most difficult aspect of the cost of capital calculation because there is no real-world company that provides UNEs in the type of competitive market assumed under the Commission's TELRIC rules, and

---

65. *Id.*, at para. 90. Emphasis supplied.

66. *Value Line Investment Survey*, October 17, 2003.

67. Non-ILEC assets are determined by subtracting the value of assets reported by the BOC ILEC entities from aggregate parent company assets. 10-Ks are available from the SEC's EDGAR Database, http://www.sec.gov/edgar/searchedgar/companysearch.html.

> therefore no real-world company's beta precisely reflects the risk of participating in such a market.[68]

To justify its imputed beta value of 1.00 in *Virginia*, the Commission attempts to draw a parallel between the ILEC market and the IXC market. The FCC determines that the IXC market best mirrors the two tenets of TELRIC — similar industry and competitive — and proves to be a good predictor of systematic risk. The Commission concludes, "The long-distance companies build, own, operate, and maintain long distance networks. The assets they use, activities they perform, and functions they provide are comparable." The IXC comparison, however, is inapposite. The analysis fails to address the large disparity in income elasticities between the local and long distance market — itself representing a significant source of systematic risk. According to one study, the long distance market is significantly more elastic (0.6456), than the local service market (0.1224).[69]

57. One method to determine a more accurate beta estimate follows from the Commission's discussion of the "unique risks" associated with the local service market. As described above, the current competitive landscape and the high barriers to entry imply that competition will likely not impact the systematic risk faced by the RBOC — as a monopolist or as the dominant large competitor. In addition, current beta values for RBOCs reflect the diversification of RBOCs into riskier segments of the telecom industry. Thus, the best comparison to measure the

---

68. *Virginia Arbitration Order,* at para. 87.

69. Nadiri and Nandi, *op. cit.*, footnote 61, at 30.

systematic risk applicable to UNEs priced under TELRIC is to impute the beta of a "pure-ILEC" of a size that is roughly comparable to that of the RBOCs' ILEC components. In 1997, US West spun off its cable television business ("Media Group") and became, for all practical purposes, a pure ILEC. US West remained in roughly that same "pure ILEC" state until its acquisition by Qwest in 2000. During that time, US West's non-ILEC assets represented only about 5% of the Company's overall asset base, and US West stock had a beta of 0.75 (see Figure 4). Following the Qwest acquisition/merger, the now-former-US West beta shot up to 1.40.

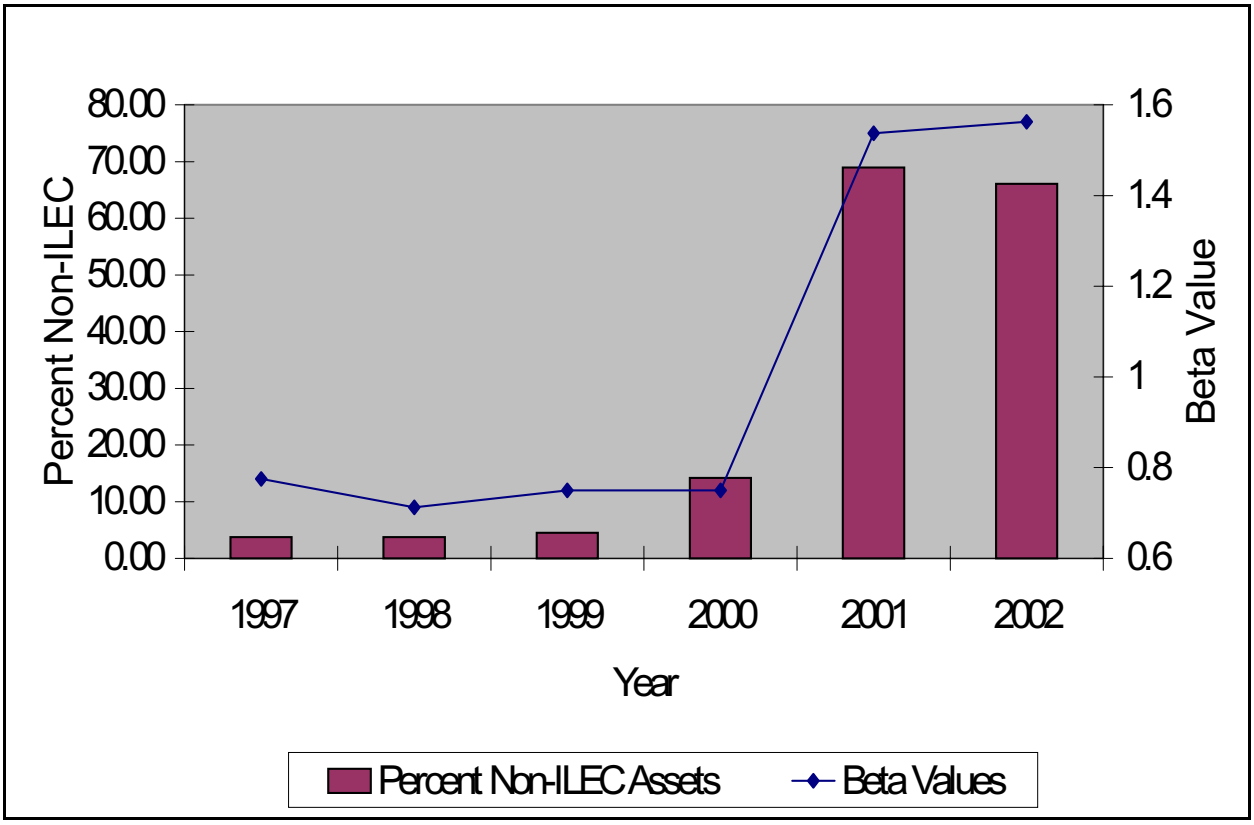

Figure 4 US West/Qwest average percentage of non-ILEC RBOC assets with corresponding Betas, 1999 - 2003.

58. Even though the existence of competition does not, *per se*, affect the level of systematic risk, the beta value for a large pure ILEC is likely to be lower than for a smaller rival. Large firms are typically better able to withstand the effects of economy-wide macroeconomic changes than smaller firms, a fact that is amply demonstrated by the numerous CLEC bankruptcies and decisions to withdraw from or otherwise curtail activities in various market segments that have occurred in recent years. For purposes of establishing TELRIC-based prices for UNEs *that are being provided by large ILECs*, all that is relevant is ILEC-specific risks and risk-adjusted costs of capital. There is thus no basis to conclude or to assume that the beta value applicable to the "pure ILEC" US West has changed since the late 1990s notwithstanding the nominal presence of a few facilities-based competitors in the local exchange market.

59. If average RBOC risks are used with respect specifically to those UNEs that the ILECs will continue to be required to provide — which are themselves those for which a finding of "impairment" has been made, implying a lack of sufficient alternative supply — the effect will be to create a cross-subsidy flowing from the monopoly UNEs to competitive ILEC services and competitive RBOC lines of business. Thus, in imputing a beta value for purposes of establishing the appropriate cost of capital for use in setting TELRIC-based prices, the Commission should utilize the "pure ILEC" beta value in the range of 0.75 absent any specific, quantitative demonstration that the systematic risk confronting a pure ILEC has consequentially changed since that date.

The wholesale discount should be based upon the forward-looking costs associated with the efficient provision of wholesale services for resale, reflecting increased use by resellers of mechanized ILEC systems and the fact that ILECs themselves have expanded the scope of their own retailing operations, raising ILEC retailing costs that "will be avoided" when service is provided at whole.

60. Paragraphs 142-143 of the NPRM observe that the Eighth Circuit Court of Appeals opinion referred to as *Iowa Utilities II*[70] vacated the Commission's original rules governing the pricing of ILECs' resold services, and ask whether the Commission should devise new rules for that purpose. Specifically, the Commission asks whether the pertinent statutory language (i.e., section 252(d)(3) of the Act), as interpreted by the Eighth Circuit, is not sufficiently clear that further guidance from the Commission is unnecessary. Paragraphs 144-146 of the NPRM go on to raise certain implementation issues that might arise if the Commission were to promulgate new resale rules, such as whether the Commission should identify categories of costs that either are presumptively avoided or presumptively not avoided to guide the calculation of resale discounts, and whether the Commission should impose any evidentiary guidelines on ILECs' showings in support of their claimed resale discounts.

61. While I am not offering a legal opinion, my understanding is that the Eighth Circuit's *Iowa Utilities II* ruling resolved as a matter of law the longstanding dispute over how the "avoided cost" standard set forth in the statute was to be interpreted. The ruling found that the statute must be interpreted strictly, so that resale discounts must reflect only those retailing costs

70. *Iowa Utilities Board, et al., Petitioners, v. Federal Communications Commission and United States of America*, 219 F.3d 744, July 18, 2000 ("Iowa Utilities II"), at 765.

that are actually avoided by the ILEC as a result of providing the service for resale rather than offering it directly to retail customers, rather than reflecting the costs of retailing that, as an economic matter, the ILEC should be able to avoid incurring under resale. Consequently, the Eighth Circuit ruling has shifted the focus of the examination of avoided costs from a primarily *economic* analysis — e.g., evaluating whether customer service expenses are fixed or volume-sensitive, or whether evidence of near-term cost avoidance is predictive of long run variability of costs — to analyses that are primarily *accounting* exercises — e.g., ensuring that all of the costs actually avoided are clearly identified and not confused with costs that ILECs are incurring for other reasons. Whereas the economic issues do not change from state to state and can be addressed at the federal level (as indeed the Commission had done successfully under its earlier interpretation of the resale statute), the accounting issues that must be addressed under the Eighth Circuit's avoided cost standard are not susceptible to nationwide, uniform rules because they involve detailed, intensive scrutiny of each individual ILECs' own cost accounting and cost allocation processes, processes that can — and likely do — differ from state to state and from ILEC to ILEC. Accordingly, state PUCs are much better positioned to conduct those analyses and (to the extent required) establish governing rules and guidelines than is the Commission. Moreover, if the Commission were to decide that it should adopt new resale rules, those rules either would have to confront difficult accounting issues head-on, or they would leave so much of the implementation to the state PUCs that the rules would have little substance or effectiveness.

62. As with UNEs and as implied by the "will be avoided" language of the statute, the wholesale discount should similarly be based upon the forward-looking costs associated with the efficient provision of wholesale services for resale. In the long run, all costs are assumed to be variable and hence retailing costs "will be avoided" if the ILEC reduces the extent of its retailing activities, or will be eliminated entirely if the ILEC exits the retail sector altogether. The Commission's adoption of an "avoidable cost" methodology, calculated by excluding that portion of an ILEC's current operating expenses that are associated with retailing functions, provided a reasonable surrogate for forward-looking long run incremental costs.

63. Indeed, ILECs have themselves argued that *embedded cost relationships*, such as embedded outside plant utilization, can provide an indication of plant utilization going forward. For example, SBC has argued that current (i.e., "embedded") plant utilization levels provide a better indication of future plant utilization than those produced by certain incremental cost modeling tools.[71] In that regard, the Commission could well find that the proportion that retailing costs represent of total ongoing ILEC operating costs fairly represents the proportion of costs that, in the future and on an ongoing basis, "will be avoided" when the ILEC provides services at wholesale and thus is not required itself to undertake any retailing activities in connection with such services. "Avoidable" and "avoided" costs are clearly converging, and the original bases used by state commissions in setting wholesale rates may well approximate the "avoided cost" standard adopted by the Court.

---

71. Illinois Bell Telephone Company, Filing to increase Unbundled Loop and Nonrecurring Rates, Case No. 02-0864, Direct Testimony of Dr. Debra J. Aron on behalf of SBC Illinois, December 23, 2002, at 48, 52. See also Seventh Circuit Ruling, *op. cit.*, footnote 3.

