Theory and Evidence..

Closed-End Funds, Alpha and the Price to Book Value Multiple

by

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Executive Summary- Closed End Funds, Alpha and the PBV Multiple

The Closed End Fund Puzzle

Closed end funds, although similar to open end funds in basic purpose, are quite different in underlying structure and functionality. Closed end funds differ from open ended funds in that their shares are not directly redeemable at net asset value (NAV) from their parent mutual fund company. Rather, investors are given shares in a publicly traded entity which they can sell on the open market as they could any other security. NAV is still reported as it would be in an open ended fund, but serves rather as a proxy to let investors know where the performance of the fund stands and what the fund's current value is. The interesting thing about these funds is that they often trade at prices that significantly differ from NAV. This has intrigued many academics and industry professionals over the years. Why should a fund, whose assets are reported on a daily basis, whose liquidation value is known, trade for prices that differ materially from its underlying value? This is the closed end fund puzzle. It appears that markets are not accurately pricing these securities based on current information and capital movement. I believe, however, that this price discrepancy is, for the most part, justified and that the markets are acting efficiently. In other words, the market is pricing these securities based on certain underlying fundamentals which, in the long run and on the aggregate, accurately place value on the closed end fund entity.

Hypothesis

A closed end fund, in its simplest sense, is a corporation. It is, for example, similar to an asset management firm in purpose and service. It garners assets from individuals, be it individual investors or institutional investors, invests them based on a specific investment strategy, takes a management fee from these investors, and, hopefully, delivers them excess returns or alpha. From a corporate finance perspective, a closed end fund is a financial services company, but more simply than this, it is a company. One should care little whether its job is to invest in publicly traded securities or make widgets. In the end, there is only one thing investors care about, that is the cash flow which the entity is able to derive and deliver from the market place.

As such, a closed end fund should be priced according to the same fundamentals that drive the value of other publicly traded companies: future cash flow. Obtaining estimates of future cash flow, however, would, quite clearly, be difficult; the fund's holdings constantly change, performance varies and innumerable factors affect the market's performance. As such, a discounted cash flow analysis would do little in the way of helping us come up with an accurate value of the closed end fund. However, we have all the information we need to price this security on a relative basis. The main driver of relative value for financial services companies is the price to book value multiple, and I believe this multiple is what drives the value of a closed end fund and determines the premiums/discounts we often observe on them.

Testing this Theory

To test this theory, the component variables of the price to book value multiple were examined against premium/discount movement for 14 all equity closed end mutual funds. These variables included alpha, lagged alpha, annual return (which served as a proxy for Return on Equity) and cost of equity. Time series regressions were performed with daily premiums/discounts regressed against the funds annual alpha, lagged alpha, annual return and cost of equity, calculated on that same day for the prior 365 day period.

The funds' daily premiums/discounts in relation to alpha and 6 month lagged alpha showed an interesting similarity. In both multi-linear regressions, with both variables included, and stand alone regressions, where each variable was examined against premiums/discounts separately, the majority of them showed high R-squared numbers, as well as high, positive T-scores for the alpha and lagged alpha variables. Table A below shows the results of the stand alone regressions.

Table A

		Alpha	
Closed End Fund	**Symbol**	**R-Squared**	**T-Statistic**

Blue Chip Value Fund	BLU	56.40%	34.11
H&Q Healthcare Investors	HQH	45.70%	26.33
H&Q Life Sciences Investors	HQL	40.60%	23.80
Cornerstone Strategic Value Fund	CLM	71.70%	22.28
J Hancock Bank & Thrift Oppty Fund	BTO	34.80%	21.90
Chartwell Dividend & Income Fund	CWF	27.10%	18.28
J Hancock Financial Trends Fund	JHFT	23.70%	16.72
Cornerstone Total Return Fund	CRF	54.70%	15.39
First Financial Fund	FF	8.00%	4.01
Delaware Invtmts. Dividend & Income	DDF	1.20%	3.16
Gabelli Utility Trust	GUT	0.00%	-0.35
DNP Select Income Fund	DNP	6.60%	-3.63
Royce Value Trust	RVT	2.20%	-4.48
Gabelli Equity Trust	GAB	17.00%	-13.58

