

1 | INTRODUCTION

Purpose of this Study

In the FCC's *Notice of Proposed Rulemaking* (NPRM) adopted December 23, 1996 in the Access Charge Reform proceeding, CC Docket No. 96-262, the Commission sought comment, *inter alia*, on empirical issues relating to the potential difference between the revenues that incumbent LECs (ILECs) generate from current interstate access charges (based on embedded costs allocated to the interstate jurisdiction) and the revenues that revised access charges (based on forward-looking costs) are likely to generate.¹

In the NPRM, the Commission “invites parties to submit data quantifying any difference and explaining in detail to what extent the underlying difference between embedded and forward-looking costs results from the Part 36 allocation rules, underdepreciation, or other factors.”² The Commission also seeks comment, for example, on “whether the amount of any difference should be determined and fixed as of a date certain, such as the enactment of the 1996 Act” with all costs incurred after that date “regarded as incurred under the new competitive paradigm established by the Act and thus entitled to no special treatment.”³ Parties are further invited to comment generally on the question of whether ILECs “are entitled, should be permitted the opportunity, or have already been permitted an opportunity, to recover some or all of the difference between interstate-allocated embedded costs and forward-looking economic costs that might be created by the access reform proposals discussed [in the NPRM] in Sections V and VI.”⁴

1. NPRM, CC 96-262 at paras. 241-270.

2. *Id.* at para. 254.

3. *Id.* at para. 255.

4. *Id.* at para. 256.

Introduction

This Study responds to the empirical issues raised by the Commission in the NPRM relating to the difference between embedded and forward-looking costs and the implications of those empirical findings in assessing the extent to which ILECs' are entitled to special revenue recovery mechanisms. This Study anticipates and responds to the ILECs' claim that the introduction of competition, coupled with a requirement for forward-looking incremental cost pricing, as proposed in the NPRM for access charges, does not afford them the opportunity for full recovery of their embedded investment, and that they are in effect entitled to a "make whole" revenue recovery mechanism to make up the difference between the revenues that they generate from current interstate access charges and the revenues that revised access charges are likely to generate.

Framework of Analysis

As framed by the ILECs, the questions raised by the Commission can be reduced to a simple comparison of the difference between embedded costs and forward-looking costs, and to the extent the former exceeds the latter, that is sufficient to support ILEC claims to special revenue recovery mechanisms. As discussed below, such a framework is overly-simplistic and fails to accurately reflect the nature of the costs recovered through interstate access charges, the manner in which the costs that ILECs recover through interstate access charges are determined, and the significance of interstate access charge revenues as a source of revenue recovery in the context of all other relevant revenue opportunities available to the ILECs.

As succinctly described in the NPRM:

The costs that incumbent LECs recover through interstate access charges are determined by a multi-step process. Incumbent LECs first record all their booked expenses and their cost of investment in the accounts prescribed by the Commission's Part 32 Uniform System of Accounts (USOA). They next divide the recorded investment and expenses between regulated and nonregulated services, pursuant to Part 64 of our Rules. Incumbent LECs then divide regulated expenses and investment between state and interstate jurisdictions pursuant to the separations procedures contained in Part 36 of the Commission's rules. Incumbent LECs then apportion their regulated interstate costs among the interstate access and interexchange service categories. Finally, to recover their access costs, incumbent LECs charge IXCs and end users for access services in accordance with

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the Part 69 access charge rules and, for incumbent LECs under price cap regulation, with the provisions of the Part 61 price cap rules.⁵

The important point to be recognized is that the assignment of ILEC costs to interstate access is a matter of *revenue* recovery rather than cost recovery. Interstate access has been assigned a portion of the revenue recovery responsibility for ILEC embedded plant based upon the application of accounting rules, rather than the attribution of economic costs.⁶ Thus, in assessing the issue of ILEC entitlement to a “recovery mechanism” as raised in the NPRM, the recovery mechanism must be viewed in the proper context of the *revenue* recovery mechanism that it would be, rather than as a *cost* recovery mechanism as suggested by the ILECs.

Accordingly, the proper framework in analyzing whether the ILECs are entitled to recover any “gap” between embedded and forward-looking incremental cost levels is to start by looking at sources of the *cost* “gap,” but not to stop there. Full consideration must also be given to the potential impact of proposed access charge reductions upon ILEC *revenues and earnings* in the context of the *totality* of ILEC activities that contribute (now or in the future) to the ILEC’s revenue recovery of embedded investment.

A comprehensive view of all sources of ILEC revenues (including regulated and nonregulated, interstate and intrastate, current and future opportunities) related to the ILEC’s local network facilities as compared with all the costs related to the ILEC’s local network facilities is the appropriate framework of analysis in assessing ILEC claims to special revenue recovery mechanisms. Looking only at the cost side of the equation, or as it pertains to a proposed reduction in revenues of an isolated regulated service (i.e., interstate access) as advocated by the ILECs, provides an extremely distorted and overstated view of potential ILEC *revenue recovery* claims.

5. *Id.* at para. 22.

6. This point is recognized in the NPRM at para. 23:

Commentators have pointed out that, because each of these divisions of costs occurs pursuant to regulation rather than through operation of a competitive marketplace, these divisions are subject to distortions. In particular, commentators have focused on the separations process, which apportions costs between the intrastate and interstate jurisdictions. These commentators suggest that separations allocation, in particular allocation of common plant, reflects not only economic considerations, but also public policy considerations related to universal service and the desirability of low local rates. To the extent these allocation decisions have resulted in greater allocations to interstate services than would be economically justified, these distortions flow through Parts 69 and 61 into access charges.

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All revenue streams linked to the ILECs' local network facilities provide the ILEC with sources of revenue recovery of their embedded investment, and therefore are relevant to an assessment of whether ILECs' have the opportunity to recover their embedded investment or whether a special revenue recovery mechanism, as ILECs suggest, is needed in light of proposed access charge reductions. As discussed in Sections 2 and 3, this comprehensive approach is consistent with the manner in which investors evaluate the value of the ILEC's stock and is appropriate too for the Commission under the new paradigm of competition and economic cost standards.

2 | STUDY APPROACH AND METHODOLOGY

General Study Approach

Consistent with the framework of analysis described in Section 1, this Study performs several economic and empirical analyses relating to total (unseparated) ILEC costs, revenues, and earnings in order to assess – in its proper context – ILEC claims to special mechanisms to recover the difference between the revenues that they currently generate from interstate access charges and the revenues that revised access charges are likely to generate.

The overall approach employed in this Study has as its foundation a number of basic premises that severally and collectively shape the various analyses set forth in this Study.

- Any rate of return (RORR) type of “social contract” was terminated with the adoption of price caps and other forms of incentive regulation adopted in both federal and state jurisdictions,⁷ largely at the behest of the ILECs arguing for increased pricing flexibility and earnings growth in order to respond successfully to increasing competition in all aspects of their business. During the period 1990 to present (if not earlier), the ILECs have been successful in their efforts to get out from under RORR with its emphasis on historical embedded costs and to enjoy the increased freedom under price cap regulation to make market-driven decisions.⁸ Price cap regulation was expressly intended to sever the link between prices and costs, and to place the ILECs “at risk” with respect to capital investments made from that point forward.

7. See *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket 87-313, 5 FCC Rcd (1990), “LEC Price Cap Order;” see also, e.g., California PUC, Re: Alternative Regulatory Frameworks for Local Exchange Carriers, I.87-11-033, Decision 89-10-031, October 12, 1989.

8. Over 70% of current ILEC revenue streams are regulated on the basis of “pure price caps” regulation. Merrill Lynch Report, “Telecom Services - Local,” April 23, 1996.

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- To the extent ILECs have experienced overearnings, i.e., the earning of rates of return in excess of a “fair” (i.e., competitive) return on their net book investment, since adoption of price cap regulation, this has provided ILECs with additional recovery of the costs of their local network facilities; while such recovery has gone unrecorded, it nonetheless has occurred and is properly taken into account in assessing ILEC claims to special revenue recovery mechanisms at this time.
- ILECs have been on notice for at least the past six or seven years that competition in their local exchange and exchange access service markets was coming. Accordingly, the ILECs have (or should have) been able to accommodate the potential impact, if any, of such competition, both as to demand and price levels, through management of their construction and investment programs. The passage of the Telecommunications Act of 1996 was the culmination of multi-year efforts by the ILECs to gain authority to enter new markets such as long distance and video, reflecting years of increased awareness on the part of ILECs of anticipated changes in the competitive environment, rather than a bright line depicting the start of an entirely “new competitive paradigm.”
- New and expanded revenue opportunities in the areas of interLATA interexchange long distance and video services, made available to the ILECs with the passage of the Telecommunications Act, will directly mitigate any revenue losses which may occur as a result of reductions in access charges. They must be taken in account in assessing ILEC claims for special revenue recovery mechanisms.
- Similarly, ILECs enjoy and will continue to enjoy (independent of any future access charge reductions) substantial revenue streams from a number of services provided by local network facilities and directly linked to, but distinct from, core regulated basic local exchange services whose price levels and demand are directly impacted by the introduction of competition in the local exchange. Notable examples are revenues from “vertical services” (e.g., call waiting, call forwarding, call return, and Caller ID). These types of services have contributed to past overearnings for the ILEC, and provide the ILEC with additional sources of significant (current and future) revenue-generating potential that are appropriately taken into account in assessing ILEC claims for special revenue recovery. Yellow Pages revenues are another key source of revenues to the ILECs, not directly impacted by the introduction of local competition.
- ILECs are not entitled to special revenue recovery of investment currently on ILEC books that was placed recently, i.e., after the onset of price caps and after ILECs had the ability to manage their investment programs with reasonable knowledge of structural changes occurring in the industry. Nor are ILECs entitled to special recovery of investment motivated by (or subsequently utilized in the

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satisfaction of) long-term strategic and competitive considerations (e.g., sale of additional lines, custom calling and other vertical services, advanced digital and video services). These types of services not only provide the ILEC with additional sources of significant (current and future) revenue-generating potential as noted in the preceding point, they also utilize existing spare plant, thereby nullifying any potential “stranded investment” or “gap” problem.

- There is no basis to assume a decrease in the economic value of ILEC plant already in service. For certain categories of telecommunications plant, most notably, metallic cable (a significant component of ILEC outside plant), replacement costs have been increasing relative to historic acquisition costs carried on the ILECs’ books; in addition, new technologies (i.e., Asynchronous Digital Subscriber Line, or ADSL) are being developed that utilize existing metallic cable to provide enhanced digital and video services. Thus, for such plant categories, there is actually an increase in the economic value of plant already in service.
- From an investor’s perspective, “return on investment” represents the *totality* of the financial results that are ultimately realized by the firm. These can be in the form of current earnings, appreciation in the value of assets, opportunities for growth in earnings in the future, and an increase in the market value of the firm overall. Investor evaluations of the value of a firm’s stock consider all of these factors. Under the new paradigm of competition and economic cost standards, it is appropriate that the Commission also broaden the basis upon which it evaluates the financial position of ILECs.
- The extent of potential market share erosion for core ILEC local exchange and exchange access services has been grossly exaggerated by the ILECs, and in fact ILECs will continue to maintain substantial ongoing dominance of the *facilities-based* local telecommunications markets; moreover, the mere loss of market share (which will necessarily occur as ILECs no longer possess a monopoly franchise) does not necessarily translate into a loss of revenues or market value of the firm, given market growth and new revenue opportunities available to the ILECs; and
- Persistent investor willingness to pay substantial premiums of 100% to 300% over the book value of ILEC stock demonstrates that ILEC earnings and investment recovery opportunities, in the aggregate, have increased in the face of “competition,” and that such evidence would compel the conclusion there is no “stranded investment” or “gap” problem at all.

On the basis of the general study approach delineated above, we have developed an empirical study which consists of two distinct components which focus on both the cost and revenue/earnings side of the equation, respectively:

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- (1) an analysis of ILEC embedded investment; and
- (2) an analysis of ILEC revenue opportunities and market assessment.

Analysis of ILEC Embedded Investment

This analysis incorporates and builds upon a major empirical study of ILEC embedded investment recently conducted by ETI for submission in CC Docket 96-98, entitled *Analysis of Incumbent LEC Embedded Investment: An Empirical Perspective on the "Gap" Between Historic Costs and Forward-looking TSLRIC* (the "Gap" Study).⁹ Both the original and new "Gap" Studies examine empirical evidence concerning the "gap" between historical embedded "revenue requirement" costs and bottoms-up aggregate TSLRIC results. In particular, the Studies analyze critically the notion, implicit in the arguments raised by the ILECs, that carried on their books is a relatively large base of old, obsolete, and relatively costly plant, responsible for creating a divergence from TSLRIC results that the ILECs are entitled to recover. Data used in the analysis was compiled or derived from various public sources, including ARMIS, FCC and state depreciation decisions and filings. The "Gap" Studies consist of three distinct, but interrelated analyses: (1) the vintage analysis; (2) the composition analysis; and (3) the utilization analyses. A more detailed description of the "Gap" Studies is presented in Section 3 of this report. The original "Gap" Study, as submitted to the FCC in May 1996, is reproduced in its entirety in Appendix A to this report.

Analysis of ILEC Revenue Opportunities and Market Assessment

This analysis examines a variety of indicators of ILEC market value and sources of revenue pertinent to assessment of ILEC claims for special revenue recovery mechanisms. In particular, this Study contains analyses of market-to-book value ratios for each of the seven RBHCs and other large independent ILECs; premiums over book value offered by SBC and Bell Atlantic for the shares of Pacific Telesis and NYNEX, respectively, in recent merger agreements; ILEC earnings, and ILEC revenues derived from both existing sources (e.g., additional lines and vertical services) as well as new sources of revenues (e.g., interLATA long distance services) derived from services provided by local network facilities. Data used in the analysis was compiled or derived from various public sources, including ARMIS, Value Line Investment Survey, industry studies, investment house reports, and ILEC ex parte filings.

9. The "Gap" Study was submitted to the FCC as part of AT&T's Reply Comments (May 30, 1996) in CC Docket 96-98.

3 | ANALYSIS OF ILEC EMBEDDED INVESTMENT

Description of Studies

ETI's initial analysis of ILEC embedded investment was presented as the original "Gap" Study, as identified in Section 2 above. In this updated Study, we revisit the three original "Gap" Study analyses, update them for subsequently available ARMIS 1995 data, and expand upon them to provide projections of year end 1996 results and further breakdowns of excess investment into outside plant and digital switching categories.

The ETI "Gap" Studies consist of three distinct, but interrelated analyses:

- (1) the vintage analysis;
- (2) the composition analysis; and
- (3) the utilization analyses.

The *vintage* analysis determines the relative age of ILEC historic net book investment in order to test the validity of ILEC claims that large amounts of obsolete plant acquired at a high cost relative to today's prices remain in the ILECs' embedded rate base. The ultimate goal of the vintage analysis is to demonstrate how much of the net investment was acquired by the ILECs during the period beginning on and after January 1, 1990 – a reasonable break-point between "historic" and "competitive" RORR and price cap ILEC operating environments. The methodology accordingly allows for the attribution or breakdown of each of these categories as between the pre-January 1, 1990 and post-January 1, 1990 periods: In other words, for each year, starting in 1990, we distinguish how much of ILEC net book investment can be characterized as pre-1990 vis-a-vis post-1990 plant. The vintage analysis tracks several specific categories of ARMIS-reported data with respect to aggregate historic net book investment for each RBHC starting with the year 1990.¹⁰

10. The data categories tracked by the Vintage analysis include: beginning Total Plant In Service (TPIS) balance; annual changes (additions, retirements, other adjustments); ending TPIS balance; beginning accumulated depreciation, accruals, ending accumulated depreciation; composite depreciation rate; and net TPIS.

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The *composition* analysis uses the plant-specific data provided in ILEC generation arrangement tables¹¹ in order to answer the question of how the composition of plant accounts — in terms of the proportion of surviving plant associated with older vs. newer vintages — varies with the type of plant, and to examine the implications of any observed variation in terms of its impact upon the “gap” between historical embedded costs and TSLRIC results. In the composition analysis, we look for patterns with respect to the relative economic value of older versus newer vintage plant, the types of older plant surviving on the ILECs’ books, whether similar plant is being acquired today, and if so, how current reproduction costs (such as reflected in TSLRIC results) compare to original historic acquisition costs. Copper outside plant provides a prime example of valuable, older vintage assets in the sense that current reproduction costs have been increasing relative to historic acquisition costs carried on the ILECs’ books, and in addition, new technologies (i.e., ADSL) are being developed that utilize existing metallic cable to provide enhanced digital and video services. Thus, to the extent it can be shown that for copper plant accounts there is a greater proportion of older vintage plant surviving vis-a-vis the results for aggregate net book investment, this effectively rebuts the notion that older vintage ILEC plant is comprised of more costly plant relative to that which would be costed out under TSLRIC.

Finally, the *utilization* analysis further examines post-1990 investment for the purpose of determining the portion of that aggregate investment that can be attributed to supporting growth in demand for basic service as distinct from ILEC strategic competitive ventures. The utilization analysis is developed based upon a combination of data from ARMIS and from deployment and utilization forecasts submitted to the FCC and to state PUCs, and consists of the following three basic steps: (1) estimates of the percentage of digital CO and loop plant additions that can be explained by basic demand growth are derived; (2) the “utilization” percentages estimated in the preceding step are applied to annual plant additions (and corresponding retirements) for the post-1990 period to derive an estimate of the amount of plant additions in the 1990 to 1995 period that are “demand-driven,” i.e., that can be explained by demand growth for basic service; and (3) those revised plant additions and retirements are run through the vintage model to produce a revised historic net book investment result as of the end of 1995, the objective of which is to more closely track what ILEC historic net book investment would have been had ILEC plant acquisition been driven solely by basic service demand growth. To the extent that a large portion of investments in central office and/or outside plant can be shown to be underutilized relative to that required to meet POTS (for Plain Old Telephone Service) access line growth demand, it would suggest that such investments may have been motivated by strategic considerations (i.e., deployment of custom calling, advanced digital and broadband

11. The generation arrangements information data is submitted by the ILECs to the FCC as part of their depreciation filings.

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services) rather than growth-driven requirements associated with the provision of basic services.

Analysis and Findings

Together, the three component analyses of the "Gap" studies demonstrate that, as a general proposition, the existence of a "gap" between embedded costs and TSLRIC results cannot be ascribed to the obsolescence or (relative to current prices) high cost of plant put in place to satisfy basic service demand as part of any explicit or implicit pre-competition regulatory bargain imposed upon the ILECs. The studies conclude that a primary driver of ILEC plant additions and retirements over the past few years was related to and motivated by the ILECs' pursuit of other strategic business goals and positioning for other than basic exchange or exchange access lines of business (e.g., additional lines, custom calling) or for entry into new lines of business (other advanced digital or video services).

The studies also conclude that embedded costs associated with certain types of plant (e.g., metallic cable) may actually represent "hidden" and valuable assets to the extent that current reproduction costs of such plant exceed the historical costs carried on the ILECs' books. This particular conclusion is even more relevant now in light of recent 1996 developments with the various digital subscriber line (DSL) technologies, most notably Asynchronous DSL (ADSL), that utilize the ILECs' existing copper cable as a preferred broadband distribution technology. At the time of writing of the original "Gap" Study, some eight months ago, the prospects for ADSL as a broadband distribution medium were not overly favorable. While ILEC entry in advanced digital and video markets was discussed, it was more in the context of ILEC deployment of hybrid fiber/coax systems. Recent developments suggest a sea change in conventional wisdom.

ADSL is currently attracting much industry attention as a means of providing extremely high bandwidth over copper wires. Over a single twisted pair, ADSL can transmit at a rate ranging from 1.544 megabits per second (mbps) to 8.448 mbps "downstream" (i.e., from the central office to the end user), and 16 kilobits per second (kbps) to 640 kbps in the opposite direction, depending on hardware and distance from the core network.¹² Downstream transmission rates of 6 mbps, the average for ADSL, will, with appropriate compression technology, allow for the transmission of a video signal down an existing copper wire.

12. Technical information on ADSL can be found on the home page of the ADSL Forum, <http://www.adsl.com>. Downloaded November 27, 1996.

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ADSL technology could potentially enable to BOCs to offer advanced interactive, video, and other broadband services, without incurring the astronomical expense of installing an entirely new distribution medium. With the services that ADSL makes possible, the copper cable that forms one of the most valuable parts of the BOC networks could well become even more valuable. The president of NYNEX Science and Technology expressed this conclusion when he said that “*ADSL technology turns the copper in our network into gold.*”¹³ Ameritech, Bell Atlantic, Pacific Telesis, US West, NYNEX, and GTE all began testing ADSL during 1996.¹⁴

The analyses presented in the original “Gap” Study provide specific empirical evidence demonstrating that:

- 60% of ILEC historic net book investment as of the end of 1995 was acquired on or after January 1, 1990, a date representing a reasonable break-point between “historic” “RORR” and “competitive” “price cap” ILEC operating environments. (These results are presented in the original “Gap” Study in Table 1, Appendix A to this Study);
- A much greater proportion, i.e., 70% to 80%, of pre-1990 plant is surviving for plant categories for which current reproduction costs may be higher than historical costs, as compared with 20% to 30% for plant categories for which current reproduction costs are lower. (These results are presented in the original “Gap” Study in Table 3, Appendix A);
- In the order of magnitude of \$25-billion of historic net book investment (as of the end of 1995) cannot be explained by basic service demand growth over the 1990 to 1995 period. (These results are presented in the original “Gap” Study, Table 6, Appendix A).

The new “Gap” Study confirms, and indeed, strengthens the empirical results found in the original “Gap” Study:

13. “NYNEX, Lotus and Westell Announce High-Speed ADSL Trial,” *Business Wire*, August 27, 1996 (via Comtex). emphasis added. While it is impossible to accurately predict at present what the RBHCs will charge for ADSL or similar technologies when fully deployed, Pacific Bell, which will be launching ADSL commercially in September 1997, in ten California central offices expanding statewide in 1998, has announced it will charge in the range of \$75 to \$100 per month for the service within the first year of deployment. *Communications Daily*, January 24, 1997, at 6.

14. See, e.g., Richard Tedesco, “Telcos to Compete With High-Speed Links,” *Broadcasting & Cable*, May 27, 1996, and “In Brief,” *Communications Week*, December 23, 1996, at 21.

Analysis of ILEC Embedded Investment

Table 1

Estimates of Excess Investment/Strategic Inventories (\$-Bil.)

<u>RBHC</u>	Excess Net Book Investment <u>'90-'95</u>	Excess Net Book Inv. (Projected) <u>'90-'96</u>	Annual Costs <u>'90-'96 (Projected)</u>		
			<u>Total</u>	<u>Outside Plant</u>	<u>Switching</u>
Ameritech	\$4.3	\$5.0	\$1.65	\$0.95	\$0.69
Bell Atlantic	4.5	5.3	1.65	1.03	0.61
BellSouth	3.3	3.8	1.04	0.47	0.63
Nynex	5.7	6.7	2.46	1.52	0.98
Pacific Telesis	3.2	3.7	1.03	0.50	0.53
Southwestern Bell	1.4	1.7	0.45	0.15	0.31
US West	2.9	3.5	0.92	0.46	0.45
Total - RBHCs	\$25.4	\$29.8	\$9.19	\$5.08	\$4.21

Source: Appendix B. Annual cost total numbers differ slightly due to rounding.

- As of the end of 1996, it is projected that roughly 65% of ILEC historic book investment was acquired on or after January 1, 1990, i.e., after ILECs were well aware of impending changes in the market and regulatory environments and entirely capable of managing their construction and investment programs to accommodate such changes. (These updated results are presented in Tables B1 and B2 in Appendix B to this Study);
- The roughly \$25-billion in excess historic book investment found for the period 1990 to 1995 (See Table 1), corresponds to roughly \$8-billion in estimated annual costs, of which \$4.3-billion (roughly 54%) is associated with outside plant categories and the other \$3.7-billion (46%) is associated with digital switching categories. (See Tables B3 and B4 in Appendix B);

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- Incorporating updated 1995 ARMIS data and projecting out to the end of 1996,¹⁵ show in the order of magnitude of \$30-billion of historic net book investment that cannot be explained by growth in basic service demand for the period 1990 to 1996 - an increase of nearly 18% over the 1990 to 1995 result. (See Table 1. The full updated results are presented in Tables B3 and B5, Appendix B).
- This \$30-billion in excess historic book investment for the period 1990 to 1996 corresponds to roughly \$9-billion in estimated annual costs, approximately \$5-billion of which is associated with outside plant categories, and the remaining \$4.2-billion associated with digital switching. (See Table 1. The full updated results are presented in Table B5, Appendix B).

The original "Gap" Study also provided anecdotal evidence corroborating the conclusions of the empirical analyses. Key elements of that evidence show:

- ILEC involvement in the market for advanced Centrex-type services, which unlike POTS services, required the use of digital (as distinct from analog) central office switches, may have motivated the unnecessarily early replacement of analog central office switching plant and the massive overconstruction of outside plant facilities;
- ILEC efforts to expand the market for additional residential lines and other discretionary services, required the ILECs to design and construct far more extensive feeder and distribution infrastructures (and expend far greater aggregate capital investments) than otherwise required to provision basic local exchange service, and appears to overwhelm simple growth in basic local exchange line demand as a principal capital investment driver; and
- ILEC strategic positioning in the market for advanced and broadband digital services has resulted in the ILECs significantly increasing feeder facilities relative to those actually required to meet demand for basic local exchange lines and other POTS services, and provides a far better explanation for capacity expansion than simple POTS demand growth.

15. Projections of Net TPIS for Year End 1996 were developed by applying the growth rate from the previous annual period (1994 to 1995) derived from ARMIS data to the Year End 1995 results. The 1994 to 1995 growth rate reflects an overall flattening in the levels of RBHC NET TPIS relative to preceding years, and therefore we believe use of this approach is likely to produce conservative estimates of 1996 NET TPIS. Actual 1996 data will be available in the spring.

Analysis of ILEC Embedded Investment

The anecdotal evidence presented in the original “Gap” Study is strongly corroborated by the empirical estimates of revenues from services other than local basic exchange and exchange access that we provide in Section 4 of this Study.

Policy Implications

On the basis of the empirical findings and conclusions described above, ETI’s “Gap” Studies strongly support a public policy finding of no entitlement on the part of the ILECs to recovery of any observed difference between embedded costs and forward-looking TSLRIC results in the context of the rates charged for carrier-to-carrier interconnection and unbundled network elements that were at issue in CC Docket 96-98.

In addition, the results of ETI’s “Gap” Studies are directly applicable to the “Transition Issues” discussed in the NPRM (at paras. 241 to 270) in the instant proceeding in the context of access charge reform. As discussed above, these “Transition Issues” address ILEC entitlement to recovery of the potential difference between the revenues that incumbent LECs generate from current interstate access charges (based on embedded costs allocated to the interstate jurisdiction) and the revenues that revised access charges (based on forward-looking costs) are likely to generate. Approximately 25% of ILEC outside plant loop investment, and similarly a significant portion of digital switching investment, is assigned under separations accounting rules to interstate access for revenue recovery.

Thus, for the same reasons, and on the basis of the same findings and conclusions, the “Gap” Studies compel the conclusion that the ILECs are not entitled to a special revenue recovery mechanism that would make up the difference between current interstate access charge revenues and the revenues that revised access charges are likely to generate.

4 | ANALYSIS OF ILEC REVENUE OPPORTUNITIES AND MARKET ASSESSMENT

Description of Studies

ETI's analysis of ILEC revenue opportunities and market assessment consists of various analyses of ILEC market value and sources of revenue pertinent to assessment of ILEC claims for special revenue recovery mechanisms of embedded investment. These analyses include:

- (1) calculation of market-to-book value ratios for each of the seven RBHCs and other large independent ILECs;
- (2) calculation of premiums over book value offered by SBC and Bell Atlantic for the shares of Pacific Telesis and NYNEX, respectively, in recent merger agreements;
- (3) estimation of ILEC revenues (both current and future) generated by a variety of services which are linked to the same underlying local network facilities as is interstate service, and that therefore themselves provide appropriate sources of revenue recovery for those facilities;¹⁶ and
- (4) examination of RBHC earnings and return on equity.

The unifying theme in this Study is that investors look to the totality of the financial results of the firm in evaluating the firm's value, including current earnings, appreciation in the value of assets, opportunities for growth in earnings in the future, and an increase in the market value of the firm overall. The various sources of revenues identified in this Study are recognized by investors and reflected in their evaluation of ILEC stocks. To the extent persistent investor willingness to pay substantial premiums over the book value of

16. This examination does not include all relevant sources of revenue recovery. For example, not addressed in this analysis are high margin calling services such as IntraLATA long distance, Outbound, and 800 and 900 calling services.

ILEC stock is observed demonstrates that ILEC earnings and investment recovery opportunities, in the aggregate, have increased (and can be expected to increase) in the face of “competition.”

Analysis and Findings

ETI’s analysis of ILEC revenue opportunities and market assessment strongly suggests that on balance the opportunities for revenue expansion and market growth available to ILECs under the current regulatory/competitive environment are more than sufficient to offset any revenue losses that may arise from potential competition or due to the alignment of rates to economic forward-looking costs as proposed for access charges. As detailed below (and summarized in Table 2), this Study identifies in the order of magnitude of \$19-million to \$31-million in revenues available to contribute to the recovery of ILEC embedded investment. In conjunction with the results of the “Gap” analysis presented in the preceding section, these analyses further compel the conclusion there is no “stranded investment” or “gap” problem at all.

Shares of regulated public utilities have traditionally traded at close to their book value, reflecting the fact that utilities, under RORR, were closely tied to a “fair” (i.e., competitive) return on the net book value of the utility’s plant. However, ILECs are currently trading at market-to-book values considerably above that. In addition, in recent merger transactions, both SBC and Bell Atlantic offered significant premiums over book value for the shares of Pacific Telesis and NYNEX, respectively.

The high market-to-book values observed for ILECs indicate investors clearly do not believe (as the Commission should not) ILEC rhetoric about the potential financial impact of competition or the erosion of earnings opportunities in the current

Table 2	
Summary of Sources of Revenues Analyzed in Study	
(Annual \$-Bil)	
Second Lines	\$2.0-3.0
Vertical Services	\$4.0-7.0
InterLATA Long Distance	\$11.0-18.0
Advanced Digital/Broadband	\$0.4-0.5
Yellow Pages Directory Ad.	\$2.0-2.5
Total	\$19.4-31.0
Source: Appendix C.	

regulatory environment.¹⁷ Indeed, the persistence of high premiums relative to book value implies the presence of one or, more likely, both of the following two key conditions, the presence of either or both provide strong indication that a special revenue recovery mechanism for the ILECs is not appropriate.

First, ILECs continue to possess substantial market power, and investors expect that, with additional regulatory flexibility to be allowed in the future, ILECs will be able, with respect to the totality of their service offerings, to keep prices high relative to cost and thereby earn supranormal profits. This conclusion is supported by observed high rates of return on equity earned by the ILECs following adoption of price cap regulation.

Second, ILECs will have unique revenue opportunities to exploit assets acquired while under rate of return regulation. In particular, the presence of substantial excess capacity in existing network resources, coupled with broad name/brand recognition and established business relationships, affords the ILECs a unique ability to introduce new nonregulated services at minimal incremental cost and risk to ILEC shareholders, and thereby to offer investors a substantial expansion of profit opportunities.

The foregoing analysis is soundly supported by the following specific empirical findings:

Market-to-Book Values

- At the time of divestiture (1984), shares of ILEC stock were trading at approximately their net book value, i.e., the market-to-book ratio was approximately 1.0. Table 3 presents average market-to-book value ratios for the seven RBHCs. (Individual RBHC results are presented in Tables C1 and C2, Appendix C to this Study.)
- Over the decade following divestiture, the market-to-book value ratio for ILECs grew steadily. All RBHC shares are currently trading at about two to three times book value. As shown in Table 3 on the next page, on average, the market-to-book ratio for RBHCs grew to 2.76 as of December 31, 1994, and 3.80 as of December 31, 1995. The market-to-book ratio for RBHCs as of December 31, 1996 is estimated to

17. ILECs' regulated operations represent the vast majority of the ILECs' total operations, such that what investors are buying is largely the regulated part of the company. With a few exceptions, the ILECs' nonregulated business activities are operating either at a net loss or are generating no more than a minuscule positive return, such that when viewed on a consolidated basis, virtually all of each RBHC's retained earnings come from earnings at the BOC level. See ETI Research Report, *Patterns of Investment by the Regional Bell Holding Companies: An examination of the sources of financing and the relative performance of the Bell Operating Company and the non-BOC RBHC businesses*, January 1996.

be in the vicinity of 3.37. Similar results can be seen for the large independent telephone companies. (Individual results for the RBHCs and large independent telephone companies are presented in Table C1, Appendix C)

- Even after upward adjustments are made to ILEC financial book values to account for the write-offs taken by ILECs pursuant to SFAS 71 (and not reflected on regulatory books), ILEC market-to-book ratios are still shown to have increased steadily to relatively high levels. (See Table 3. Individual RBHC results are presented in Table C2, Appendix C)

<u>Year</u>	RBHCs	RBHCs Adjusted*	Gas/ Electric
1984	0.92	.92	.90
1985	1.10	1.10	1.15
1986	1.46	1.46	1.32
1987	1.50	1.50	1.34
1988	1.45	1.45	1.16
1989	1.84	1.84	1.27
1990	1.97	1.97	1.35
1991	1.93	1.93	1.39
1992	2.07	2.07	1.52
1993	2.75	2.60	1.61
1994	2.76	2.37	1.38
1995	3.80	2.48	1.45
1996	3.37	2.48	1.58

*Book value of equity adjusted for SFAS 71 write-offs.
Source: See Tables C1 and C2, Appendix C.

- By way of a benchmark, stocks for principal electric and gas utilities are trading at far smaller premiums. As shown in Table 3, nationwide, the average market-to-book ratios for a sample of large electric and gas utilities are in the range of 1 to 1.6. (Individual company results are presented in Table C3, Appendix C)

Premiums Over Book Value

- Under the terms of the merger agreement between SBC and Pacific Telesis, SBC is proposing to pay a premium over book value of as much as \$10.1-billion for the assets of Pacific Bell. This \$10.1-billion represents the difference between Pacific Telesis' post-merger announcement market value of \$20.4-billion and the corresponding book value of \$10.3-billion (reflecting upward adjustments to common equity to reflect asset write-offs taken for financial accounting purposes). (See Table C4 in Appendix C.)
- Similarly, under the terms of the merger agreement between Bell Atlantic and NYNEX, Bell Atlantic is proposing to pay a premium over book value of as much as

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\$13.5-billion for the assets of NYNEX. This \$13.5-billion represents the difference between NYNEX's post-merger announcement market value of \$33.3-billion and the book value of \$19.8-billion (similarly reflecting upward adjustments to common equity to reflect asset write-offs taken for financial accounting purposes). (See Table C4 in Appendix C.)

Sources of Revenue Recovery

Further corroboration of the ILECs' future revenue generating opportunities, as reflected in the observed high market-to-book value ratios and premiums over book value identified above, is provided by estimates of revenues to be derived by the ILECs from a number of network-related services including, most notably, additional lines, vertical services, potential interLATA long distance revenues, and yellow pages directory advertising.

Of particular significance are ILEC prospects in the sales of additional lines and vertical services. As widely acknowledged in the press, investment house reports, and by the ILECs themselves, recent dramatic increases in sales of additional residential lines and vertical services have been fundamental to the substantial increases in RBHC revenues. Media reports on the RBHC's financial performance in both the third and fourth quarters of 1996 specifically cited both additional lines and vertical services as significant drivers of their strong revenue and profit results.¹⁸ A recent financial analysis of the RBHCs and GTE confirms that the strong performance of the ILECs can be largely attributed to sales of "highly profitable second lines and vertical services."¹⁹ Sales of both additional lines and vertical services are growing at between 25% and 50% per year,²⁰ with penetration rates sufficiently low (15-25%) that analysts predicts ample opportunity for strong RBHC financial performance to continue for at least the next five years.²¹

Although additional residential lines and vertical services provide two distinct revenue streams to the RBHCs, it is important to note that they compliment each other in a substantial way. As investment analysts have observed: "We believe this strong growth in vertical services has not only been driven by the solid growth in primary residential lines,

18. See, e.g., "Baby Bells Rely on Specialty Services for Solid Earnings," *New York Times*, January 22, 1997; and "Four Baby Bells Report Healthy Results," *Wall Street Journal*, October 18, 1996.

19. Merrill Lynch, "United States Telecom Services — RBOCs and GTE Third Quarter Review," (Merrill Lynch Study) November 13, 1996, at 3.

20. *Id.*, at 3.

21. *Id.*, at 3.

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but also by the growing number of second and third lines being added by US households...which continue to grow the potential vertical service subscriber base.”²² Thus the projected continued growth of additional residential lines strongly implies a corresponding growth in sales of vertical services.

Spurred by such factors as the dramatic growth of dial-up connections to the Internet and other on-line services and the rise of telecommuting, in the last few years sales of additional lines have risen at unprecedented rates, rising from roughly 4% in 1990 to near 15% in 1995.²³ Recent estimates show growth rates in excess of 20%.²⁴ Over 50% of new residential lines are additional lines.²⁵ Sales of additional residential lines are of extreme relevance to any consideration of LEC embedded costs. Additional residential lines are in many, if not most, cases provisioned using already-installed, existing plant and distribution equipment. So not only does the growth of additional lines provide ILECs with a substantial new revenue stream, additional lines are provisioned out of existing spare capacity and therefore make use of, and generate revenues from, plant that would otherwise be idle (and hence contributors to the “gap” or “stranded investment” problem.)²⁶

- A conservative calculation of ILEC revenues associated with second residential lines – in excess of the baseline (1990) level of second line penetration – produces total recurring revenues from additional lines of \$2.0-billion in 1995 alone, and cumulative

22. *Id.* at 6.

23. FCC Industry Analysis Division, “Percentage Additional Residential Lines for Households with Telephone Service (End of Year Data),” (chart), December 12, 1996.

24. For example, BellSouth experienced additional residential line growth rates of 23% year-over-year in the third quarter of 1996, generating \$100-million in revenues for the company in that quarter alone, Merrill Lynch Study *op cit* at 3.

25. Merrill Lynch study *op cit*, at 15.

26. In a March 19, 1996, speech to a group of securities analysts at a Merrill Lynch Telecommunications CEO Conference, Raymond F. Smith, the CEO of Bell Atlantic, stated:

In 1995, sales of secondary lines at Bell Atlantic increased more than 50 percent, fueled by surging demand for Internet and telecommuting applications.

Unlike traditional horizontal line growth, which would have significantly added to our capital expenditures, the vertical growth we experienced in '95 brought most of the revenues down to the bottom line. *That's because we were able to provision new lines and services from idle capacity in an [sic] existing plant.* (emphasis added)

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revenues of \$5.9-billion for the period 1990-1995. (See Table C6 in Appendix C to this Study.)

Almost as significant to the RBHCs' profitability has been the growth of revenues from vertical services. Vertical services are those offered by the BOC as complements to basic, "plain old telephone service (POTS)," including such services as caller ID, call waiting, voice messaging, three-way calling, and call return, among others. Aided by BOC marketing tactics, such services are proving extremely popular with residential customers. Ten million US households already subscribe to Caller ID, and the number is growing by 10% each year.²⁷ Call Waiting, one of the oldest and most popular of the vertical services, is subscribed to by half the residential lines nationwide.²⁸ On the whole, average vertical service growth is estimated at over 26% in the third quarter of 1996.²⁹ Looking to the future, one recent industry study concluded that revenues from vertical services could grow more than 50% in the next five years.³⁰ Significantly, the modern architecture of the voice telephone network allows the RBHCs to provide vertical services at relatively little cost. It is estimated that the RBHCs' margin on vertical services is approximately 60%, meaning that a large proportion of those revenues goes directly to the ILEC's bottom line, or put another way, towards the recovery of the ILEC's embedded investment.³¹

- Available estimates of ILEC vertical service revenues (e.g., call waiting, call forwarding, call return, Caller ID) suggests vertical service revenue opportunities in the range of \$4-billion to \$7-billion annually. This estimate is based upon a variety of data sources. In an ex parte filing to the Commission, SBC identifies vertical service revenues of \$816-million annually.³² Extrapolated to RBHCs nationwide (based upon

27. "Baby Bells Profit by Tapping Phone Paranoia," *Wall Street Journal*, September 3, 1996.

28. Penetration rates for call waiting in each RBHC as of November, 1996, were as follows: Ameritech, 43%; Bell Atlantic, 43%; BellSouth, 59%; NYNEX, 41%; Pacific Telesis, 76%; SBC, 52%; US West, 36%. Merrill Lynch Study, *op. cit.*, Table 3a.

29. *Id.* at 4.

30. Cited in "Baby Bells Profit by Tapping Phone Paranoia," *Wall Street Journal*, September 3, 1996.

31. Merrill Lynch Study, at 4.

32. Ex Parte filing of Todd F. Silbergeld, Director-Federal Regulatory, SBC Communications, Inc., to William F. Caton, Acting Secretary, FCC, CC Docket No. 96-98, dated July 24, 1996.

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number of access lines), this amounts to some \$6.8-billion.³³ For BellSouth and Ameritech, investment reports estimate revenues from vertical services in the third quarter of 1996 alone of approximately \$280-million.³⁴ For BellSouth, this represents a 43% year-over-year increase. US West's annual value-added services revenues for 1996 were expected to exceed \$600-million.³⁵ According to one *Wall Street Journal* estimate, the BOCs and GTE cumulatively earn revenues of more than \$4-billion annually on vertical services.³⁶

Another dramatic development for ILEC revenue opportunities is associated with their impending entry into the lucrative long distance market as a result of the passage of the Telecommunications Act of 1996. The Act permits RBHC entry into out-of-region interLATA markets right away and in-region interLATA market upon satisfaction of the Section 271 "competitive checklist." Most RBHCs are already offering out-of-region long distance service either through their own wireline or wireless facilities or through resale arrangements with other carriers. One RBHC, Ameritech has already filed a Section 271 application with the Commission for entry into in-region long distance markets,³⁷ and others are expected to follow suit shortly. Local exchange companies such as GTE, ALLTELL and SNET have already begun to provide in-region long distance service and have met with considerable success. Similarly, RBHC entry into the long distance market opens the door for enormous revenue and earnings growth for RBHCs.

- InterLATA long distance revenues potentially available to the ILECs over the next five years are estimated to be in the range of \$11-billion to \$18-billion annually. On a combined basis, interLATA long distance markets currently account for revenues of approximately \$72.5-billion annually,³⁸ of which the ILECs are boldly predicting that they will quickly capture between 15 and 25 percent of their respective in-region long

33. A nationwide figure for vertical service revenues is extrapolated based on SBC's 13.7-million combined residential and business access lines, which as reported, represents approximately 12% of the national figure for all RBHCs of 118.7-million. (FCC, Statistics of Communications Common Carriers, 1995/1996, at Table 2.10) The \$816-million figure identified by SBC divided by .12 provides a national estimate of approximately \$6.8-billion.

34. Merrill Lynch Study, *op cit* at 3-4.

35. *Id.*, at 4.

36. "Baby Bells Profit by Tapping Phone Paranoia," *Wall Street Journal*, September 3, 1996.

37. *In the Matter of Application of Ameritech Michigan Pursuant to Section 271 of the Telecommunications Act of 1996 to Provide In-Region, InterLATA Services in Michigan*, CC Docket No. 97-1, originally filed January 2, 1997.

38. Revenues from long distance service earned in 1995 by the nation's 25 largest long distance carriers totalled \$72.45-billion. Statistics of Communications Common Carriers, 1995/1996, Table 1.4, November, 1996.

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distance markets.³⁹ These penetration projections translate into roughly between \$11 and \$18-billion in new revenues for the ILECs. These RBHC projections are supported by experience for non-RBHC telephone companies. GTE, for example, currently provides long distance service in 31 states, and reports a doubling of long distance customers during the third quarter of 1996.⁴⁰ Reports indicate ALLTELL is winning 20 percent of the long distance customers it targets.⁴¹ In only two years, SNET has captured an even more impressive 29% of the long distance customers in its estimated \$550-million interstate long distance market.

While ILEC broadband initiatives appear to have slowed down from the seemingly frenetic pace observed a couple of years ago in the heyday of video dialtone, revenues from new advanced digital and broadband services nonetheless represent an additional (and potentially significant) source of revenues associated with ILEC local network facilities that is available to the ILECs. This potential source of new revenues is receiving heightened attention in recent months with developments in ADSL technology, which utilizes existing metallic cable to provide enhanced digital and video services.

- Based upon revenue estimates provided by ILECs in video dialtone applications filed with the Commission, ILECs anticipated new advanced digital and broadband revenues over the next five to ten years in the range of \$1.6-billion. Even if ILECs realized only 25% of their estimates, this would amount to new revenues in the order of magnitude of \$0.4-billion. (See Table C7 in Appendix C.)

Yellow pages directory advertising represents yet another source – and a quite substantial one in fact – of revenues available to the ILECs that properly enters into the assessment of ILEC revenue recovery claims. Yellow pages advertising revenues have long been associated financially with the provision of basic local exchange telephone service, as reflected in the Divestiture Court's decision to permit the RBHCs to retain the

39. Witness these statements from Bell Atlantic's 1995 Annual Report:

In-region, every point of long distance market share represents \$100-million in revenue, capital expenses expected to be a very manageable \$200 to \$300-million over the next five years. The in-region long distance business also will have attractive margins; since we will use our own network to carry the traffic, we won't have to pay another carrier for access. Our plan is to capture at least 20 percent of the approximate \$10-billion in-region market within five years of entry. Since 80 percent of those revenues are in the consumer and small business markets where our brand name is strongest, we believe this is a very achievable goal. Bell Atlantic 1995 Annual Report, p. 9.

40. Merrill Lynch & Co., *Telecom Services — RBOCs & GTE, Third Quarter Review: Competitive and Regulatory Cloud Still Looms; Meanwhile, Another Double-Digit Growth Quarter*, November 13, 1996.

41. *Id.*

yellow pages business.⁴² Yellow pages revenues is further linked to basic residential telephone service by virtue of the fact that much of the value of yellow pages is the direct result of near universal local connectivity derived from the incumbent LEC's historic ubiquity. From the time of divestiture to the present (including passage of the Telecommunications Act of 1996 and the introduction of competition into local telephone markets), neither the fundamental linkage of yellow pages to the ILEC's basic exchange service or the market power enjoyed by ILEC in the yellow pages market (due to their historic local exchange monopoly) has been altered.⁴³

- While there is no publicly available source of data on actual ILECs' yellow pages earnings, the substantial magnitude of yellow pages earnings can be gleaned from estimates of imputations for yellow page revenues by state regulatory commissions. Data available for 25 states across 7 RBHCs suggests imputations for Yellow Page earnings runs as high as \$1.6-billion annually. Expressed on a per residential access line basis, the average yellow page imputation per month is \$2.46. Extrapolated across the total number of residential access lines nationwide suggests yellow pages earnings well in excess of \$2.3-billion annually. (See Table C8 in Appendix C.)

Earnings and Return on Equity

- ILECs have continually experienced overearnings vis-a-vis Standard & Poor 500 Companies in the period following adoption of price cap regulation. As shown in Table 4 (on the next page), RBHC overearnings are estimated in the vicinity of \$7.7-billion, and further corroborate the high market-to-book valuations of ILEC stock. This estimate of overearnings is conservative, because the S&P 500 is comprised of companies with much higher risk than utilities such as the RBHCs. Accordingly, using the average S&P 500 return on equity as the benchmark against which to measure RBHC returns will result in an understated measure of overearnings for the less risky RBHCs. As also shown in Table 4, over the period 1990 to the present, RBHC's average rates of return on equity have ranged as high as 25.7% for 1995.⁴⁴ (See Table C5, Appendix C.)

42. See *U.S. v. AT&T Co.*, 552 F. Supp. 131, 193-94 (D.D.C. 1982).

43. See Testimony of Dr. Lee L. Selwyn, California PUC R.95-01-020/I.95-01-021, April 17, 1996, submitted on behalf of AT&T and MCI, pp. 95-99.

44. The negative RBHC overearnings shown for the year 1993 can be largely attributed to unusually low earnings for a couple of RBHCs relating to non-BOC activities. For example, NYNEX had a return on equity (ROE) in that year of *negative* 3.24%, owing to an extremely large negative return (-217.84%) for non-BOC operations. See ETI Patterns of Investment Report, *op cit.* Other RBHCs, e.g., Ameritech and Bell Atlantic, had ROEs as high as 19.28% and 17.77%, respectively for that same year, significantly in excess of the average S&P 500 ROE of 12.2%. *Id.*