64. At the time of enactment of Sec. 252(d)(3) and the issuance of the Commission's resale rules six months later, ILEC obviously had not had any opportunity to make permanent adjustments to their operations and organizations so as to accommodate the resale requirement. Hence, in the *short run*, few costs were "avoided," and the use of embedded "avoidable" costs as a surrogate for forward-looking costs that "will be avoided" was not unreasonable. In the intervening years, ILECs have made numerous adjustments to their operations support systems ("OSS") and organization structures so as to facilitate the provision of services for resale. Many ILECs have by now mechanized much of the service ordering and provisioning processes, affording resellers the ability to communicate directly via mechanized systems with ILEC databases and order entry systems, such that ILECs are now able to avoid substantial personnel and other costs. Similarly, the billing and collection function has been modified so as to provide resellers with billing information in electronic form, thereby permitting ILECs to avoid the costs of bill preparation, mailing, and collection processing.

65. Since the Eighth Circuit's ruling in July 2000, the BOCs have established separate wholesale channels for dealing with resale customers, so that services supplied for resale now entirely bypass the BOCs' retailing operations and personnel. For example, SBC-Ameritech generates bills for resold services using its specialized Reseller Billing System ("R.S.") rather than its retail billing mechanism, and its interactions with CLECs concerning billing questions are handled by representatives from SBC-Ameritech's Local Service Centers ("LSCs") rather

than by its retail customer service representatives.[72] Similarly, resellers of Qwest's local services interact with Qwest's wholesale services units, the ten Interconnect Service Centers ("ISCs"), rather than Qwest's retail organization for questions and problems relating to pre-ordering, ordering, and billing of resold services.[73] All other things being equal, the migration of the handling of resold services from the ILECs' retailing organizations to these types of wholesale-only organizations would cause those retailing operations to be scaled back significantly, with commensurate reductions in the ILECs' retailing costs. In other words, many ILEC retailing costs *will be avoided* when services are furnished on a wholesale basis for resale by competing retail service providers.

66. However, this increase in the extent of costs that "will be avoided" is obscured by strategically-motivated *expansions* of the ILECs' retailing activities that have occurred in recent years, initiatives that have engendered offsetting increases in ILEC retailing costs overall. Following the Commission's first Section 271 approval for Bell Atlantic-New York in December 1999, the BOCs have gained Section 271 approvals in nearly all of their operating territory, and have been aggressively marketing interLATA toll services and related bundled offerings through their local service retailing channels. In addition, the BOCs and other ILECs now offer Digital Subscriber Line ("DSL") services on a widespread basis, and these services are also marketed

72. See, e.g., BearingPoint (formerly KPMG Consulting), Ohio OSS Evaluation Project Report -- Test Description and Methodology, May 23, 2003, at Section 13.1 (Business Process).

73. See, e.g., KPMG Consulting, Qwest Communications OSS Evaluation -- Final Report, May 28, 2002, at pages 15 and 134.

and sold via the same retailing organizations that handle ILEC basic local exchange services. In addition, some ILECs may have increased certain retailing expenditures, such as advertising, as a response to competition at the retail level, only a small portion of which can be attributed to Sec. 251(c)(4) "total service resale." Of course, any retailing cost increases caused by the ILECs' expansion of their range of services, or the ILECs' responses to competition, have nothing to do with the provision of wholesale services. Under these circumstances, in order to identify those retailing costs that "will be avoided" by the ILEC when it furnishes basic services on a wholesale basis, it is necessary to accurately identify retailing costs specifically associated with basic services — i.e., those subject to the resale requirement — in an environment in which the ILEC's retailing operations are also engaged in marketing and selling many *other* telecommunications services *to the same end users and often — indeed, usually — in the same customer-initiated inbound contact*. Examination of the aggregate change in embedded ILEC retailing costs over the past several years thus cannot be used to provide an indication of the costs actually avoided through mechanization of the wholesale provisioning, billing and collection processes, because additional and unrelated ILEC retailing costs have by now been introduced.

67. While the Court has required that "avoided costs" be determined on the assumption that ILECs continue themselves to provide services at retail, there would be no rational basis for permitting ILECs to apply these *additional* retailing costs as an offset to costs specifically "avoided" when furnishing basic services at wholesale. If the Commission is to pursue new resale rules at this time, it will need to address all of these ramifications of the Court's ruling and

subsequent events. While that principle is obvious and easy to state, implementing it requires an in-depth understanding of how each particular ILEC allocates and books those costs, and detailed scrutiny of the ILEC's expense data to ensure that those costs do not get treated as an offset to the avoided costs of resale. Other than simply articulating the principle itself, the Commission's potential role in this regard appears distinctly limited. Thus, there appears to be little ground for prescription of new resale rules by the Commission, and I recommend that the Commission should focus its efforts on the other issues discussed in this Affidavit where it can be more effective.

Conclusion

68. As set forth in the foregoing discussion, the Commission should make the following specific findings with respect to the TELRIC pricing questions at issue in this NPRM:

(1) The 1996 Act does not favor facilities-based entry over other entry vehicles, and as such UNEs and other ILEC services and facilities should be priced on the basis of forward-looking economic cost assuming the most efficient technology utilized in the most efficient manner. The NPRM appears to recognize that "forward-looking [TELRIC] costs were intended to send appropriate economic signals," but apparently believes that those principles need to be modified so as to affirmatively encourage more facilities investments by CLECs. UNE prices should not affirmatively encourage more facilities investment by CLEC except in those specific cases where CLECs are able to deploy facilities and provide services at lower cost than the ILECs. The policy goal

should be to encourage CLECs to make efficient economic choices, providing their own facilities when their costs are below those of the ILEC, and utilizing ILEC facilities when the cost of replication or duplication would exceed the ILEC's forward-looking costs.

(2) Price cap regulation as implemented at both the state and federal levels does not eliminate inefficiencies in ILEC operations nor prevent ILECs from engaging in cross-subsidization. Price cap systems are subject to periodic reviews, giving ILECs both the incentive *and the opportunity* to misallocate costs incurred for the production or marketing of competitive services over to basic monopoly services. Such misallocations provide ILECs with the three-fold benefit of (a) reducing the costs charged to their competitive operations, (b) increasing prices for monopoly services, such as UNEs and access, that are furnished to competing providers, and (c) portraying a financially weakened monopoly services segment so as to support claims for further regulatory accommodations in subsequent price cap review proceedings. Price cap regulation thus works to *facilitate*, rather than to prevent, cross-subsidization, predatory pricing, and other anticompetitive conduct by ILECs, and thus demands more, not less, oversight of ILEC business practices.

(3) The Commission has hypothesized the existence of positive correlation between the presence of facilities-based competition and the level of systematic risk (as measured by the beta index) confronting ILECs, and proposes that the cost of capital to be used in

TELRIC studies be adjusted to reflect that increased risk. By definition, those UNEs that ILECs will be required to provide — i.e., those that satisfy the *TRO* "impairment" standard — do not confront facilities-based competition. Additionally, I have performed an econometric regression analysis to test the hypothesized competition/risk relationship, and have found no statistically significant relationship between beta and the presence of facilities-based competition. The regression analysis did, however, identify a strong relationship between the extent of RBOC diversification (as measured by the percentage of total RBOC assets invested in non-ILEC ventures) and risk. To the extent that overall RBOC risk, rather than the substantially lower ILEC-specific risk, is imputed for purposes of establishing a cost of capital for TELRIC studies used to set UNE rates, the result is to create an effective cross-subsidy flowing from the RBOC's ILEC operations to its competitive activities. The correct cost of capital and risk level to apply for purposes of UNE pricing is that associated with a "pure" ILEC, and that has not changed since the onset of facilities-based competition or the diversion of RBOC assets into nonregulated and often highly risky ventures.

(4) The Eighth Circuit has ruled that the appropriate standard for determining avoided retailing costs is not those costs that "can be avoided," but rather "those costs that the [ILEC] will actually avoid incurring in the future," based upon the assumption that the incumbent LEC will continue to be engaged in providing both wholesale and retail services. However, in order to provide efficient competition at the retail level, the wholesale discount should be based upon the *forward-looking costs* associated with the

efficient provision of wholesale services for resale. In the long run, all costs are assumed to be variable and hence "will be avoided" if the ILEC reduces the extent of its retailing activities or exits the retail sector altogether. At the time of enactment of Sec. 252(d)(3) and the issuance of the Commission's resale rules six months later, ILECs had not had the opportunity to make permanent adjustments to their operations and organizations so as to accommodate the resale requirement, such that few costs were avoided *in the short run*. ILECs have by now mechanized much of the wholesale service ordering and provisioning processes, such that ILECs are now able to avoid substantial personnel and other costs when the retail functions are provided by a competitor. "Avoidable" and "avoided" costs are thus converging, and the original embedded cost relationships used by state commissions in setting wholesale rates may now approximate the "avoided cost" standard adopted by the Court. ILECs have themselves expanded the scope of their own retailing activities to include new, nonregulated services. While the Court has required that "avoided costs" be determined on the assumption that ILECs continue themselves to provide services at retail, there would be no rational basis for permitting ILECs to apply these *additional* retailing costs as an offset to costs specifically "avoided" when furnishing basic services at wholesale. Before the Commission considers establishing new resale rules, all of these ramifications of the Court's ruling and subsequent events must be considered.

Verification

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

Lee L. Selwyn

Attachment 1

Statement of Qualifications

Statement of Qualifications

LEE L. SELWYN

Dr. Lee L. Selwyn has been actively involved in the telecommunications field for more than twenty-five years, and is an internationally recognized authority on telecommunications regulation, economics and public policy. Dr. Selwyn founded the firm of Economics and Technology, Inc. in 1972, and has served as its President since that date. He received his Ph.D. degree from the Alfred P. Sloan School of Management at the Massachusetts Institute of Technology. He also holds a Master of Science degree in Industrial Management from MIT and a Bachelor of Arts degree with honors in Economics from Queens College of the City University of New York.

Dr. Selwyn has testified as an expert on rate design, service cost analysis, form of regulation, and other telecommunications policy issues in telecommunications regulatory proceedings before some forty state commissions, the Federal Communications Commission and the Canadian Radio-television and Telecommunications Commission, among others. He has appeared as a witness on behalf of commercial organizations, non-profit institutions, as well as local, state and federal government authorities responsible for telecommunications regulation and consumer advocacy.

He has served or is now serving as a consultant to numerous state utilities commissions including those in Arizona, Minnesota, Kansas, Kentucky, the District of Columbia, Connecticut, California, Delaware, Maine, Massachusetts, New Hampshire, Vermont, New Mexico, Wisconsin and Washington State, the Office of Telecommunications Policy (Executive Office of the President), the National Telecommunications and Information Administration, the Federal Communications Commission, the Canadian Radio-television and Telecommunications Commission, the United Kingdom Office of Telecommunications, and the Secretaria de Comunicaciones y Transportes of the Republic of Mexico. He has also served as an advisor on telecommunications regulatory matters to the International Communications Association and the Ad Hoc Telecommunications Users Committee, as well as to a number of major corporate telecommunications users, information services providers, paging and cellular carriers, and specialized access services carriers.

Dr. Selwyn has presented testimony as an invited witness before the U.S. House of Representatives Subcommittee on Telecommunications, Consumer Protection and Finance and before the U.S. Senate Judiciary Committee, on subjects dealing with restructuring and deregulation of portions of the telecommunications industry.

In 1970, he was awarded a Post-Doctoral Research Grant in Public Utility Economics under a program sponsored by the American Telephone and Telegraph Company, to conduct research on the economic effects of telephone rate structures upon the computer time sharing industry. This work was conducted at Harvard University's Program on Technology and Society, where he was

appointed as a Research Associate. Dr. Selwyn was also a member of the faculty at the College of Business Administration at Boston University from 1968 until 1973, where he taught courses in economics, finance and management information systems.

Dr. Selwyn has published numerous papers and articles in professional and trade journals on the subject of telecommunications service regulation, cost methodology, rate design and pricing policy. These have included:

"Taxes, Corporate Financial Policy and Return to Investors"
National Tax Journal, Vol. XX, No.4, December 1967.

"Pricing Telephone Terminal Equipment Under Competition"
Public Utilities Fortnightly, December 8, 1977.

"Deregulation, Competition, and Regulatory Responsibility in the Telecommunications Industry"
Presented at the 1979 Rate Symposium on Problems of Regulated Industries - Sponsored by: The American University, Foster Associates, Inc., Missouri Public Service Commission, University of Missouri-Columbia, Kansas City, MO, February 11 - 14, 1979.

"Sifting Out the Economic Costs of Terminal Equipment Services"
Telephone Engineer and Management, October 15, 1979.

"Usage-Sensitive Pricing" (with G. F. Borton)
(a three part series)
Telephony, January 7, 28, February 11, 1980.

"Perspectives on Usage-Sensitive Pricing"
Public Utilities Fortnightly, May 7, 1981.

"Diversification, Deregulation, and Increased Uncertainty in the Public Utility Industries"
Comments Presented at the Thirteenth Annual Conference of the Institute of Public Utilities, Williamsburg, VA - December 14 - 16, 1981.

"Local Telephone Pricing: Is There a Better Way?; The Costs of LMS Exceed its Benefits: a Report on Recent U.S. Experience."
Proceedings of a conference held at Montreal, Quebec - Sponsored by Canadian Radio-Television and Telecommunications Commission and The Centre for the Study of Regulated Industries, McGill University, May 2 - 4, 1984.

"Long-Run Regulation of AT&T: A Key Element of A Competitive Telecommunications Policy"
Telematics, August 1984.

"Is Equal Access an Adequate Justification for Removing Restrictions on BOC Diversification?"
Presented at the Institute of Public Utilities Eighteenth Annual Conference, Williamsburg, VA - December 8 - 10, 1986.

"Market Power and Competition Under an Equal Access Environment"
Presented at the Sixteenth Annual Conference, "Impact of Deregulation and Market Forces on Public Utilities: The Future Role of Regulation"
Institute of Public Utilities, Michigan State University, Williamsburg, VA - December 3 - 5, 1987.

"Contestable Markets: Theory vs. Fact"
Presented at the Conference on Current Issues in Telephone Regulations: Dominance and Cost Allocation in Interexchange Markets - Center for Legal and Regulatory Studies Department of Management Science and Information Systems - Graduate School of Business, University of Texas at Austin, October 5, 1987.

"The Sources and Exercise of Market Power in the Market for Interexchange Telecommunications Services"
Presented at the Nineteenth Annual Conference - "Alternatives to Traditional Regulation: Options for Reform" - Institute of Public Utilities, Michigan State University, Williamsburg, VA, December, 1987.

"Assessing Market Power and Competition in The Telecommunications Industry: Toward an Empirical Foundation for Regulatory Reform"
Federal Communications Law Journal, Vol. 40 Num. 2, April 1988.

"A Perspective on Price Caps as a Substitute for Traditional Revenue Requirements Regulation"
Presented at the Twentieth Annual Conference - "New Regulatory Concepts, Issues and Controversies" - Institute of Public Utilities, Michigan State University, Williamsburg, VA, December, 1988.

"The Sustainability of Competition in Light of New Technologies" (with D. N. Townsend and P. D. Kravtin)
Presented at the Twentieth Annual Conference - Institute of Public Utilities Michigan State University, Williamsburg, VA, December, 1988.

"Adapting Telecom Regulation to Industry Change: Promoting Development Without Compromising Ratepayer Protection" (with S. C. Lundquist)
IEEE Communications Magazine, January, 1989.

"The Role of Cost Based Pricing of Telecommunications Services in the Age of Technology and Competition"
Presented at National Regulatory Research Institute Conference, Seattle, July 20, 1990.

"A Public Good/Private Good Framework for Identifying POTS Objectives for the Public Switched Network" (with Patricia D. Kravtin and Paul S. Keller)
Columbus, Ohio: *National Regulatory Research Institute*, September 1991.

"Telecommunications Regulation and Infrastructure Development: Alternative Models for the Public/Private Partnership"
Prepared for the Economic Symposium of the International Telecommunications Union Europe Telecom '92 Conference, Budapest, Hungary, October 15, 1992.

"Efficient Infrastructure Development and the Local Telephone Company's Role in Competitive Industry Environment" *Presented at the Twenty-Fourth Annual Conference, Institute of Public Utilities, Graduate School of Business, Michigan State University, "Shifting Boundaries between Regulation and Competition in Telecommunications and Energy"*, Williamsburg, VA, December 1992.

"Measurement of Telecommunications Productivity: Methods, Applications and Limitations" (with Françoise M. Clottes)
Presented at Organisation for Economic Cooperation and Development, Working Party on Telecommunication and Information Services Policies, `93 Conference "Defining Performance Indicators for Competitive Telecommunications Markets", Paris, France, February 8-9, 1993.

"Telecommunications Investment and Economic Development: Achieving efficiency and balance among competing public policy and stakeholder interests"
Presented at the 105th Annual Convention and Regulatory Symposium, National Association of Regulatory Utility Commissioners, New York, November 18, 1993.

"The Potential for Competition in the Market for Local Telephone Services" (with David N. Townsend and Paul S. Keller)
Presented at the Organization for Economic Cooperation and Development Workshop on Telecommunication Infrastructure Competition, December 6-7, 1993.

"Market Failure in Open Telecommunications Networks: Defining the new natural monopoly," *Utilities Policy*, Vol. 4, No. 1, January 1994.

The Enduring Local Bottleneck: Monopoly Power and the Local Exchange Carriers, (with Susan M. Gately, et al) a report prepared by ETI and Hatfield Associates, Inc. for AT&T, MCI and CompTel, February 1994.

Commercially Feasible Resale of Local Telecommunications Services: An Essential Step in the Transition to Effective Local Competition, (Susan M. Gately, et al) a report prepared by ETI for AT&T, July 1995.

"Efficient Public Investment in Telecommunications Infrastructure"
Land Economics, Vol 71, No.3, August 1995.

Funding Universal Service: Maximizing Penetration and Efficiency in a Competitive Local Service Environment, Lee L. Selwyn with Susan M. Baldwin, under the direction of Donald Shepheard, A Time Warner Communications Policy White Paper, September 1995.

Stranded Investment and the New Regulatory Bargain, Lee L. Selwyn with Susan M. Baldwin, under the direction of Donald Shepheard, A Time Warner Communications Policy White Paper, September 1995

"Market Failure in Open Telecommunications Networks: Defining the new natural monopoly," in *Networks, Infrastructure, and the New Task for Regulation*, by Werner Sichel and Donal L. Alexander, eds., University of Michigan Press, 1996.

Establishing Effective Local Exchange Competition: A Recommended Approach Based Upon an Analysis of the United States Experience, Lee L. Selwyn, paper prepared for the Canadian Cable Television Association and filed as evidence in Telecom Public Notice CRTC 95-96, Local Interconnection and Network Component, January 26, 1996.

The Cost of Universal Service, A Critical Assessment of the Benchmark Cost Model, Susan M. Baldwin with Lee L. Selwyn, a report prepared by Economics and Technology, Inc. on behalf of the National Cable Television Association and submitted with Comments in FCC Docket No. CC-96-45, April 1996.

Economic Considerations in the Evaluation of Alternative Digital Television Proposals, Lee L. Selwyn (as Economic Consultant), paper prepared for the Computer Industry Coalition on Advanced Television Service, filed with comments in FCC MM Docket No. 87-268, In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, July 11, 1996.

Assessing Incumbent LEC Claims to Special Revenue Recovery Mechanisms: Revenue opportunities, market assessments, and further empirical analysis of the "Gap" between embedded and forward-looking costs, Patricia D. Kravtin and Lee L. Selwyn, In the Matter of Access Charge Reform, in CC Docket No. 96-262, January 29, 1997.

The Use of Forward-Looking Economic Cost Proxy Models, Susan M. Baldwin and Lee L. Selwyn, Economics and Technology, Inc., February 1997.
The Effect of Internet Use On The Nation's Telephone Network, Lee L. Selwyn and Joseph W. Laszlo, a report prepared for the Internet Access Coalition, July 22, 1997.

Regulatory Treatment of ILEC Operations Support Systems Costs, Lee L. Selwyn, Economics and Technology, Inc., September 1997.

The "Connecticut Experience" with Telecommunications Competition: A Case in Getting it Wrong, Lee L. Selwyn, Helen E. Golding and Susan M. Gately, Economics and Technology, Inc., February 1998.

Where Have All The Numbers Gone?: Long-term Area Code Relief Policies and the Need for Short-term Reform, prepared by Economics and Technology, Inc. for the Ad Hoc Telecommunications Users Committee, International Communications Association, March 1998, second edition, June 2000.

Broken Promises: A Review of Bell Atlantic-Pennsylvania's Performance Under Chapter 30, Lee L. Selwyn, Sonia N. Jorge and Patricia D. Kravtin, Economics and Technology, Inc., June 1998.

Building A Broadband America: The Competitive Keys to the Future of the Internet, Lee L. Selwyn, Patricia D. Kravtin and Scott A. Coleman, a report prepared for the Competitive Broadband Coalition, May 1999.

Bringing Broadband to Rural America: Investment and Innovation In the Wake of the Telecom Act, Lee L. Selwyn, Scott C. Lundquist and Scott A. Coleman, a report prepared for the Competitive Broadband Coalition, September 1999.

Bringing Local Telephone Competition to Massachusetts, Lee L. Selwyn and Helen E. Golding, prepared for The Massachusetts Coalition for Competitive Phone Service, January 2000.

Subsidizing the Bell Monopolies: How Government Welfare Programs are Undermining Telecommunications Competition, Lee L. Selwyn, April 2002.

Dr. Selwyn has been an invited speaker at numerous seminars and conferences on telecommunications regulation and policy, including meetings and workshops sponsored by the National Telecommunications and Information Administration, the National Association of Regulatory Utility Commissioners, the U.S. General Services Administration, the Institute of Public Utilities at Michigan State University, the National Regulatory Research Institute at Ohio State University, the Harvard University Program on Information Resources Policy, the Columbia University Institute for Tele-Information, the International Communications Association, the Tele-Communications Association, the Western Conference of Public Service Commissioners, at the New England, Mid-America, Southern and Western regional PUC/PSC conferences, as well as at numerous conferences and workshops sponsored by individual regulatory agencies.

Attachment 2

Technical Description of Regression Analysis

Attachment 2
to the
Declaration of Lee L. Selwyn

WC Docket 03-173
December 16, 2003

Technical Description of Regression Analysis

Overview

In the *Virginia Arbitration Order*, the FCC concluded that competition would increase the systematic risk of a local exchange carrier.[1] It concluded that the introduction of facilities-based competition in the local service market would increase the systematic risk (beta values) of the incumbent providers and thus it 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.

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

---

1. *Virginia Arbitration Order,* at Para. 93.

2. *Virginia Arbitration Order*, 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, foreign ventures, broadband and related Internet services, 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 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 1.62.[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 three potential sources of systematic risk confronting the RBOCs – facilities-based 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 date of the corresponding explanatory variable; for the semi-annual analysis, the RBOC betas were averaged over the two quarters following the date of the explanatory variable. By averaging beta values (over two quarters or four, respectively), seasonal or random variation in the beta values are eliminated.

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 state. Since the data for CLEC-owned lines has only been reported since end-of-year 1999, the

3. The most recent beta values for each were 1.45 for AT&T Wireless, 1.45 for NEXTEL, and 1.65 for Sprint PCS. Value Line Investment Survey, October 3, 2002, pp. 722, 734, 739.

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

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 time 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. The data was obtained from the parent company and BOC affiliate 10-K and 10-Q reports filed with the Securities and Exchange Commission ("SEC"). Assets were used as a measure of diversification because they best represent and quantify long-term investment commitments of the RBOCs. 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.[5]

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 surprisingly, there was some correlation between the diversification variable and financial leverage variable, since some of the diversification was financed disproportionately with debt.[6]

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.[7]

---

5. Percent Non-ILEC = (Total RBOC Assets - Σ BOC assets)/Total RBOC Assets

6. 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. Alternate model specifications in which individual explanatory variables were successively excluded were examined so as to determine the sensitivity of the overall results to the presence of this apparent multicolinearity (see Exhibits 2 - 4 to this Attachment). The overall results were not materially changed.

7. 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.

The Regression Models and Results

ETI ran several regressions to best understand the relationships between systematic risk (beta) and the principal explanatory variables – facilities-based 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 Exhibits 1 through 4 to this Attachment. All of the iterations of the regression, which are described below, indicate that the extent of facilities-based competition was not a significant source of the increase in RBOC beta values, and show that RBOC asset diversification has been the principal source of the increase in RBOC betas.[8]

8. 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. Indeed, if one were to attempt to ascribe statistical significance to the facilities-based competition coefficient based upon the 3.78 absolute value of the *t*-statistic, which is greater than 1.83 in this case, the negative value of the coefficient (–12.23) would imply a *negative* correlation between competition and systematic risk – i.e., the more facilities-based competition, the *lower* the systematic risk. That conclusion would of course be inconsistent with the econometric hypothesis being examined here and obviously makes no sense, and would thus have to be dismissed as being entirely spurious.

Table 1
Regression Results
7 period semi-annual data
2H99 - 2H02

Variable	Coefficient	*t*-Statistic
Constant	**0.42**	4.41
FB Competition	-12.23	-3.78
Percent Non-LEC	**1.64**	10.92
Leverage	**0.55**	3.16
2003 Dummy	**0.12**	2.29
Qwest Dummy	**0.15**	2.32
SBC Dummy	**-0.12**	-2.84
Adjusted R^2		0.972
Durbin-Watson		2.59

Notes: (1) With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 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, an alternate model specification was used in which the facilities-based competition variable was excluded. Since this model was not limited to the time periods covered by the FCC Local Competition Reports with respect to facilities-based competition, the analysis was extended back to the 1996, when TA96 was enacted and when the FCC's *Local Competition Order* was issued (see Exhibit 5 to this Attachment). The analysis covered seven years of data and included six out of the original seven ILECs.[9] As with the analyses in which facilities-based competition was included, this alternate analysis similarly

9. 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.

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 Table 2).

Table 2
Alternative Regression Specification
excluding facilities-based competition
annual data
1996-2002

Variable	Coefficient	*t*-Statistic
Constant	0.14	1.20
Percent Non-LEC	**1.26**	7.98
Leverage	0.52	1.75
1997 Dummy	**0.17**	2.89
1998 Dummy	**0.17**	3.09
Qwest Dummy	**0.32**	3.49
Adjusted R^2		0.837
Durbin-Watson		2.03

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

Several other iterations were run to address the presence of some limited multicolinearity between certain explanatory variables. Models were estimated excluding the financial leverage variable (Exhibit 2), excluding financial leverage and diversification (Exhibit 3), and excluding financial leverage and facilities-based competition (Exhibit 4). All dummy variables were included in each of these iterations. Table 3 below summarizes the results, which were essentially the same as in the full three variable model. They confirm once again that facilities-based competition has no significant impact upon systematic risk confronting the RBOCs, and that the principal explanation for the increase in RBOC beta values is their asset diversification into non-ILEC lines of business.

Table 3
Alternate Regression Specifications
with individual explanatory variables excluded
7 period semi-annual data
2H99-2H02

	Excluding Financial Leverage		Excluding Leverage & Diversification		Excluding Leverage & Competition	
Variable	**Coefficient**	***t*-Stat**	**Coefficient**	***t*-Stat**	**Coefficient**	***t*-Stat**
Constant	**0.35**	2.77	0.62	1.93	0.23	1.98
FB Competition	-6.52	-1.76	10.18	1.27	na	na
Percent Non-LEC	**1.66**	8.05	na	na	**1.46**	7.82
Qwest Dummy	**0.30**	4.83	**0.51**	3.46	**0.35**	6.04
Adjusted R^2	0.947		0.641		0.937	
Durbin-Watson	1.79		2.17		1.73	

Notes: (1) With 9 degrees of freedom, the *t*-statistic must be greater than 2.26 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 were thus 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 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.

Exhibit 1

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]
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 Exhibit 1					
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	2H00	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	0.4096	0.1274
SBC	2H00	0.850	0.0208	0.4317	0.1391
SBC	1H01	0.825	0.0276	0.4514	0.1542
SBC	2H01	0.800	0.0296	0.4872	0.1452
SBC	1H02	0.775	0.0326	0.5077	0.1692
SBC	2H02	0.900	0.0342	0.4792	0.2557
SBC	1H03	0.975	0.0351	0.5215	0.2366
Verizon	1H00	0.850	0.0171	0.3184	0.1773
Verizon	2H02	1.025	0.0480	0.5390	0.4349
Verizon	1H03	1.000	0.0478	0.5415	0.3680

```
  13 VARIABLES AND       22 OBSERVATIONS STARTING AT OBS       1

|_STAT beta FB_Comp Non_ILEC 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
FB_COMP      22  0.27795E-01 0.10526E-01 0.11080E-03  0.12203E-01  0.48046E-01
NON_ILEC     22  0.46650     0.12913     0.16675E-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
FB_COMP   0.51265       1.0000
NON_ILEC  0.81595      0.70872       1.0000
LEVERAGE  0.77745      0.65315      0.55894       1.0000
P1       -0.28339     -0.58334     -0.54046     -0.27346       1.0000
P2        0.14322     -0.83364E-01  0.16605     -0.17795     -0.18732
           1.0000
P3        0.60921E-01  0.56324E-01  0.14575     -0.65339E-01 -0.18732
         -0.15789       1.0000
P4        0.37408E-01  0.99496E-01  0.16220      0.15010     -0.18732
         -0.15789     -0.15789       1.0000
P5        0.21872      0.41029      0.16327      0.49991     -0.22222
         -0.18732     -0.18732     -0.18732       1.0000
P6       -0.33133E-01  0.30351      0.29034E-01  0.11622E-01 -0.18732
         -0.15789     -0.15789     -0.15789     -0.18732       1.0000
C1        0.79559      0.15967      0.41141      0.63891      0.25565E-01
          0.10057      0.10057      0.10057      0.25565E-01 -0.21550
           1.0000
C2       -0.31972     -0.21894E-01  0.17581E-01 -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     -0.38725     -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         FB_COMP      NON_ILEC     LEVERAGE     P1
             P2           P3           P4           P5           P6
             C1           C2           C3

 COVARIANCE MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA      0.83106E-01
FB_COMP   0.15556E-02  0.11080E-03
NON_ILEC  0.30375E-01  0.96332E-03  0.16675E-01
LEVERAGE  0.39985E-01  0.12266E-02  0.12877E-01  0.31829E-01
P1       -0.32251E-01 -0.24240E-02 -0.27551E-01 -0.19260E-01  0.15584
P2        0.14502E-01 -0.30822E-03  0.75315E-02 -0.11152E-01 -0.25974E-01
          0.12338
P3        0.61688E-02  0.20825E-03  0.66106E-02 -0.40945E-02 -0.25974E-01
```

```
         -0.19481E-01  0.12338
P4        0.37879E-02  0.36787E-03  0.73570E-02  0.94062E-02 -0.25974E-01
         -0.19481E-01 -0.19481E-01  0.12338
P5        0.24892E-01  0.17049E-02  0.83232E-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  0.13169E-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  0.22787E-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  0.10823E-02 -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 -0.23839E-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         FB_COMP      NON_ILEC     LEVERAGE     P1
             P2           P3           P4           P5           P6
             C1           C2           C3

|_OLS beta FB_Comp Non_ILEC Leverage P1 P2 P3 P4 P5 P6 C1 C2 C3/ auxrsqr rstat dwpvalue,,,,,,,,,

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  =   2.58731
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =    0.528146
              NEGATIVE AUTOCORRELATION TEST P-VALUE =    0.471854
R-SQUARE OF FB_COMP  ON OTHER INDEPENDENT VARIABLES =   0.9054
R-SQUARE OF NON_ILEC ON OTHER INDEPENDENT VARIABLES =   0.7073
R-SQUARE OF LEVERAGE ON OTHER INDEPENDENT VARIABLES =   0.8869
R-SQUARE OF P1       ON OTHER INDEPENDENT VARIABLES =   0.7204
R-SQUARE OF P2       ON OTHER INDEPENDENT VARIABLES =   0.6123
R-SQUARE OF P3       ON OTHER INDEPENDENT VARIABLES =   0.6282
R-SQUARE OF P4       ON OTHER INDEPENDENT VARIABLES =   0.6104
R-SQUARE OF P5       ON OTHER INDEPENDENT VARIABLES =   0.7515
R-SQUARE OF P6       ON OTHER INDEPENDENT VARIABLES =   0.6765
R-SQUARE OF C1       ON OTHER INDEPENDENT VARIABLES =   0.8595
R-SQUARE OF C2       ON OTHER INDEPENDENT VARIABLES =   0.7471
R-SQUARE OF C3       ON OTHER INDEPENDENT VARIABLES =   0.8366
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =   0.0000

 R-SQUARE =   0.9881     R-SQUARE ADJUSTED =   0.9722
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.23101E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.48063E-01
SUM OF SQUARED ERRORS-SSE=  0.20791E-01
MEAN OF DEPENDENT VARIABLE =  0.98182
LOG OF THE LIKELIHOOD FUNCTION =  45.3905

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.36751E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -5.7825
 SCHWARZ (1978) CRITERION - LOG SC =              -5.1378
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.56469E-02
 HANNAN AND QUINN (1979) CRITERION =              0.35864E-02
```

```
 RICE (1984) CRITERION =                          -0.51977E-02
 SHIBATA (1981) CRITERION =                        0.20619E-02
 SCHWARZ (1978) CRITERION - SC =                   0.58708E-02
 AKAIKE (1974) INFORMATION CRITERION - AIC =       0.30811E-02

                     ANALYSIS OF VARIANCE - FROM MEAN
                      SS         DF            MS                F
REGRESSION        1.7244         12.       0.14370            62.207
ERROR            0.20791E-01      9.       0.23101E-02       P-VALUE
TOTAL             1.7452         21.       0.83106E-01         0.000

                     ANALYSIS OF VARIANCE - FROM ZERO
                      SS         DF            MS                F
REGRESSION        22.932         13.        1.7640           763.599
ERROR            0.20791E-01      9.       0.23101E-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
FB_COMP   -12.234      3.239      -3.777     0.004-0.783    -0.4467    -0.3463
NON_ILEC   1.6394     0.1501       10.92     0.000 0.964     0.7344     0.7790
LEVERAGE  0.55191     0.1748       3.158     0.012 0.725     0.3416     0.1583
P1       -0.24910E-01 0.5025E-01 -0.4958     0.632-0.163    -0.0341    -0.0046
P2        0.46634E-01 0.4795E-01  0.9725     0.356 0.308     0.0568     0.0065
P3        0.15835E-01 0.4897E-01  0.3234     0.754 0.107     0.0193     0.0022
P4       -0.47885E-01 0.4784E-01  -1.001     0.343-0.316    -0.0583    -0.0067
P5        0.73698E-01 0.5330E-01   1.383     0.200 0.419     0.1009     0.0136
P6        0.12001     0.5250E-01   2.286     0.048 0.606     0.1462     0.0167
C1        0.15137     0.6523E-01   2.321     0.045 0.612     0.2252     0.0350
C2       -0.12463     0.4375E-01  -2.849     0.019-0.689    -0.2061    -0.0404
C3       -0.11916     0.5442E-01  -2.190     0.056-0.590    -0.1970    -0.0386
CONSTANT  0.41756     0.9478E-01   4.405     0.002 0.827     0.0000     0.4253

DURBIN-WATSON = 2.5873    VON NEUMANN RATIO = 2.7105    RHO = -0.37686
RESIDUAL SUM = -0.69389E-17  RESIDUAL VARIANCE =  0.23101E-02
SUM OF ABSOLUTE ERRORS=  0.55833
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9881
RUNS TEST:   14 RUNS,   11 POS,    0 ZERO,   11 NEG  NORMAL STATISTIC =  0.8739
COEFFICIENT OF SKEWNESS =   0.1662 WITH STANDARD DEVIATION OF 0.4910
COEFFICIENT OF EXCESS KURTOSIS =  -0.7763 WITH STANDARD DEVIATION OF 0.9528

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    0.7842 P-VALUE= 0.676

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 20 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  0.0  0.0  2.0  2.0  4.0  3.0  4.0  2.0  3.0  1.0  1.0  0.0  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  0.7  0.4  0

CHI-SQUARE =    6.8575 WITH  5 DEGREES OF FREEDOM, P-VALUE= 0.231
|_DIAGNOS / HET,,,,,,,,,,,

REQUIRED MEMORY IS PAR=     104 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            22 OBSERVATIONS
REGRESSION COEFFICIENTS
  -12.2342085826       1.63942457349      0.551905444531     -0.249103393314E-01
  0.466344835212E-01  0.158353579922E-01 -0.478848796068E-01  0.736980790777E-01
  0.120013829271      0.151374989948     -0.124633828848     -0.119156800220
  0.417555350736
```

```
HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                          TEST STATISTIC
E**2 ON YHAT:                      0.090     1    0.76362
E**2 ON YHAT**2:                   0.068     1    0.79421
E**2 ON LOG(YHAT**2):              0.122     1    0.72706
E**2 ON LAG(E**2) ARCH TEST:       1.865     1    0.17202
LOG(E**2) ON X (HARVEY) TEST:     12.531    12    0.40406
ABS(E) ON X (GLEJSER) TEST:       12.200    12    0.42977
E**2 ON X                 TEST:
          KOENKER(R2):            13.159    12    0.35760
          B-P-G (SSR) :            7.424    12    0.82838
```

Exhibit 2

Dependent Variable:	ILEC Beta Values
Explanatory Variables:	Facilities-Based Competition (FB_Comp) Diversification (Non_ILEC)
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]
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 Exhibit 2				
Company	**Year**	**Beta**	**FB_Comp**	**Non_ILEC**
BellSouth	1H00	0.825	0.0186	0.4719
BellSouth	2H00	0.825	0.0207	0.4260
BellSouth	1H01	0.825	0.0238	0.4170
BellSouth	2H01	0.800	0.0260	0.3868
BellSouth	1H02	0.775	0.0192	0.3861
BellSouth	2H02	0.850	0.0199	0.3670
BellSouth	1H03	0.900	0.0240	0.3641
Qwest	2H00	0.750	0.0122	0.1415
Qwest	1H01	1.600	0.0255	0.6892
Qwest	2H01	1.475	0.0322	0.6644
Qwest	1H02	1.475	0.0393	0.6603
Qwest	2H02	1.675	0.0449	0.6557
SBC	1H00	0.825	0.0124	0.4096
SBC	2H00	0.850	0.0208	0.4317
SBC	1H01	0.825	0.0276	0.4514
SBC	2H01	0.800	0.0296	0.4872
SBC	1H02	0.775	0.0326	0.5077
SBC	2H02	0.900	0.0342	0.4792
SBC	1H03	0.975	0.0351	0.5215
Verizon	1H00	0.850	0.0171	0.3184
Verizon	2H02	1.025	0.0480	0.5390
Verizon	1H03	1.000	0.0478	0.5415

```
 12 VARIABLES AND       22 OBSERVATIONS STARTING AT OBS       1

|_STAT beta FB_Comp Non_ILEC 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
FB_COMP      22  0.27795E-01 0.10526E-01 0.11080E-03  0.12203E-01  0.48046E-01
NON_ILEC     22  0.46650     0.12913     0.16675E-01  0.14150      0.68923
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
FB_COMP   0.51265       1.0000
NON_ILEC  0.81595      0.70872       1.0000
P1       -0.28339     -0.58334     -0.54046       1.0000
P2        0.14322     -0.83364E-01  0.16605     -0.18732       1.0000
P3        0.60921E-01  0.56324E-01  0.14575     -0.18732     -0.15789
           1.0000
P4        0.37408E-01  0.99496E-01  0.16220     -0.18732     -0.15789
         -0.15789       1.0000
P5        0.21872      0.41029      0.16327     -0.22222     -0.18732
         -0.18732     -0.18732       1.0000
P6       -0.33133E-01  0.30351      0.29034E-01 -0.18732     -0.15789
         -0.15789     -0.15789     -0.18732       1.0000
C1        0.79559      0.15967      0.41141      0.25565E-01  0.10057
          0.10057      0.10057      0.25565E-01 -0.21550       1.0000
C2       -0.31972     -0.21894E-01  0.17581E-01 -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     -0.38725     -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         FB_COMP      NON_ILEC     P1           P2
             P3           P4           P5           P6           C1
             C2           C3

 COVARIANCE MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA      0.83106E-01
FB_COMP   0.15556E-02  0.11080E-03
NON_ILEC  0.30375E-01  0.96332E-03  0.16675E-01
P1       -0.32251E-01 -0.24240E-02 -0.27551E-01  0.15584
P2        0.14502E-01 -0.30822E-03  0.75315E-02 -0.25974E-01  0.12338
P3        0.61688E-02  0.20825E-03  0.66106E-02 -0.25974E-01 -0.19481E-01
          0.12338
P4        0.37879E-02  0.36787E-03  0.73570E-02 -0.25974E-01 -0.19481E-01
         -0.19481E-01  0.12338
P5        0.24892E-01  0.17049E-02  0.83232E-02 -0.34632E-01 -0.25974E-01
         -0.25974E-01 -0.25974E-01  0.15584
P6       -0.33550E-02  0.11222E-02  0.13169E-02 -0.25974E-01 -0.19481E-01
```

```
         -0.19481E-01 -0.19481E-01 -0.25974E-01  0.12338
C1        0.98377E-01  0.72093E-03  0.22787E-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  0.10823E-02 -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 -0.23839E-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         FB_COMP      NON_ILEC     P1           P2
             P3           P4           P5           P6           C1
             C2           C3

|_OLS beta FB_Comp Non_ILEC P1 P2 P3 P4 P5 P6 C1 C2 C3/ auxrsqr rstat dwpvalue,,,,,,,,,,,

REQUIRED MEMORY IS PAR=      10 CURRENT PAR=     781
 OLS ESTIMATION
       22 OBSERVATIONS     DEPENDENT VARIABLE= BETA
...NOTE..SAMPLE RANGE SET TO:      1,     22

DURBIN-WATSON STATISTIC  =   1.78717
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =    0.102675
              NEGATIVE AUTOCORRELATION TEST P-VALUE =    0.897325
R-SQUARE OF FB_COMP  ON OTHER INDEPENDENT VARIABLES =   0.8624
R-SQUARE OF NON_ILEC ON OTHER INDEPENDENT VARIABLES =   0.7066
R-SQUARE OF P1       ON OTHER INDEPENDENT VARIABLES =   0.7163
R-SQUARE OF P2       ON OTHER INDEPENDENT VARIABLES =   0.5638
R-SQUARE OF P3       ON OTHER INDEPENDENT VARIABLES =   0.5958
R-SQUARE OF P4       ON OTHER INDEPENDENT VARIABLES =   0.6104
R-SQUARE OF P5       ON OTHER INDEPENDENT VARIABLES =   0.7291
R-SQUARE OF P6       ON OTHER INDEPENDENT VARIABLES =   0.6750
R-SQUARE OF C1       ON OTHER INDEPENDENT VARIABLES =   0.7062
R-SQUARE OF C2       ON OTHER INDEPENDENT VARIABLES =   0.7470
R-SQUARE OF C3       ON OTHER INDEPENDENT VARIABLES =   0.8151
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =   0.0000

 R-SQUARE =   0.9749     R-SQUARE ADJUSTED =   0.9473
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.43824E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.66200E-01
SUM OF SQUARED ERRORS-SSE=  0.43824E-01
MEAN OF DEPENDENT VARIABLE =  0.98182
LOG OF THE LIKELIHOOD FUNCTION =  37.1880

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.67729E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -5.1277
 SCHWARZ (1978) CRITERION - LOG SC =              -4.5326
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.96414E-02
 HANNAN AND QUINN (1979) CRITERION =              0.68227E-02
 RICE (1984) CRITERION =                         -0.21912E-01
 SHIBATA (1981) CRITERION =                       0.41651E-02
 SCHWARZ (1978) CRITERION - SC =                  0.10753E-01
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.59302E-02

                     ANALYSIS OF VARIANCE - FROM MEAN
                      SS         DF             MS                F
REGRESSION        1.7014         11.       0.15467              35.294
```

```
ERROR            0.43824E-01     10.       0.43824E-02           P-VALUE
TOTAL             1.7452         21.       0.83106E-01             0.000

                     ANALYSIS OF VARIANCE - FROM ZERO
                      SS         DF             MS                 F
REGRESSION        22.909         12.        1.9091               435.615
ERROR            0.43824E-01     10.       0.43824E-02           P-VALUE
TOTAL             22.952         22.        1.0433                 0.000


VARIABLE   ESTIMATED  STANDARD   T-RATIO        PARTIAL STANDARDIZED ELASTICITY
  NAME    COEFFICIENT   ERROR      10 DF   P-VALUE CORR. COEFFICIENT  AT MEANS
FB_COMP   -6.5151      3.699      -1.761     0.109-0.487    -0.2379    -0.1844
NON_ILEC   1.6633     0.2065       8.054     0.000 0.931     0.7451     0.7903
P1       -0.58271E-02 0.6870E-01 -0.8482E-01 0.934-0.027    -0.0080    -0.0011
P2       -0.38677E-02 0.6227E-01 -0.6211E-01 0.952-0.020    -0.0047    -0.0005
P3       -0.27925E-01 0.6469E-01 -0.4317     0.675-0.135    -0.0340    -0.0039
P4       -0.46002E-01 0.6589E-01 -0.6982     0.501-0.216    -0.0561    -0.0064
P5        0.12212     0.7031E-01   1.737     0.113 0.481     0.1672     0.0226
P6        0.10878     0.7214E-01   1.508     0.163 0.430     0.1325     0.0151
C1        0.30016     0.6214E-01   4.831     0.001 0.837     0.4466     0.0695
C2       -0.12626     0.6025E-01  -2.096     0.063-0.552    -0.2088    -0.0409
C3       -0.60565E-01 0.7046E-01 -0.8595     0.410-0.262    -0.1002    -0.0196
CONSTANT  0.35281     0.1275       2.768     0.020 0.659     0.0000     0.3593

DURBIN-WATSON = 1.7872    VON NEUMANN RATIO = 1.8723    RHO =  0.06636
RESIDUAL SUM = -0.69389E-17  RESIDUAL VARIANCE =  0.43824E-02
SUM OF ABSOLUTE ERRORS=  0.82414
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9749
RUNS TEST:    9 RUNS,   10 POS,    0 ZERO,   12 NEG  NORMAL STATISTIC = -1.2822
COEFFICIENT OF SKEWNESS =   0.7804 WITH STANDARD DEVIATION OF 0.4910
COEFFICIENT OF EXCESS KURTOSIS =  -0.3594 WITH STANDARD DEVIATION OF 0.9528

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    2.2042 P-VALUE= 0.332

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 15 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  0.0  5.0  6.0  4.0  2.0  3.0  1.0  1.0  0.0  0.0  0.0
EXPECTED  0.1  0.2  0.5  1.0  1.7  2.5  3.2  3.5  3.2  2.5  1.7  1.0  0.5  0.2  0.1
CHI-SQUARE =    9.9697 WITH  1 DEGREES OF FREEDOM, P-VALUE= 0.002
|_DIAGNOS / HET,,,,,,,,,,,

REQUIRED MEMORY IS PAR=      82 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            22 OBSERVATIONS
REGRESSION COEFFICIENTS
  -6.51507383845       1.66334112686     -0.582714508154E-02 -0.386765354456E-02
 -0.279248010724E-01 -0.460024115022E-01  0.122124847326      0.108778735034
  0.300160280202     -0.126263686999     -0.605652820137E-01  0.352809111250


HETEROSKEDASTICITY TESTS
                            CHI-SQUARE     D.F.   P-VALUE
                          TEST STATISTIC
E**2 ON YHAT:                   1.395      1    0.23751
E**2 ON YHAT**2:                1.650      1    0.19894
E**2 ON LOG(YHAT**2):           1.104      1    0.29334
E**2 ON LAG(E**2) ARCH TEST:    2.322      1    0.12756
LOG(E**2) ON X (HARVEY) TEST:   9.541     11    0.57209
ABS(E) ON X (GLEJSER) TEST:     8.211     11    0.69429
E**2 ON X                 TEST:
          KOENKER(R2):          8.347     11    0.68193
```

```
B-P-G (SSR) :            6.078    11    0.86810
```

Exhibit 3

Dependent Variable: ILEC Beta Values

Explanatory Variables: Facilities-Based Competition (FB_Comp)

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]

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 Exhibit 3			
Company	**Year**	**Beta**	**FB_Comp**
BellSouth	1H00	0.825	0.0186
BellSouth	2H00	0.825	0.0207
BellSouth	1H01	0.825	0.0238
BellSouth	2H01	0.800	0.0260
BellSouth	1H02	0.775	0.0192
BellSouth	2H02	0.850	0.0199
BellSouth	1H03	0.900	0.0240
Qwest	2H00	0.750	0.0122
Qwest	1H01	1.600	0.0255
Qwest	2H01	1.475	0.0322
Qwest	1H02	1.475	0.0393
Qwest	2H02	1.675	0.0449
SBC	1H00	0.825	0.0124
SBC	2H00	0.850	0.0208
SBC	1H01	0.825	0.0276
SBC	2H01	0.800	0.0296
SBC	1H02	0.775	0.0326
SBC	2H02	0.900	0.0342
SBC	1H03	0.975	0.0351
Verizon	1H00	0.850	0.0171
Verizon	2H02	1.025	0.0480
Verizon	1H03	1.000	0.0478

```
 11 VARIABLES AND       22 OBSERVATIONS STARTING AT OBS       1

|_STAT beta FB_Comp 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
FB_COMP      22  0.27795E-01 0.10526E-01 0.11080E-03  0.12203E-01  0.48046E-01
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
FB_COMP   0.51265       1.0000
P1       -0.28339     -0.58334       1.0000
P2        0.14322     -0.83364E-01 -0.18732       1.0000
P3        0.60921E-01  0.56324E-01 -0.18732     -0.15789       1.0000
P4        0.37408E-01  0.99496E-01 -0.18732     -0.15789     -0.15789
           1.0000
P5        0.21872      0.41029     -0.22222     -0.18732     -0.18732
         -0.18732       1.0000
P6       -0.33133E-01  0.30351     -0.18732     -0.15789     -0.15789
         -0.15789     -0.18732       1.0000
C1        0.79559      0.15967      0.25565E-01  0.10057      0.10057
          0.10057      0.25565E-01 -0.21550       1.0000
C2       -0.31972     -0.21894E-01 -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     -0.69007E-01  0.12926E-01  0.12926E-01
          0.12926E-01 -0.69007E-01  0.12926E-01 -0.37048     -0.46667
           1.0000
             BETA         FB_COMP      P1           P2           P3
             P4           P5           P6           C1           C2
             C3

 COVARIANCE MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA      0.83106E-01
FB_COMP   0.15556E-02  0.11080E-03
P1       -0.32251E-01 -0.24240E-02  0.15584
P2        0.14502E-01 -0.30822E-03 -0.25974E-01  0.12338
P3        0.61688E-02  0.20825E-03 -0.25974E-01 -0.19481E-01  0.12338
P4        0.37879E-02  0.36787E-03 -0.25974E-01 -0.19481E-01 -0.19481E-01
          0.12338
P5        0.24892E-01  0.17049E-02 -0.34632E-01 -0.25974E-01 -0.25974E-01
         -0.25974E-01  0.15584
P6       -0.33550E-02  0.11222E-02 -0.25974E-01 -0.19481E-01 -0.19481E-01
         -0.19481E-01 -0.25974E-01  0.12338
C1        0.98377E-01  0.72093E-03  0.43290E-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 -0.12987E-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 -0.12987E-01  0.21645E-02  0.21645E-02
```

```
          0.21645E-02 -0.12987E-01  0.21645E-02 -0.75758E-01 -0.10606
          0.22727
             BETA         FB_COMP      P1           P2           P3
             P4           P5           P6           C1           C2
             C3

|_OLS beta FB_Comp P1 P2 P3 P4 P5 P6 C1 C2 C3/ auxrsqr rstat dwpvalue,,,,,,,,,,

REQUIRED MEMORY IS PAR=      10 CURRENT PAR=     781
 OLS ESTIMATION
       22 OBSERVATIONS     DEPENDENT VARIABLE= BETA
...NOTE..SAMPLE RANGE SET TO:      1,     22

DURBIN-WATSON STATISTIC  =   2.17073
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =    0.320398
              NEGATIVE AUTOCORRELATION TEST P-VALUE =    0.679602
R-SQUARE OF FB_COMP  ON OTHER INDEPENDENT VARIABLES =   0.7993
R-SQUARE OF P1       ON OTHER INDEPENDENT VARIABLES =   0.7095
R-SQUARE OF P2       ON OTHER INDEPENDENT VARIABLES =   0.5619
R-SQUARE OF P3       ON OTHER INDEPENDENT VARIABLES =   0.5936
R-SQUARE OF P4       ON OTHER INDEPENDENT VARIABLES =   0.6071
R-SQUARE OF P5       ON OTHER INDEPENDENT VARIABLES =   0.7132
R-SQUARE OF P6       ON OTHER INDEPENDENT VARIABLES =   0.6558
R-SQUARE OF C1       ON OTHER INDEPENDENT VARIABLES =   0.6442
R-SQUARE OF C2       ON OTHER INDEPENDENT VARIABLES =   0.7319
R-SQUARE OF C3       ON OTHER INDEPENDENT VARIABLES =   0.8107
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =   0.0000

 R-SQUARE =   0.8120     R-SQUARE ADJUSTED =   0.6411
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.29828E-01
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.17271
SUM OF SQUARED ERRORS-SSE=  0.32811
MEAN OF DEPENDENT VARIABLE =  0.98182
LOG OF THE LIKELIHOOD FUNCTION =  15.0432

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.44743E-01
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -3.2054
 SCHWARZ (1978) CRITERION - LOG SC =              -2.6599
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.59657E-01
 HANNAN AND QUINN (1979) CRITERION =              0.46101E-01
 RICE (1984) CRITERION =                           0.0000
 SHIBATA (1981) CRITERION =                       0.29828E-01
 SCHWARZ (1978) CRITERION - SC =                  0.69954E-01
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.40541E-01

                     ANALYSIS OF VARIANCE - FROM MEAN
                      SS         DF             MS                F
REGRESSION        1.4171         10.       0.14171                4.751
ERROR            0.32811         11.       0.29828E-01          P-VALUE
TOTAL             1.7452         21.       0.83106E-01            0.008

                     ANALYSIS OF VARIANCE - FROM ZERO
                      SS         DF             MS                F
REGRESSION        22.624         11.        2.0568               68.953
ERROR            0.32811         11.       0.29828E-01          P-VALUE
TOTAL             22.952         22.        1.0433                0.000
```

```
VARIABLE   ESTIMATED  STANDARD   T-RATIO        PARTIAL STANDARDIZED ELASTICITY
  NAME    COEFFICIENT   ERROR      11 DF   P-VALUE CORR. COEFFICIENT  AT MEANS
FB_COMP    10.183      7.993       1.274     0.229 0.359     0.3718     0.2883
P1       -0.90736E-01 0.1771     -0.5123     0.619-0.153    -0.1243    -0.0168
P2        0.28811E-01 0.1621      0.1777     0.862 0.054     0.0351     0.0040
P3       -0.66337E-01 0.1683     -0.3941     0.701-0.118    -0.0808    -0.0092
P4       -0.94381E-01 0.1712     -0.5514     0.592-0.164    -0.1150    -0.0131
P5       -0.11471E-01 0.1783     -0.6435E-01 0.950-0.019    -0.0157    -0.0021
P6       -0.28425E-01 0.1829     -0.1554     0.879-0.047    -0.0346    -0.0039
C1        0.50917     0.1473       3.457     0.005 0.722     0.7576     0.1179
C2       -0.10956E-01 0.1527     -0.7176E-01 0.944-0.022    -0.0181    -0.0036
C3        0.25809E-01 0.1817      0.1420     0.890 0.043     0.0427     0.0084
CONSTANT  0.61879     0.3212       1.927     0.080 0.502     0.0000     0.6302

DURBIN-WATSON = 2.1707    VON NEUMANN RATIO = 2.2741    RHO = -0.10637
RESIDUAL SUM = -0.13878E-16  RESIDUAL VARIANCE =  0.29828E-01
SUM OF ABSOLUTE ERRORS=   1.9472
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.8120
RUNS TEST:    8 RUNS,   12 POS,    0 ZERO,   10 NEG  NORMAL STATISTIC = -1.7230
COEFFICIENT OF SKEWNESS =  -1.4693 WITH STANDARD DEVIATION OF 0.4910
COEFFICIENT OF EXCESS KURTOSIS =   4.7843 WITH STANDARD DEVIATION OF 0.9528

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=   18.1026 P-VALUE= 0.000

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 15 GROUPS
OBSERVED  0.0  1.0  0.0  0.0  0.0  0.0  8.0  4.0  6.0  1.0  2.0  0.0  0.0  0.0  0.0
EXPECTED  0.1  0.2  0.5  1.0  1.7  2.5  3.2  3.5  3.2  2.5  1.7  1.0  0.5  0.2  0.1
CHI-SQUARE =   21.3017 WITH  2 DEGREES OF FREEDOM, P-VALUE= 0.000
|_DIAGNOS / HET,,,,,,,,,,

REQUIRED MEMORY IS PAR=      64 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            22 OBSERVATIONS
REGRESSION COEFFICIENTS
   10.1829059822     -0.907361023854E-01  0.288105275454E-01 -0.663367535096E-01
 -0.943811679806E-01 -0.114708484413E-01 -0.284249835234E-01  0.509172128080
 -0.109560468415E-01  0.258086208337E-01  0.618789182296

HETEROSKEDASTICITY TESTS
                           CHI-SQUARE     D.F.   P-VALUE
                         TEST STATISTIC
E**2 ON YHAT:                     0.667     1    0.41409
E**2 ON YHAT**2:                  0.555     1    0.45618
E**2 ON LOG(YHAT**2):             0.713     1    0.39846
E**2 ON LAG(E**2) ARCH TEST:      0.107     1    0.74363
LOG(E**2) ON X (HARVEY) TEST:     8.344    10    0.59523
ABS(E) ON X (GLEJSER) TEST:      22.227    10    0.01399
E**2 ON X                TEST:
          KOENKER(R2):           13.600    10    0.19201
          B-P-G (SSR) :          37.423    10    0.00005
```

Exhibit 4

Dependent Variable: ILEC Beta Values

Explanatory Variables: Diversification (Non_ILEC)

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]

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 Exhibit 4			
Company	**Year**	**Beta**	**Non_ILEC**
BellSouth	1H00	0.825	0.4719
BellSouth	2H00	0.825	0.4260
BellSouth	1H01	0.825	0.4170
BellSouth	2H01	0.800	0.3868
BellSouth	1H02	0.775	0.3861
BellSouth	2H02	0.850	0.3670
BellSouth	1H03	0.900	0.3641
Qwest	2H00	0.750	0.1415
Qwest	1H01	1.600	0.6892
Qwest	2H01	1.475	0.6644
Qwest	1H02	1.475	0.6603
Qwest	2H02	1.675	0.6557
SBC	1H00	0.825	0.4096
SBC	2H00	0.850	0.4317
SBC	1H01	0.825	0.4514
SBC	2H01	0.800	0.4872
SBC	1H02	0.775	0.5077
SBC	2H02	0.900	0.4792
SBC	1H03	0.975	0.5215
Verizon	1H00	0.850	0.3184
Verizon	2H02	1.025	0.5390
Verizon	1H03	1.000	0.5415

```
  11 VARIABLES AND       22 OBSERVATIONS STARTING AT OBS       1

|_STAT beta Non_ILEC 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
NON_ILEC     22  0.46650     0.12913     0.16675E-01  0.14150      0.68923
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
NON_ILEC  0.81595       1.0000
P1       -0.28339     -0.54046       1.0000
P2        0.14322      0.16605     -0.18732       1.0000
P3        0.60921E-01  0.14575     -0.18732     -0.15789       1.0000
P4        0.37408E-01  0.16220     -0.18732     -0.15789     -0.15789
           1.0000
P5        0.21872      0.16327     -0.22222     -0.18732     -0.18732
         -0.18732       1.0000
P6       -0.33133E-01  0.29034E-01 -0.18732     -0.15789     -0.15789
         -0.15789     -0.18732       1.0000
C1        0.79559      0.41141      0.25565E-01  0.10057      0.10057
          0.10057      0.25565E-01 -0.21550       1.0000
C2       -0.31972      0.17581E-01 -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     -0.38725     -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         NON_ILEC     P1           P2           P3
             P4           P5           P6           C1           C2
             C3

 COVARIANCE MATRIX OF VARIABLES -       22 OBSERVATIONS


BETA      0.83106E-01
NON_ILEC  0.30375E-01  0.16675E-01
P1       -0.32251E-01 -0.27551E-01  0.15584
P2        0.14502E-01  0.75315E-02 -0.25974E-01  0.12338
P3        0.61688E-02  0.66106E-02 -0.25974E-01 -0.19481E-01  0.12338
P4        0.37879E-02  0.73570E-02 -0.25974E-01 -0.19481E-01 -0.19481E-01
          0.12338
P5        0.24892E-01  0.83232E-02 -0.34632E-01 -0.25974E-01 -0.25974E-01
         -0.25974E-01  0.15584
P6       -0.33550E-02  0.13169E-02 -0.25974E-01 -0.19481E-01 -0.19481E-01
         -0.19481E-01 -0.25974E-01  0.12338
C1        0.98377E-01  0.22787E-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  0.10823E-02 -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 -0.23839E-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         NON_ILEC     P1           P2           P3
             P4           P5           P6           C1           C2
             C3

|_OLS beta Non_ILEC P1 P2 P3 P4 P5 P6 C1 C2 C3/ auxrsqr rstat dwpvalue,,,,,,,,,

REQUIRED MEMORY IS PAR=      10 CURRENT PAR=     781
 OLS ESTIMATION
       22 OBSERVATIONS     DEPENDENT VARIABLE= BETA
...NOTE..SAMPLE RANGE SET TO:      1,     22

DURBIN-WATSON STATISTIC  =   1.73080
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =    0.096877
              NEGATIVE AUTOCORRELATION TEST P-VALUE =    0.903123
R-SQUARE OF NON_ILEC ON OTHER INDEPENDENT VARIABLES =   0.5722
R-SQUARE OF P1       ON OTHER INDEPENDENT VARIABLES =   0.6864
R-SQUARE OF P2       ON OTHER INDEPENDENT VARIABLES =   0.5616
R-SQUARE OF P3       ON OTHER INDEPENDENT VARIABLES =   0.5597
R-SQUARE OF P4       ON OTHER INDEPENDENT VARIABLES =   0.5612
R-SQUARE OF P5       ON OTHER INDEPENDENT VARIABLES =   0.6241
R-SQUARE OF P6       ON OTHER INDEPENDENT VARIABLES =   0.5662
R-SQUARE OF C1       ON OTHER INDEPENDENT VARIABLES =   0.6082
R-SQUARE OF C2       ON OTHER INDEPENDENT VARIABLES =   0.6239
R-SQUARE OF C3       ON OTHER INDEPENDENT VARIABLES =   0.6672
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =   0.0000

 R-SQUARE =   0.9671     R-SQUARE ADJUSTED =   0.9372
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.52198E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.72248E-01
SUM OF SQUARED ERRORS-SSE=  0.57418E-01
MEAN OF DEPENDENT VARIABLE =  0.98182
LOG OF THE LIKELIHOOD FUNCTION =  34.2163

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.78297E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -4.9484
 SCHWARZ (1978) CRITERION - LOG SC =              -4.4029
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.10440E-01
 HANNAN AND QUINN (1979) CRITERION =              0.80673E-02
 RICE (1984) CRITERION =                           0.0000
 SHIBATA (1981) CRITERION =                       0.52198E-02
 SCHWARZ (1978) CRITERION - SC =                  0.12241E-01
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.70944E-02

                     ANALYSIS OF VARIANCE - FROM MEAN
                      SS         DF             MS                F
REGRESSION        1.6878         10.       0.16878              32.335
ERROR            0.57418E-01     11.       0.52198E-02         P-VALUE
TOTAL             1.7452         21.       0.83106E-01           0.000

                     ANALYSIS OF VARIANCE - FROM ZERO
                      SS         DF             MS                F
REGRESSION        22.895         11.        2.0814             398.746
ERROR            0.57418E-01     11.       0.52198E-02         P-VALUE
TOTAL             22.952         22.        1.0433               0.000
```

```
VARIABLE   ESTIMATED  STANDARD   T-RATIO        PARTIAL STANDARDIZED ELASTICITY
  NAME    COEFFICIENT   ERROR      11 DF   P-VALUE CORR. COEFFICIENT  AT MEANS
NON_ILEC   1.4595     0.1867       7.819     0.000 0.921     0.6538     0.6935
P1        0.31552E-01 0.7131E-01  0.4424     0.667 0.132     0.0432     0.0058
P2       -0.11628E-01 0.6779E-01 -0.1715     0.867-0.052    -0.0142    -0.0016
P3       -0.60553E-01 0.6765E-01 -0.8951     0.390-0.261    -0.0738    -0.0084
P4       -0.84845E-01 0.6776E-01  -1.252     0.236-0.353    -0.1034    -0.0118
P5        0.56668E-01 0.6514E-01  0.8700     0.403 0.254     0.0776     0.0105
P6        0.45164E-01 0.6815E-01  0.6627     0.521 0.196     0.0550     0.0063
C1        0.35490     0.5872E-01   6.044     0.000 0.877     0.5281     0.0822
C2       -0.65540E-01 0.5392E-01  -1.215     0.250-0.344    -0.1084    -0.0212
C3        0.22151E-01 0.5733E-01  0.3864     0.707 0.116     0.0366     0.0072
CONSTANT  0.23332     0.1178       1.981     0.073 0.513     0.0000     0.2376

DURBIN-WATSON = 1.7308    VON NEUMANN RATIO = 1.8132    RHO =  0.05268
RESIDUAL SUM = -0.13878E-16  RESIDUAL VARIANCE =  0.52198E-02
SUM OF ABSOLUTE ERRORS=  0.92314
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9671
RUNS TEST:    9 RUNS,   12 POS,    0 ZERO,   10 NEG  NORMAL STATISTIC = -1.2822
COEFFICIENT OF SKEWNESS =   0.4278 WITH STANDARD DEVIATION OF 0.4910
COEFFICIENT OF EXCESS KURTOSIS =  -0.2720 WITH STANDARD DEVIATION OF 0.9528

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    0.7877 P-VALUE= 0.674

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 15 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  1.0  5.0  4.0  4.0  4.0  2.0  1.0  1.0  0.0  0.0  0.0
EXPECTED  0.1  0.2  0.5  1.0  1.7  2.5  3.2  3.5  3.2  2.5  1.7  1.0  0.5  0.2  0.1
CHI-SQUARE =    6.1033 WITH  2 DEGREES OF FREEDOM, P-VALUE= 0.047
|_DIAGNOS / HET,,,,,,,,,,

REQUIRED MEMORY IS PAR=      64 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            22 OBSERVATIONS
REGRESSION COEFFICIENTS
   1.45950170565      0.315516322724E-01 -0.116277590309E-01 -0.605526685720E-01
 -0.848448156927E-01  0.566677412077E-01  0.451636664407E-01  0.354900370218
 -0.655400033319E-01  0.221507197735E-01  0.233320306914

HETEROSKEDASTICITY TESTS
                           CHI-SQUARE     D.F.   P-VALUE
                         TEST STATISTIC
E**2 ON YHAT:                     0.710     1    0.39956
E**2 ON YHAT**2:                  0.559     1    0.45461
E**2 ON LOG(YHAT**2):             0.905     1    0.34133
E**2 ON LAG(E**2) ARCH TEST:      0.201     1    0.65426
LOG(E**2) ON X (HARVEY) TEST:     9.429    10    0.49190
ABS(E) ON X (GLEJSER) TEST:      12.470    10    0.25482
E**2 ON X                TEST:
          KOENKER(R2):           14.782    10    0.14021
          B-P-G (SSR) :          11.273    10    0.33667
```

Exhibit 5

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]

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 Exhibit 5				
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	0.2757	0.1503
SBC	1999	0.813	0.3084	0.1249
SBC	2000	0.838	0.4096	0.1274
SBC	2001	0.813	0.4514	0.1542
SBC	2002	0.825	0.5077	0.1692

SBC	2003	0.975	0.5215	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	0.5416	0.3387
Verizon	2003	1.000	0.5415	0.3680

```
  14 VARIABLES AND       30 OBSERVATIONS STARTING AT OBS       1

|_STAT beta Non_ILEC Leverage Y1 Y2 Y3 Y4 Y5 Y6 C1 C2 C3 C4 C5/ pcor pcov,,,,,,,,,,,,
NAME         N    MEAN        ST. DEV      VARIANCE     MINIMUM      MAXIMUM
BETA          30  0.90985     0.18953     0.35922E-01  0.71250       1.5625
NON_ILEC      30  0.35916     0.16110     0.25952E-01  0.37301E-01  0.68923
LEVERAGE      30  0.22113     0.10450     0.10921E-01  0.11411      0.64899
Y1            30  0.20000     0.40684     0.16552       0.0000       1.0000
Y2            30  0.16667     0.37905     0.14368       0.0000       1.0000
Y3            30  0.16667     0.37905     0.14368       0.0000       1.0000
Y4            30  0.10000     0.30513     0.93103E-01   0.0000       1.0000
Y5            30  0.10000     0.30513     0.93103E-01   0.0000       1.0000
Y6            30  0.13333     0.34575     0.11954       0.0000       1.0000
C1            30  0.10000     0.30513     0.93103E-01   0.0000       1.0000
C2            30  0.43333     0.50401     0.25402       0.0000       1.0000
C3            30  0.20000     0.40684     0.16552       0.0000       1.0000
C4            30  0.23333     0.43018     0.18506       0.0000       1.0000
C5            30  0.20000     0.40684     0.16552       0.0000       1.0000

 CORRELATION MATRIX OF VARIABLES -       30 OBSERVATIONS


BETA       1.0000
NON_ILEC  0.67943       1.0000
LEVERAGE  0.62770      0.26842      1.00000
Y1       -0.37609E-01 -0.28098      0.85809E-01   1.0000
Y2       -0.10164     -0.27202     -0.27541     -0.22361       1.0000
Y3       -0.22979     -0.18293     -0.23339     -0.22361     -0.20000
           1.0000
Y4        0.86727E-01  0.24531      0.21293     -0.16667     -0.14907
         -0.14907       1.0000
Y5        0.25815      0.33686     -0.56856E-01 -0.16667     -0.14907
         -0.14907     -0.11111       1.0000
Y6        0.30158      0.40798      0.47401     -0.19612     -0.17541
         -0.17541     -0.13074     -0.13074       1.0000
C1       -0.57569E-01  0.67879E-01 -0.25468      0.11111      0.14907
          0.14907     -0.11111     -0.11111     -0.13074       1.0000
C2       -0.68785E-01  0.55539E-01 -0.17936E-01 -0.10090     -0.30083E-01
         -0.30083E-01  0.15696     -0.67267E-01  0.52769E-01 -0.29149
           1.0000
C3        0.28102     -0.28628      0.44941     -0.41667E-01  0.15620E-16
          0.94133E-17 -0.16667      0.11111      0.49029E-01 -0.16667
         -0.43724       1.0000
C4       -0.12961      0.18139     -0.30467     -0.78811E-01 -0.35245E-01
         -0.35245E-01  0.78811E-01  0.78811E-01  0.15456E-01 -0.18389
         -0.48243     -0.27584       1.0000
C5        0.68600E-01  0.35873E-02  0.15848     -0.41667E-01  0.14067E-16
          0.14067E-16  0.11111     -0.16667      0.49029E-01 -0.16667
          0.57177     -0.25000     -0.27584       1.0000
             BETA         NON_ILEC     LEVERAGE     Y1           Y2
             Y3           Y4           Y5           Y6           C1
             C2           C3           C4           C5

 COVARIANCE MATRIX OF VARIABLES -       30 OBSERVATIONS


BETA      0.35922E-01
NON_ILEC  0.20745E-01  0.25952E-01
LEVERAGE  0.12433E-01  0.45190E-02  0.10921E-01
Y1       -0.29000E-02 -0.18415E-01  0.36483E-02  0.16552
```

```
Y2        -0.73017E-02 -0.16611E-01 -0.10910E-01 -0.34483E-01  0.14368
Y3        -0.16509E-01 -0.11170E-01 -0.92453E-02 -0.34483E-01 -0.28736E-01
           0.14368
Y4         0.50155E-02  0.12058E-01  0.67897E-02 -0.20690E-01 -0.17241E-01
          -0.17241E-01  0.93103E-01
Y5         0.14929E-01  0.16558E-01 -0.18130E-02 -0.20690E-01 -0.17241E-01
          -0.17241E-01 -0.10345E-01  0.93103E-01
Y6         0.19762E-01  0.22723E-01  0.17127E-01 -0.27586E-01 -0.22989E-01
          -0.22989E-01 -0.13793E-01 -0.13793E-01  0.11954
C1        -0.33293E-02  0.33366E-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
C2        -0.65707E-02  0.45094E-02 -0.94472E-03 -0.20690E-01 -0.57471E-02
          -0.57471E-02  0.24138E-01 -0.10345E-01  0.91954E-02 -0.44828E-01
           0.25402
C3         0.21669E-01 -0.18763E-01  0.19107E-01 -0.68966E-02  0.24087E-17
           0.14516E-17 -0.20690E-01  0.13793E-01  0.68966E-02 -0.20690E-01
          -0.89655E-01  0.16552
C4        -0.10567E-01  0.12570E-01 -0.13697E-01 -0.13793E-01 -0.57471E-02
          -0.57471E-02  0.10345E-01  0.10345E-01  0.22989E-02 -0.24138E-01
          -0.10460     -0.48276E-01  0.18506
C5         0.52897E-02  0.23511E-03  0.67381E-02 -0.68966E-02  0.21693E-17
           0.21693E-17  0.13793E-01 -0.20690E-01  0.68966E-02 -0.20690E-01
           0.11724     -0.41379E-01 -0.48276E-01  0.16552
              BETA         NON_ILEC     LEVERAGE     Y1           Y2
              Y3           Y4           Y5           Y6           C1
              C2           C3           C4           C5

|_OLS beta Non_ILEC Leverage Y1 Y2 Y3 Y4 Y5 Y6 C1 C2 C3 C4 C5/ 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  =   2.02647
DURBIN-WATSON POSITIVE AUTOCORRELATION TEST P-VALUE =    0.223262
              NEGATIVE AUTOCORRELATION TEST P-VALUE =    0.776738
R-SQUARE OF NON_ILEC ON OTHER INDEPENDENT VARIABLES =   0.6900
R-SQUARE OF LEVERAGE ON OTHER INDEPENDENT VARIABLES =   0.7885
R-SQUARE OF Y1       ON OTHER INDEPENDENT VARIABLES =   0.6356
R-SQUARE OF Y2       ON OTHER INDEPENDENT VARIABLES =   0.5147
R-SQUARE OF Y3       ON OTHER INDEPENDENT VARIABLES =   0.4994
R-SQUARE OF Y4       ON OTHER INDEPENDENT VARIABLES =   0.5501
R-SQUARE OF Y5       ON OTHER INDEPENDENT VARIABLES =   0.5043
R-SQUARE OF Y6       ON OTHER INDEPENDENT VARIABLES =   0.6559
R-SQUARE OF C1       ON OTHER INDEPENDENT VARIABLES =   0.8026
R-SQUARE OF C2       ON OTHER INDEPENDENT VARIABLES =   0.9136
R-SQUARE OF C3       ON OTHER INDEPENDENT VARIABLES =   0.8567
R-SQUARE OF C4       ON OTHER INDEPENDENT VARIABLES =   0.8903
R-SQUARE OF C5       ON OTHER INDEPENDENT VARIABLES =   0.4339
R-SQUARE OF CONSTANT ON OTHER INDEPENDENT VARIABLES =   0.0000

 R-SQUARE =   0.9100     R-SQUARE ADJUSTED =   0.8370
VARIANCE OF THE ESTIMATE-SIGMA**2 =  0.58565E-02
STANDARD ERROR OF THE ESTIMATE-SIGMA =  0.76528E-01
SUM OF SQUARED ERRORS-SSE=  0.93704E-01
MEAN OF DEPENDENT VARIABLE =  0.90985
LOG OF THE LIKELIHOOD FUNCTION =  43.9640

MODEL SELECTION TESTS - SEE JUDGE ET AL. (1985,P.242)
```

```
 AKAIKE (1969) FINAL PREDICTION ERROR - FPE =     0.85896E-02
    (FPE IS ALSO KNOWN AS AMEMIYA PREDICTION CRITERION - PC)
 AKAIKE (1973) INFORMATION CRITERION - LOG AIC =  -4.8355
 SCHWARZ (1978) CRITERION - LOG SC =              -4.1816
MODEL SELECTION TESTS - SEE RAMANATHAN (1998,P.165)
 CRAVEN-WAHBA (1979)
    GENERALIZED CROSS VALIDATION - GCV =          0.10981E-01
 HANNAN AND QUINN (1979) CRITERION =              0.97910E-02
 RICE (1984) CRITERION =                          0.46852E-01
 SHIBATA (1981) CRITERION =                       0.60387E-02
 SCHWARZ (1978) CRITERION - SC =                  0.15274E-01
 AKAIKE (1974) INFORMATION CRITERION - AIC =      0.79429E-02

                     ANALYSIS OF VARIANCE - FROM MEAN
                      SS         DF             MS                F
REGRESSION       0.94803         13.       0.72925E-01          12.452
ERROR            0.93704E-01     16.       0.58565E-02         P-VALUE
TOTAL             1.0417         29.       0.35922E-01           0.000

                     ANALYSIS OF VARIANCE - FROM ZERO
                      SS         DF             MS                F
REGRESSION        25.783         14.        1.8416             314.458
ERROR            0.93704E-01     16.       0.58565E-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
NON_ILEC   1.2649     0.1584       7.984     0.000 0.894     1.0751     0.4993
LEVERAGE  0.51693     0.2957       1.748     0.100 0.401     0.2850     0.1256
Y1        0.16726     0.5786E-01   2.890     0.011 0.586     0.3590     0.0368
Y2        0.16633     0.5382E-01   3.091     0.007 0.611     0.3327     0.0305
Y3        0.68032E-01 0.5299E-01   1.284     0.217 0.306     0.1361     0.0125
Y4       -0.56052E-01 0.6943E-01 -0.8073     0.431-0.198    -0.0902    -0.0062
Y5       -0.25355E-01 0.6615E-01 -0.3833     0.707-0.095    -0.0408    -0.0028
Y6       -0.10322     0.7007E-01  -1.473     0.160-0.346    -0.1883    -0.0151
C1        0.29984E-01 0.1048      0.2860     0.779 0.071     0.0483     0.0033
C2        0.11018     0.9590E-01   1.149     0.267 0.276     0.2930     0.0525
C3        0.32245     0.9228E-01   3.494     0.003 0.658     0.6922     0.0709
C4        0.84943E-01 0.9972E-01  0.8518     0.407 0.208     0.1928     0.0218
C5        0.52983E-01 0.4642E-01   1.141     0.271 0.274     0.1137     0.0116
CONSTANT  0.14499     0.1208       1.200     0.248 0.287     0.0000     0.1594

DURBIN-WATSON = 2.0265    VON NEUMANN RATIO = 2.0963    RHO = -0.12484
RESIDUAL SUM =   0.0000      RESIDUAL VARIANCE =  0.58565E-02
SUM OF ABSOLUTE ERRORS=   1.4500
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.9100
RUNS TEST:   16 RUNS,   17 POS,    0 ZERO,   13 NEG  NORMAL STATISTIC =  0.1010
COEFFICIENT OF SKEWNESS =  -0.1585 WITH STANDARD DEVIATION OF 0.4269
COEFFICIENT OF EXCESS KURTOSIS =  -0.5717 WITH STANDARD DEVIATION OF 0.8327

JARQUE-BERA NORMALITY TEST- CHI-SQUARE(2 DF)=    0.6816 P-VALUE= 0.711

     GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 20 GROUPS
OBSERVED  0.0  0.0  0.0  0.0  1.0  0.0  2.0  4.0  6.0  0.0  4.0  5.0  6.0  0.0  2.0  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

CHI-SQUARE =   18.3739 WITH  4 DEGREES OF FREEDOM, P-VALUE= 0.001
|_DIAGNOS / HET,,,,,,,,,,,,
```

```
REQUIRED MEMORY IS PAR=     139 CURRENT PAR=     781
DEPENDENT VARIABLE = BETA            30 OBSERVATIONS
REGRESSION COEFFICIENTS
   1.26489509160      0.516925065086      0.167256692468      0.166334915228
  0.680320953879E-01 -0.560523382955E-01 -0.253549095389E-01 -0.103221799946
  0.299844171488E-01  0.110178457351      0.322454234622      0.849426704823E-01
  0.529829689888E-01  0.144985723589

HETEROSKEDASTICITY TESTS
                           CHI-SQUARE     D.F.   P-VALUE
                         TEST STATISTIC
E**2 ON YHAT:                     2.227     1    0.13564
E**2 ON YHAT**2:                  1.920     1    0.16586
E**2 ON LOG(YHAT**2):             2.420     1    0.11982
E**2 ON LAG(E**2) ARCH TEST:      1.227     1    0.26790
LOG(E**2) ON X (HARVEY) TEST: **********    13    0.00000
ABS(E) ON X (GLEJSER) TEST:      11.482    13    0.57047
E**2 ON X                TEST:
          KOENKER(R2):           17.961    13    0.15899
          B-P-G (SSR) :          11.906    13    0.53540
```

Attachment 3

Data Sources

Attachment 3
to the
Declaration of Lee L. Selwyn

WC Docket 03-173
December 16, 2003

Data Sources

The following attachment presents the sources for all data used in the figures and tables in the Declaration of Lee Selwyn in WC Docket 03-173.

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.

Airline Industry Betas

Value Line Investment Survey, 9/18/98, at 262-275;
9/17/99, at 262-274;
9/15/00, at 262-273;
9/14/01, at 254-266;
9/13/02, at 254-265;
9/12/03, at 254-265.

Eastman Kodak Betas

Value Line Investment Survey, 3/12/99, p. 138;
6/11/99, at 138;
9/10/99, at 138;
12/10/99, at 138;
3/10/00, at 137;
6/9/00, at 137;
9/8/00, at 136;
12/8/00, at 137;
3/9/01, at 138;
6/8/01, at 140;
9/7/01, at 135;
12/7/01, at 134;
3/8/02, at 134;
6/7/02, at 134;
9/6/02, at 134;
12/6/02, at 138;
3/7/03, at 133;
6/6/03, at 133;
9/5/03, at 133.

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.

Semiconductor Industry Betas
Value Line Investment Survey, 10/17/03, at 1051-1090.

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.

B. Facilities-Based 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.

---

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.

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.
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.

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

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.
Second Quarter 2000 10Q filed August 14, 2000.

Verizon New Jersey Inc.[5]

---

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

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

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 10K and 10Q on

(continued...)

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. (...continued)
same days as Verizon New Jersey. All affiliates were included in ETI's analysis and are available on the Edgar database on the SEC's web page, www.sec.gov.