		6 Month Lagged Alpha	
Closed End Fund	**Symbol**	**R-Squared**	**T-Statistic**
Blue Chip Value Fund	BLU	46.80%	28.12
Cornerstone Strategic Value Fund	CLM	79.00%	27.19
H&Q Healthcare Investors	HQH	26.10%	17.04
H&Q Life Sciences Investors	HQL	18.50%	13.70
Cornerstone Total Return Fund	CRF	45.50%	12.79
Chartwell Dividend & Income Fund	CWF	3.00%	5.29
J Hancock Bank & Thrift Oppty Fund	BTO	0.70%	2.52
Gabelli Equity Trust	GAB	0.30%	1.58
Delaware Investments Dividend & Income	DDF	0.00%	0.27
Royce Value Trust	RVT	0.20%	-1.40
First Financial Fund	FF	3.00%	-2.41
Gabelli Utility Trust	GUT	1.40%	-3.52
J Hancock Financial Trends Fund	JHFT	2.40%	-4.68
DNP Select Income Fund	DNP	39.10%	-10.97

This strong correlation lends much support to the fact that alpha, a main driver of the PBV multiple, is in fact driving a good portion of the premium/discount movement we observe on these funds. To further test this theory, annual return and cost of equity, the components of alpha, were also regressed against premium/discount movement. The results remained statistically significant lending further support to this theory. Table B shows the r-squared numbers and t-statistics from these regressions.

Table B

		Annual Return	
Closed End Fund	**Symbol**	**R-Squared**	**T-Statistic**
Blue Chip Value Fund	BLU	56.20%	33.95

H&Q Healthcare Investors	HQH	45.20%	26.06
H&Q Life Sciences Investors	HQL	40.00%	23.51
Cornerstone Strategic Value Fund	CLM	71.90%	22.37
J Hancock Bank & Thrift Oppty Fund	BTO	32.10%	20.61
Chartwell Dividend & Income Fund	CWF	27.60%	18.50
J Hancock Financial Trends Fund	JHFT	21.50%	15.69
Cornerstone Total Return Fund	CRF	54.40%	15.30
First Financial Fund	FF	7.60%	3.92
Delaware Investments Dividend & Income	DDF	1.60%	3.62
Gabelli Utility Trust	GUT	0.70%	-2.46
DNP Select Income Fund	DNP	9.50%	-4.42
Royce Value Trust	RVT	2.80%	-5.10
Gabelli Equity Trust	GAB	15.70%	-12.91
		Cost of Equity	
Closed End Fund	**Symbol**	**R-Squared**	**T-Statistic**
Gabelli Utility Trust	GUT	49.40%	-29.63
J Hancock Bank & Thrift Oppty Fund	BTO	30.00%	-19.62
Royce Value Trust	RVT	25.00%	-17.30
J Hancock Financial Trends Fund	JHFT	22.20%	-16.01
DNP Select Income Fund	DNP	56.50%	-15.58
H&Q Healthcare Investors	HQH	19.40%	-14.07
H&Q Life Sciences Investors	HQL	18.90%	-13.91
Blue Chip Value Fund	BLU	9.20%	-9.51
Cornerstone Strategic Value Fund	CLM	28.00%	-8.74
Cornerstone Total Return Fund	CRF	7.80%	-4.07
First Financial Fund	FF	0.40%	-0.91
Chartwell Dividend & Income Fund	CWF	0.20%	1.50
Delaware Investments Dividend & Income	DDF	13.30%	11.05
Gabelli Equity Trust	GAB	19.10%	14.54

Aside from the strong link between the component variables of the PBV multiple and the premiums and discounts observed on these funds, if we assume that the closed end fund is an all equity corporation whose book value of equity is marked to market daily as its NAV, then the price to book value on a closed end fund can be written as Price to Book Value = P_t/NAV_t and its premium/discount can be written as Premium/Discount = $(P_t-NAV_t)/ NAV_t$. In this way, the PBV multiple becomes a function of the premiums and discounts observed on these funds.

Conclusion

The premiums and discounts on closed end funds show a strong correlation to alpha, lagged alpha, annual return and cost of equity. When NAV is viewed as a marker for book value of

equity, a funds price to book ratio or price to NAV becomes a derivation of the premium or discount it trades at. On top of this, price to book value multiples are driven by the same underlying variables, return on equity (annual return) and cost of equity, that appear to explain a large portion of the closed end funds' premium/discount movement.

Fundamentally, a closed end fund is no different than an asset management firm or any other firm, for that matter, whose goal it is to generate free cash. As such, it should be priced on the same corporate finance principles. It appears in the case of closed end funds, that the multiple most readily driving the fund's price is the price to book value multiple.

Closed End Funds, Alpha, and the Price-to-Book Value Multiple

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Honors Thesis

Abstract:

This article presents a new hypothesis on the closed end fund puzzle seeking to explain why the market value of these investment vehicles often differs materially from their Net Asset Value. It begins by examining the strong correlation between alpha/lagged alpha and the premiums and discounts observed on closed end funds. Following this, it explores the correlation between the component variables of alpha, return on equity and cost of equity, and the same premium and discount movements. With the correlation of these variables explained, the article takes a unique approach to explaining the cause of this intriguing puzzle. In short, return on equity and cost of equity are the two fundamental drivers behind the price to book value multiple, which is in fact the main relative value driver for financial services companies. Closed end funds, which can be viewed as corporations similar to asset management companies in purpose and cash flow derivation, should trade on the same principles and drivers that guide the market price of these companies. As such, the closed end fund investment vehicle should trade and does trade on a price to book value multiple.

Introduction

The theory of market efficiency has long been known to guide the accurate pricing of securities based on the free flow of information and capital (E.F. Fama (1970)). In essence, mass flow of capital and information should lead to the average incorporation of all factors which effect price at any given moment in time. Closed end funds, however, have been seen as a unique anomaly to this theory and, for years, have provided a counterfactual to the theory of an efficient market.

Closed end funds, although similar to open end funds in basic purpose, are quite different in underlying structure and functionality. Closed end funds are traded bundles of traded assets. Money is raised from the capital markets to create a fund, whose purpose, as specified based on investment strategy, is to invest in publicly traded securities. This fund, however, differs from an open ended mutual fund in that its shares are not directly redeemable at net asset value (NAV) from the parent mutual fund company. In short, one's capital investment in the fund is never returned directly to them from the fund itself. Exceptions, of course, include such events as liquidation and the open-ending of closed-end funds. Rather, investors are given shares in a publicly traded entity which they can sell on the open market as they could any other security. NAV is still reported as it would be in an open ended fund, but serves rather as a proxy to let investors know where the performance of the fund stands and what the fund's current value is.

So, what is the closed end fund puzzle and why have closed end funds provided this supposed counterfactual to the efficient market hypothesis? Closed end funds often trade at prices that significantly differ from NAV. These differentials far exceed the small price

anomalies which would and should be expected. Such expected differentials result from factors including management ability, management fees, performance fees, trading costs and differential tax rates across investors. Closed end funds, however, often trade at large (above 20%) premiums and discounts, numbers which clearly show there is more to the picture. This has intrigued many academics and industry professionals over the years. Why should a fund, whose assets are reported on a daily basis, whose liquidation value is known, trade for prices that differ materially from its underlying value? This is the closed end fund puzzle. This puzzle sets a clear stage for why many would, thus, see it as a counterfactual to the efficient market hypothesis. It appears that markets are not accurately pricing these securities based on current information and capital movement. Although the lack of arbitrage opportunity, resulting from the NAV/market price differential and prevented by the funds closed end structure, do not directly push the two to converge, shouldn't the free flow of information and capital cause them too naturally? As I will show, I believe that this price discrepancy is, for the most part, justified and that the markets are, in this case, acting efficiently. In other words, the market is pricing these securities based on certain underlying fundamentals which, in the long run and on the aggregate, accurately place value on the closed end fund entity.

Working Theories of the Closed End Fund Puzzle

What, though, has the majority of academia contributed this puzzle to? There are several working theories which do show strong statistical relationships between certain variables and the discounts/premiums that exist on these funds. Two of these theories, the first based on agency costs and the second asset liquidity, have often held the spot light. The relationships expressed in these theories, however, must be examined cautiously. As we

know, cum hoc ergo propter hoc ("with this, therefore because of this") can often lead to false reasoning and explanation.

Asset Liquidity

Many have suggested that the liquidity of the securities held by closed end funds and the liquidity of the fund itself can do well toward explaining premium/discount movements. The restricted stock hypothesis suggests that closed end funds tend to hold large quantities of lettered stock which do not freely trade on the market. Therefore, these securities are not always accurately priced and often contain a liquidity discount. The market price on these funds, however, takes this mis-pricing into account and accurately reflects its value. This idea does not seem plausible for two reasons. First, many closed end funds that trade at substantial premiums/discounts hold only liquid securities (Shleifer (1991)). Second, the total holdings of a fund are only disclosed periodically and, of course, vary often. This makes it highly unlikely that the market reincorporates the "accurate" value of the illiquid securities for which they can not accurately say are still held by the fund. It seems more likely in this instance that the market would place additional risk on the fund given the lack of information regarding the fund's investments. This may cause it to trade at a small discount, but still could not explain the wide fluctuations in premiums and discounts observed.

The block discount hypothesis suggests that closed end funds often hold large blocks of securities whose resale value would not equal the current market price of the security. Such large "sell" volume should push the security price downward, making its value fall below current market price and, thus, NAV overstate the funds true liquidation value.

This runs counter to the fact that when funds are open-ended they often experience large positive returns (Shleifer (1991), Brickley and Schallheim (1985), Brauer (1984)).

Finally, many have suggested that the overall liquidity and trading volume of a closed end fund can explain movements in premiums/discounts. Many of these volume and size liquidity based claims stem from the small stock discount theory. This theory rests on the premise that a closed end fund is a bundled set of larger securities, and as such, should hold a liquidity discount over the larger, more liquid securities it holds. This idea, regardless of whether it yields statistically significant explanatory power, can not explain intuitively explain large premium/discount movement and, as such, must not be looked at as its underlying cause. This is a classic example of the cum hoc ergo propter hoc fallacy. A fund that sees its discount or premium move should experience fluctuations in trading volume related to fund size. After all, supply and demand drive market price. Volume changes are a result of changes that alter a buyer and sellers willingness to interact in the market place. They are not, and must not, be looked at as the cause of the supply and demand fluctuations themselves.

Agency Costs

This theory posits that premiums/discounts on funds can be explained away through portfolio management fees and portfolio management performance. In other words, if a funds fee structure is too high or portfolio management sub par relative to its peer group the fund will trade at a large discount and if its fee structure is low or portfolio management above par relative to its peer group, it should trade at a large premium. In regards to fee structure, these costs as a percentage of fund value can do little to explain

the overall fluctuations in and volatility of premiums and discounts over time. Although the present value of performance fees can vary with interest rates, changes in premium/discounts do not show a strong correlation to changes in the term structure (Shleifer (1991)). Portfolio management performance, as I will show later, does offer strong statistical correlation in relation to premium/discount movements. But does this correlation mean causation? In this instance, I believe it does, but does so in tandem with other variables and for certain underlying, fundamental reasons.

Exploratory Research

Initially, this research began as an exploratory look into the differing variables which could perhaps explain the closed end fund puzzle. I did not enter this examination with a specific hypothesis in mind but rather limited opinion as to what could explain this intriguing puzzle. To that end, a cross-section of variables was examined across both of the above theories. In regard to the liquidity theory, market capitalization, volume and dollar volume were examined against movements in premiums/discounts. In regard to the agency theory, current annual portfolio management performance (as measured by alpha-α) and six month lagged annual portfolio management performance (as measured by alpha-α) were examined against premiums and discounts. To do this, 28 all equity closed end funds were analyzed on both a time series basis and cross-sectional basis. The results were quite interesting and have led me to propose a new theory on closed end fund premiums and discounts, as well as both how and why they exist.

Methodology and Data Collection

The 28 all equity funds were chosen based on their varying investment strategies, as well as their varying size. These funds spanned 5 different industries and/or investment ideologies: active, passive, value, dividend and income, utility, financial services and biotechnology and healthcare.

Table A: List of Closed End Funds

Closed End Fund	Symbol	Type	Advisor
Blue Chip Value Fund	BLU	Value	Denver Investment Advisors, LLC
Cornerstone Strategic Value Fund	CLM	Value	Cornerstone Advisors Inc.
Cornerstone Total Return Fund	CRF	Value	Cornerstone Advisors Inc.
First Trust/Value Line & Ibbotson	FVI	Value	First Trust Advisors
Gabelli Equity Trust	GAB	Value	Gabelli Funds, LLC
Royce Value Trust	RVT	Value	Royce & Associates, LLC
BlackRock Dividend Achievers Trust	BDV	Dividend/Income	BlackRock Advisors, Inc.
Chartwell Dividend & Income Fund	CWF	Dividend/Income	Chartwell Investment Partners, L.P.
Delaware Invmts. Dividend & Income	DDF	Dividend/Income	Delaware Investments
Dreman/Claymore Dividend & Income	DCS	Dividend/Income	Claymore Advisors, LLC
Gabelli Dividend & Income Trust	GDV	Dividend/Income	Gabelli Funds, LLC
Nuveen Diversified Dividend & Income	JDD	Dividend/Income	Nuveen Advisory Corp.
Cohen & Steers Select Utility Fund	UTF	Utility	Cohen & Steers Cap
DNP Select Income Fund	DNP	Utility	Duff & Phelps Investment Mgmt
Evergreen Utilities & High Income	ERH	Utility	Evergreen Investment Management
Gabelli Global Utility & Income Trust	GLU	Utility	Gabelli Funds, LLC
Gabelli Utility Trust	GUT	Utility	Gabelli Funds, LLC
HOLDRS Utilities	UTH	Utility	Merril Lynch, Inc.
Reaves Utility Income Trust	UTG	Utility	W.H. Reaves & Co., Inc
First Financial Fund	FF	Financial Services	Wellington Mang. Co
HOLDRS Regional Bank	RKH	Financial Services	Merril Lynch, Inc.
J Hancock Bank & Thrift Oppty Fund	BTO	Financial Services	John Hancock Advisors,LLC
J Hancock Financial Trends Fund	JHFT	Financial Services	John Hancock Advisors,LLC
RMR F.I.R.E. Fund	RFR	Financial Services	RMR Advisors, Inc.
H&Q Healthcare Investors	HQH	BioTech/Healthcare	Hambrecht & Quist Capital Mgmt
H&Q Life Sciences Investors	HQL	BioTech/Healthcare	Hambrecht & Quist Capital Mgmt
HOLDRS Biotech	BBH	BioTech/Healthcare	Merril Lynch, Inc.
HOLDRS Pharmaceutical	PPH	BioTech/Healthcare	Merril Lynch, Inc.

The historical prices on these funds, along with their dividends, market capitalization and daily volume, were obtained from CRSP (Center for Research of Securities Prices) daily

tape. Five year daily historical data on the 3-month Treasury Bill rate was also obtained from CRSP tape. The NAV on these funds was obtained from Bloomberg. All data on the funds was obtained on a daily basis for the 5 year time period January 1, 2000 to December 31, 2004, with the exception of several funds whose inception did not come until a later date. Along with the funds' data, historical prices and dividends on the Standard & Poors 500 stock index were obtained from Bloomberg.

This data allowed for the calculation of the funds' historical daily premiums/discounts, as well as the calculation of the funds' historical beta. To calculate the beta, weekly returns on each fund were obtained on a weekly basis over either the aforementioned 5 year period (January 1, 2000 to December 31, 2004) or the life of the fund. These weekly returns, both those of the funds and those of the S&P 500, were then regressed against each other to come up with an accurate reading of the funds statistical correlation to the market. Weekly returns were calculated as

$$(P_t + Div - P_{t-1})/ (P_{t-1})$$

Where,
P_t = Closing price on Friday
Div = Weekly dividends paid
P_{t-1} = Closing price on Friday one week earlier

To come up with the funds daily annual expected return based on the CAPM (Capital Asset Pricing Model), the funds beta, the three month Treasury Bill rate and the average annual implied equity risk premium were used. The implied equity risk premium data was obtained from Professor Aswath Damodaran at www.damodaran.com. The implied equity risk premium was calculated as an internal rate of return (IRR) on the S&P 500

Index using growth and dividend assumptions obtained from I/B/E/S. The calculation behind this risk premium is as follows:

$$P_{S\&P} = (DivYld)(P_{S\&P})(1+ g)[1- (1+g)^n/(1+r)^n] + [((DivYld)(P_{S\&P})(1+g)^n(1+g_n))/((r-g_n)(1+r)^n)]$$

&

$$\text{Implied Equity Risk Premium} = r - g_n$$

Where,
DivYield = Current dividend yield on the S&P 500
$P_{S\&P}$ = Current price of the S&P 500
g = Growth rate
n = Length of high growth phase in years
r = Return on the S&P 500
g_n = Growth rate of the economy

This equity risk premium was chosen over an historical risk premium because its fundamentals are based on the underlying assumption that markets are efficient and that securities are, on the aggregate, correctly priced.

Once again, the equity risk premium, the 3-month Treasury Bill rate and the funds beta were used to obtain a daily expected return on the security. From the security prices and dividends obtained from the CRSP tape, annual returns were obtained on the funds on a daily basis. The funds alpha was then measured on a daily historical basis. In other words, each day an annual return (using the previous 365 day holding period return with dividends included), as well as the corresponding expected annual return on the CAPM over the same 365 day period, were calculated. The difference between the two represented the alpha. Similarly, the 6 month lagged alpha was obtained by comparing the same calculation for alpha from six months prior with the current premium/discount levels. This was done for each fund over either the five year period, January 1, 2000 to

December 31, 2004, or the life of the fund. The following are the CAPM formulas used in deriving the expected return and alpha numbers:

$$E(r) = R_f + \beta(R_m - R_f)$$
&
$$R_A = R_f + \beta(R_m - R_f) + \alpha$$

Where,
$E(r)$ = Expected return
R_f = Risk free treasury rate
β = Beta
$(R_m - R_f)$ = Equity risk premium
R_A = Actual return
α = Excess return

Once the data was obtained, the daily historical premium/discount numbers were arrayed on a time series basis for each actively managed fund against its alpha, 6 month lagged alpha, and daily dollar volume. Dollar volume was calculated on a daily basis as the fund's daily volume multiplied by that days closing market price. This estimate does come with some standard error given the fact that prices change on a continuous basis throughout the trading day and the closing price was used to calculate dollar volume for all shares traded. Given the large value of dollar volume on these funds, the relatively small price fluctuations and the large sample size, however, these errors should average out over the entire sample.

It was also arrayed on a cross-sectional basis across these funds at specific moments in time. This was done on six month intervals for the last trading day of each month, June and December, for the years 2000 through 2004. In this way, a snap shot at a given moment, as well as each funds historical premiums/discounts, could be observed against these variables. For those funds whose inception date was more recent or which were passively managed, accurate measures of alpha and/or 6 month lagged alpha could not be

measured. These funds were left out of the alpha and lagged alpha analysis and were analyzed solely in relation to liquidity theory variables: market capitalization, volume and dollar volume.

Data Analysis

The regressions were then run on each fund according to the aforementioned setup. The actively managed funds' daily premiums/discounts in relation to alpha, 6 month lagged alpha and dollar volume showed an interesting similarity. The large majority of these regressions showed high R-squared numbers, as well as high, positive T-scores for the alpha and lagged alpha variables. There were, however, a few outliers. The dollar volume variable varied much from positive to negative and significant to insignificant T-scores and thus showed minimal stable correlation to the premium/discount variable. A summation of this data is presented in Table B below. Moreover, a full breakout of the raw regressions can be found in appendix B.

Table B: R-Squared & T-Score data on Time Series Regressions

			T-Score		
Closed End Fund	**Symbol**	**R-Squared**	**Alpha**	**Lagged Alpha**	**$ Volume**
Cornerstone Strategic Value Fund	CLM	89.30%	13.45	15.57	3.05
Blue Chip Value Fund	BLU	69.10%	24.14	16.95	-8.70
Cornerstone Total Return Fund	CRF	66.40%	7.52	6.98	4.63
H&Q Healthcare Investors	HQH	54.80%	22.83	12.30	1.08
H&Q Life Sciences Investors	HQL	47.00%	20.07	8.88	-5.01
J Hancock Bank & Thrift Oppty Fund	BTO	37.00%	21.31	-3.36	4.33
J Hancock Financial Trends Fund	JHFT	32.30%	19.55	-10.42	1.78
Chartwell Dividend & Income Fund	CWF	27.20%	17.19	-0.76	0.59
First Financial Fund	FF	21.40%	3.39	-2.51	5.04
Delaware Invmts. