Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90

WIRELINE COMPETITION BUREAU

RATE OF RETURN REPRESCRIPTION STAFF REPORT

COMMENTS OF
THE NATIONAL TRIBAL TELECOMMUNICATIONS ASSOCIATION

July 25, 2013

I. INTRODUCTION AND SUMMARY

The National Tribal Telecommunications Association (NTTA) provides these comments regarding the Wireline Competition Bureau (Bureau) Staff Report entitled "Prescribing the Authorized Rate of Return - Analysis of Methods for Establishing Just and Reasonable Rates for Local Exchange Carriers."[1] The *Staff Report* continues the work started in the Federal Communication Commission's (FCC) landmark ICC/USF Transformation Order and accompanying Further Notice of Proposed Rulemaking in which the FCC stated its intent to revisit the current authorized interstate rate of return.[2]

NTTA consists of Tribally-owned communications companies including Cheyenne River Sioux Telephone Authority, Fort Mojave Telecommunications, Inc., Gila River Telecommunications, Inc., Hopi Telecommunications, Inc., Mescalero Apache Telecom, Inc., Native American Telecom – Crow Creek, Native American Telecom - Pine Ridge, Saddleback Communications, San Carlos Apache Telecommunications Utility, Inc., Tohono O'odham Utility Authority, and Warm Springs Telecom. NTTA's mission is to be the national advocate for telecommunications service on behalf of its member companies and to provide guidance and assistance to members who are working to provide modern telecommunications services to Tribal lands. In large part, NTTA's members will be directly impacted by any revisions made to the interstate authorized rate-of-return (RoR) due to their status as RoR-regulated carriers.

NTTA will demonstrate below that, although the *Staff Report* relies upon traditional, textbook methods for estimating the weighted average cost of capital, there are several major flaws in the Bureau's methodology that result in an unreasonably low range of rates of return.

II. THE *STAFF REPORT* FAILS TO ACKNOWLEDGE THE FINDINGS IN THE FNPRM REGARDING TRIBALLY-OWNED CARRIERS

In the FNPRM, the FCC made a statement regarding the realities of the areas served by Tribally-owned telecommunications companies:

[1] See Public Notice, Wireline Competition Bureau Seeks Comment on Rate of Return Represcription Staff Report, DA 13-1110 (rel. May 16, 2013) (*Staff Report*)
[2] *Report and Order and Further Notice of Proposed Rulemaking*, WC Docket No. 10-90, et al., FCC 11-161 (rel. November 18, 2011) at 1044-1060

> *Tribally-Owned and Operated Carriers.* We seek comment on how to account for Tribally-owned and operated carriers in this prescription, and whether a different rate of return is warranted for these carriers. Tribal governments, and by extension, Tribally-owned and operated carriers, play a vital role in serving the needs and interests of their local communities, often in remote, low-income, and underserved regions of the country. Tribally-owned and operated carriers serve cyclically impoverished communities with a historical lack of critical infrastructure. Reservation-based economies lack fundamental similarities to non-reservation economies and are among the most impoverished economies in the country. Tribal Nations also cannot collateralize trust land assets, and as a result, have more limited abilities to access credit and capital. We seek comment on how such considerations should be reflected in our analysis.[3]

Embedded in this paragraph are several undisputed findings of fact, including:

- Tribally-owned carriers play a vital role in serving…often…remote, low income and underserved regions of the country
- Tribally-owned carriers serve cyclically impoverished communities with a historical lack of critical infrastructure
- Reservation-based communities lack fundamental similarities to non-reservation economies and are among the most impoverished economies in the country
- Tribal Nations cannot collateralize trust land assets, and as a result, have more limited abilities to access credit and capital

The FCC brought this up in the context of the represcription of the RoR in order to raise the question of whether a different rate of return is warranted for Tribally-owned carriers.[4] The FCC received comment from at least three parties on options to address this question.[5] Unfortunately, the *Staff Report* seems to completely ignore the statement made in the FNPRM about Tribally-owned carriers and the comments made in response.

It is troubling that the *Staff Report*, an otherwise reasonable discussion of how to determine the authorized RoR, should ignore key considerations such as contained in the FNPRM at paragraph 1059. As correctly stated in the FNPRM, "[W]e believe updating the rate of return is necessary for rate-of-return carriers to both attract capital on reasonable terms in today's markets and encourage economically sound network investments."[6] Implicit in the methods used to ensure capital can be accessed on reasonable terms in today's markets and ensure network investments are economically sound are factors to assess risk such as those listed above. Furthermore, the FCC was correct in pointing out the inherent differences in areas served by Tribally-owned carriers as compared to other carriers of

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[3] *Id*., at 1059
[4] *Id.*
[5] See January 18, 2012 Comments of Mescalero Apache Telecom, Inc., Hopi Telecommunications, Inc., and The Gila River Indian Community and Gila River Telecommunications, Inc., WC Docket No. 10-90, et al.
[6] *ICC/USF Transformation Order* (FNPRM) at 1047

comparable size. Therefore, NTTA will provide comments below that will assist the Bureau and the FCC in recognizing these factors when adopting a revised interstate RoR.

III. THE IMPACTS OF STAFF'S RECOMMENDED RATE OF RETURN ARE SIGNIFICANT WHEN APPLIED TO NTTA MEMBERS

Missing from the *Staff Report* is any consideration of the impact of reducing the interstate RoR from its current 11.25% level to the levels recommended by Staff. The direct impacts on NTTA members are related to (1) federal high cost loop support (HCLS) and (2) interstate common line and special access including, importantly, DSL services. Indirect impacts include the adverse reaction of the limited capital markets that NTTA members have access to, as well as the overall signal lowering the RoR in the current environment gives to Tribal and Tribally-owned carrier management.

The current interstate authorized RoR, 11.25%, has been in place since 1990. Since that time, the FCC has implemented the Telecommunications Act of 1996, which had the general effect of opening local telecommunications markets to competition, provided universal service support to wireless carriers in hopes of incenting further competition in the universal service market, overhauled the interstate access charge system by removing implicit subsidies and making them explicit through additional federal support, and, most recently, released the *ICC/USF Transformation Order*. In the midst of these major changes, the FCC also increased end user charges through increases in the interstate subscriber line charge and creation of the Access Replacement Charge. Now, the *Staff Report* advocates for, at the high end of the range, a 22% reduction in the rate that NTTA members will be allowed to earn on investment made in providing interstate common line, special access, DSL, and other broadband-related services. From a pure regulatory standpoint, the changes listed above serve to *increase* the risk of operating an RLEC, which should, in a rational world, *increase* the RoR. Instead, the RoR resulting from the *Staff Report* assumes, against good judgment and common sense, that the overall risk has decreased. All other technical evidence aside, the reasonableness of reducing the RoR that was first adopted in 1990 is sorely lacking.

For NTTA members, the middle of the RoR range recommended in the *Staff Report*, 8.5%, will cause real and adverse effects on the ability to bring quality voice and broadband services to Tribal areas. For HCLS, a reduction in the RoR to 8.5% will cause an average 11% decrease, or approximately $220,000 annually, for each NTTA member. The decreases in annual HCLS range from a low of $70,000 to a high of $530,000. In regards to interstate common line and special access (including DSL/other broadband access), a reduction in the RoR to 8.5% will decrease revenues by an average of 7%, or

approximately $132,000 annually for each member. Together, the RoR reduction will cause an approximate 8% average decrease, or $326,000, in annual revenues for NTTA member companies. These losses will translate into real and immediate hardships for NTTA members - on top of those already experienced upon adoption of the *ICC/USF Transformation Order*.

Also working against the NTTA members is general access line reductions, which in Tribal areas may indicate a number of things - competition, population decline, and economic factors, to name a few. In the case of economic factors, even with the assistance of the Federal Lifeline program, the financial situation for many customers may be such that telephone service is not an option. Regardless of the reasons, NTTA members, on average, have lost over 12% of their access lines since 2008. This fact makes it even more difficult for Tribally-owned carriers to maintain what little scale and scope they have, which in turn makes it even more problematic to access the limited capital markets available to small rural carriers.

A key consideration during this process will be to ensure NTTA members, as well as other small RLECs, have the means necessary to continue the important work of bringing quality broadband services to high cost areas. While NTTA members have done a commendable job in bringing broadband to Tribal areas, much work is left to be done. Indeed, the latest Broadband Progress Report issued by the Commission says as much - "*approximately 29 percent of Americans residing on Tribal lands are without access to fixed broadband meeting the speed benchmark compared to only 6 percent of Americans overall.*"[7] The problem is even more exacerbated in rural Tribal areas, where the percent of Americans without access to fixed broadband jumps to 49.5%.[8] Clearly, reducing the RoR on the very investment necessary to bring broadband service to rural Tribal areas is counterproductive, at best, and disastrous, at worst.[9]

IV. THE *STAFF REPORT*'S PROXY LIST BEARS LITTLE RESEMBLANCE TO NTTA MEMBERS

The *Staff Report* constructs a group of proxy companies whose data will be utilized in arriving at the estimated Weighted Average Cost of Capital ("WACC") to use for all RoR-regulated companies.[10] NTTA acknowledges the relative ease with which financial market data may be gathered from publicly-

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[7] *Eighth Broadband Progress Report*, Released August 21, 2012 in GN Docket 11-121 (FCC 12-90), at 50
[8] *Id*., at Table 4, and ¶52
[9] 47 USC § 1302(b) requires the Commission remove barriers to infrastructure investment if it finds advanced services are not being deployed in a reasonable and timely fashion. Reducing the RoR in areas where there is clearly still work to be done constitutes a direct barrier to infrastructure investment.
[10] *Staff Report* at 11-30

traded companies as compared to relevant data from the small, RoR-regulated carriers to whom the resultant WACC will be applied. However, and as discussed further herein, the proxy group used in the *Staff Report* is so substantially different from NTTA's members that major revisions to the resulting data, especially the Return on Equity ("ROE"), must be made.

Staff's proxy group consists of sixteen companies, stratified into three semi-homogenous subgroups - regional holding companies (RHC - AT&T, CenturyLink, and Verizon), midsize carriers (Alaska Communications, Cincinnati Bell, FairPoint, Frontier, Hawaiian Telcom, and Windstream) and RoR carriers (Alteva, Consolidated, HickoryTech, Lumos, New Ulm, Shenandoah and TDS). As is shown below, these carriers exhibit very little similarity to NTTA members.

Company Group	Access Lines	Total Revenues	Total Plant in Service	Accumulated Depreciation	Net Plant in Service
NTTA Average	2,467	$ 7,002,929	$ 26,214,508	$ 13,256,778	$ 12,957,730
Proxy Company Average	4,835,380	$ 17,663,273,312	$ 34,784,800,871	$ 19,901,473,431	$ 14,883,327,439
Magnitude Difference	1,960 x	2,522 x	1,327 x	1,501 x	1,149 x

As stated in the *Staff Report*, "[T]he reliability of the Commission's analysis depends in large part on the representativeness of the proxy group it uses."[11] In terms of the metrics reflected above, the only "representativeness" contained in the proxy group to NTTA members is that the proxy companies, in some form, all provide telecommunications and broadband services. The similarities end there, however, as the two largest carriers - AT&T and Verizon - derive 47% and 34%, respectively, of revenues from "regulated" operations.[12] In contrast, NTTA members, on average, derive approximately 90% of revenues from regulated operations. This shows that, on average, the proxy companies have diversified operations that tend to spread risk more evenly, while NTTA members are much more dependent upon a narrower range of regulated services. The above comparative information also shows that, without a doubt, the proxy group enjoys a scale and scope of operations that is many times that of the average NTTA member, thus making the proxy group only in the most rudimentary terms representative of NTTA members.

[11] *Id*., at 11
[12] Data obtained from 2012 SEC Form 10-K. Regulated revenues were derived from wireline segment financial information reported in each company's 10-K

In order to ensure the WACC derived from Staff's proxy company group data is reasonable, the Commission must recognize the major differences this group exhibits as compared to the NTTA group. Therefore, as argued below, the Commission must adopt certain adjustments to the WACC or it risks adopting a RoR for NTTA members that in no way, shape, or form will meet the criteria established:

- The RoR must be high enough to provide confidence in the financial integrity of the carrier, so that it may maintain its credit and attract capital.[13]
- The RoR should be commensurate with returns on investments in other enterprises having corresponding risks.[14]
- The return should not be higher than necessary for this purpose.[15]

In addition, NTTA recommends that the RoR adopted as a result of the represcription process fairly compensate the utility for its invested capital and enable the utility to compete for new capital on equal terms with other businesses in the same geographic area having similar risks.

V. THE WACC ANALYSIS NEEDS TO BE ADJUSTED TO RECOGNIZE THE DIFFERENCES BETWEEN THE PROXY COMPANIES AND NTTA'S MEMBERS

NTTA recommends the Commission adopt two adjustments to the WACC analysis contained in the *Staff Report*. First, the Commission must recognize that, as compared to the proxy group companies, NTTA members are orders of magnitude smaller and, as such, require a premium to be added to the estimated ROE to reflect the fact that "investors require an additional reward, in the form of additional return, to take on the added risk of an investment in small capitalization stock."[16] Second, NTTA recommends the Commission adjust the capital structure used in the WACC calculation to better reflect the reality of doing business as a small, non-publicly traded RLEC.

A. The Cost of Equity Analysis Needs to be Adjusted to Recognize the Differences Between the Proxy Group Companies and NTTA's Members

NTTA's members are all Tribally-owned and operated rural LECs, and as mentioned above are orders of magnitude smaller than the average of the proxy group of companies reflected in the *Staff*

[13] *ICC/USF Transformation Order (FNPRM)* at 1045
[14] *Id*.
[15] *Id*.
[16] Ibbotson Associates, Stocks, Bonds, Bills, and Inflation; Valuation Edition - 2003 Yearbook, Chicago, IL, p. 117

Report.[17] In order to adequately capture the difference in risks between the companies in Staff's proxy group and the equity risks faced by the small companies comprising NTTA's membership, the Commission must make adjustments based on these very real and measureable differences.

The difference in risks faced by NTTA's members as compared to the companies in Staff's proxy group of companies relate to the additional risk represented in the following categories: (1) size, (2) industry, and (3) company-specific, including factors related to serving Tribal areas. Small capitalization firms require recognition of additional risk in any valuation exercise for numerous reasons, including limited scale and scope of operations, the concentration of business (and revenues) in a low number of customers, few financial resources, and many other issues. These are well-established, empirical facts, and are indeed addressed on an annual basis by leading investment resources such as the Ibbotson SBBI Valuation Yearbook and The Duff & Phelps Risk Premium Report.

Industry risks are those experienced by NTTA members and similar companies that are not necessarily experienced by the proxy companies. For the most part, the companies in Staff's proxy list are price cap regulated (or under a similar alternative regulatory regime) at the state and federal levels.[18] As small carriers with substantially fewer customers and sources of capital, NTTA's members are more susceptible to changes in regulation[19], the economy, and customer migration. While it may be argued by some that the proxy group, in general, faces more competition due to being more diversified as compared to small RLECs, this perceived difference in competitive risk was effectively eliminated by the adoption of the 1996 Telecommunications Act and the steady march, at both the state and federal levels, of competition-friendly regulatory policy.

Company-specific risks are those experienced by NTTA members due to their unique characteristics that differ from the proxy companies. NTTA member company-specific risks include the factors specific to serving only Tribal areas: their extremely small sizes, the fact that equity investments in NTTA member companies are highly illiquid and unmarketable, concentration of business, and relatively high concentration of Lifeline customers.[20] Each of these factors contributes to the risk of doing business experienced by NTTA members in comparison to the proxy group companies, and which should be recognized in the determination of the RoR.

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[17] For example, NTTA members, on average, have 1960 times less access lines than the average of the proxy companies (see section III *infra*)

[18] The obvious exception is Staff's RoR subgroup.

[19] In fact, industry risk caused by regulatory changes are in large part outside the control of NTTA members, and are thus a substantial addition to the risk faced by the proxy group (on average).

[20] For NTTA members, on average, approximately 21% of access lines are Lifeline access lines, with many member companies realizing over 60% Lifeline take rates

Included in the definition of company-specific risks, but deserving of special attention, is the risk associated with serving in Tribal areas as Tribally-owned RLECs. As noted in the *ICC/USF Transformation Order* and as discussed above[21], the areas served by NTTA members are in chronically depressed economic areas, and which were historically underserved until NTTA member companies entered the market. These areas typically have relatively high unemployment rates, and the labor pool presents further challenge for NTTA members as it is sometimes difficult to find qualified labor from the Tribal community. NTTA members, in large part, serve only Tribal areas, and are thus constrained by the factors existing in Tribal areas as to opportunities for business growth, increases in average revenues per customer, and access to capital.

Given the above facts, the Commission should adjust the WACC resulting from the analysis presented in the *Staff Report* to reflect certain risk premia - those related to size, marketability, and a factor for Tribally-owned carriers: a Tribal Risk premium. NTTA recommends the Commission accept widely-used and respected sources in arriving at an overall risk premium (one that encompasses size and a Tribal area factor), as well as a factor to reflect the overall lack of marketability of NTTA company equity and debt.

For the size (and Tribal area) factors, NTTA recommends two sources, as stated above, which are Ibbotson and Duff & Phelps. According to Ibbotson, the size premium, stated in terms of the return in excess of the CAPM for "micro-capitalization" stocks is 4.20%.[22] Duff & Phelps indicates a CAPM premium of 6.17% for companies with average annual sales of $155 million.[23]

Lack of marketability is a widely-used factor in determining the overall value of a security. In summary, the theory behind adjusting a security to recognize the lack of marketability (discount for lack of marketability or DLOM) relates the firmly established fact that investors value the ability to liquidate an ownership position quickly, at a known market price, with low transaction costs. Unmarketable investments require a substantial discount to account for the additional risk of loss due to lack of liquidity. For NTTA members, stock is not publicly traded, sale or transfer of shares may be restricted by corporate or Tribal bylaws, and the industry risk related to future revenue streams has further depressed whatever market for sale might otherwise be available.

NTTA recommends the Commission adopt the upper end of the range (6.17%) as a proxy for the various increased risks. This size risk premium, supported by reputable financial sources, should be added to the CAPM and DCF-derived ROEs, both the upper and lower bounds, reflected in the *Staff*

[21] See Section II *infra*
[22] 2013 Ibbotson Risk Premia Over Time Report, Appendix A, Table A-6
[23] The Duff & Phelps Risk Premium Report 2013, Exhibit B-7 (Portfolio Rank 25, the smallest tracked)

Report in Appendix K. In addition, the Commission should account for the lack of marketability as discussed above by incorporating a DOLM to the CAPM and DCF-derived ROEs. NTTA will present a recommended WACC below, based on the risk premia adjustments discussed in this section, and a revision to the capital structure discussed further below.

B. The Capital Structure Should be Adjusted to Reflect 60% Equity and 40% Long Term Debt

According to the *Staff Report*, the Commission should utilize a market-based capital structure that, based on Staff's proxy group, results in a capital structure that is 46% equity and 54% debt, utilizing all companies in Staff's proxy group.[24] However, in a footnote in the *Staff Report*, the debt ratio resulting from excluding FairPoint, Hawaiian Telcom, and Lumos is presented at 51% for 2012, and decreases to 46% using an average over the past five years.[25] Excluding FairPoint, Hawaiian Telcom, and Lumos was presumably done due to the outlying nature of some of these companies' statistics.[26] NTTA believes the Commission should utilize a capital structure that better reflects the operating and financial characteristics of small, rural ILECs.

One of the key characteristics of small, rural LECs is their inherent lack of easy access to capital markets. While many rural LECs may have access to additional debt through sources such as the Rural Utilities Service (RUS) and CoBank, the fact remains that small RLECs must have a ready source of capital from which to draw to finance current and long term operations. For a non-publicly traded company, there is only so much debt that can be taken on, and thus most capital needs come from retained earnings (equity). Furthermore, when uncertainties facing small RLECs are increasing, such as in the post-ICC/USF Transformation Order environment, reliance on debt will naturally, and rationally, decrease. As a result of the realities of operating a small, non-publicly traded rural LEC in today's environment, the Commission must reflect a higher equity ratio in its calculation of the WACC. NTTA recommends the Commission utilize a capital structure that is 60% equity and 40% debt, based on the average capital structures for Staff's proxy group, excluding the midsize carriers).[27]

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[24] *Id*., at 44 ("*We therefore recommend…market value capital structures should be used to calculate the WACC*"); footnote 78 ("*We will use 2012 market values…*"); Appendix I1

[25] *Id*., footnote 78

[26] See e.g., *Staff Report* at 41 ("*…FairPoint ha[s] non-investment bond ratings*"); and footnote 75 ("*…excluding FairPoint, and also Hawaiian Telcom and Lumos, as capital structure data was not available for either of the latter two carriers for every year of the five-year period…*").

[27] This average equals 40.08%. Midsize carriers can reasonably be excluded for several factors, including (1) the relatively high level of debt resulting from acquisition activity (FairPoint, Windstream), and (2) non-investment grade bond ratings, which reflect higher risk and higher interest costs, are noted for some of the carriers (FairPoint, Cincinnati Bell)

C. NTTA Recommends the Commission Adopt a New WACC Utilizing an Adjusted Capital Structure and Recognition of Risk Premia

Based on the above discussion regarding risk premia adjustments to the CAPM and DCF ROE analyses and the necessary changes to the implied capital structure used in the WACC calculation, NTTA recommends for Tribally-owned RLECs that the Commission adopt a result of 16.08%. This result is computed as follows[28]:

WACC Calculation

	DCF		CAPM	
	Lower Range	*Upper Range*	*Lower Range*	*Upper Range*
Equity				
Cost of Equity Per Staff Report	10.54%	11.58%	8.69%	11.35%
NTTA Size Premium	6.17%	6.17%	6.17%	6.17%
ROE, Adjusted for Size	16.71%	17.75%	14.86%	17.52%
Discount for Lack of Marketability Factor*	1.27714	1.27714	1.27714	1.27714
ROE, Adjusted for Size and DLOM	**21.34%**	**22.67%**	**18.98%**	**22.38%**
Capital Structure Weight	60.00%	60.00%	60.00%	60.00%
Weighted Cost of Equity	12.80%	13.60%	11.39%	13.43%
Debt				
Cost of Debt	6.19%	6.19%	6.19%	6.19%
Capital Structure Weight	40.00%	40.00%	40.00%	40.00%
Weighted Cost of Debt	2.48%	2.48%	2.48%	2.48%
Weighted Cost of Capital	**15.28%**	**16.08%**	**13.86%**	**15.90%**

* DLOM is 21.70%, factor is [1/(1-.2170)]

VI. CONCLUSION

While the framework of the WACC analysis outlined in the *Staff Report* represents a reasoned approach, NTTA strongly disagrees with the practical application of the Staff's methods to Tribally-owned communications companies. Since the current RoR was adopted in 1990, it is indisputable that the RLEC industry has undergone upheaval (arguably several times over) that has served to increase the risk of operating in the telecommunications industry. It is axiomatic that increased risk leads to increased rates of return (reward) - investors demand higher returns in exchange for taking on

[28] DLOM reflects two methods, based on analyses of Restricted Stock and Private Placement Studies, for which empirical data is available. See Appendix 1.

additional risks. Instead, the *Staff Report* recommends a significant reduction in the RoR to be applied to RoR-regulated companies. Besides being nonsensical, such a recommendation is harmful, bordering on disastrous in relation to NTTA members' ability to continue the provision of voice service, and to maintain and expand the provision of quality broadband services in Tribal areas. Instead of adopting the range of RoRs contained in the *Staff Report*, the Commission should adopt a 16.08% RoR for Tribally-owned carriers as discussed herein.

Respectfully Submitted,

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July 25, 2013

The National Tribal Telecommunications Association **APPENDIX 1**
WC Docket No. 10-90, Rate of Return Represcription Comments
Summary of Restricted Stock and Private Placement Studies

Study	Date	Period covered	# of companies	Discount Mean	Discount Median
SEC Institutional Investor Study Report, 1971	1971	66-69	398	24.00%	
Gelman restricted stock, 1972	1972	68-70	89	33.00%	33.00%
Moroney, 1973	1973	68-70	145	35.60%	33.00%
Maher, 1976	1976	69-73	34	35.50%	33.30%
Trout	1977	68-70	60	33.50%	
Standard Research Consultants	1981	78-82	28		45.00%
Johnson & Racette	1981	67-73	86	34.00%	
Willamette Management Associates	1989	81-84	33		31.20%
Wruck, Karen H.	1989	79-84			
Registered			36	-4.10%	1.80%
Unregistered			37	13.50%	12.20%
Silber	1991	81-88	69	33.80%	
Hertzel & Smith	1993	80-87	106	20.10%	13.30%
Management Planning, Inc.	1997	80-95	49	27.70%	28.80%
Johnson, 1999	1999	91-95	72	20.20%	
Columbia Financial Advisors	2000	96-97	23	21.00%	14.00%
Columbia Financial Advisors	2000	97-98	15	13.00%	9.00%
Bajaj, Denis, Ferris, Sarin 2001	2001	90-95			
All			88	22.20%	20.70%
Registered			37	14.00%	9.90%
Unregistered			51	28.10%	26.50%
FMV Database, 1980 - 4/1997	2010	80-97	243	22.80%	20.80%
FMV Database, 5/1997 -10/2007	2010	97-07	311	20.80%	16.00%
FMV Database, 11/2007 - 10/2008	2010	07-08	43	8.60%	6.00%
Finnerty	2003	91-97	101	20.10%	15.50%
				18.40%	16.70%
Wu	2004	86-97	301	8.70%	19.80%
Barclay/Holderness/Sheehan	2006	79-97	594	18.70%	17.40%
Harris-Trugman Valuation Associates	2009	07-08	80	18.10%	14.40%
Average				**21.70%**	**19.20%**

Sources:

(1) Discounts for Lack of Marketability - Theory, Evidence and Technique by John J. Stockdale, Sr. The publication is available at www.bvresources.com

(2) Information from Valuation Advisors, LLC, also available at www.bvresources.com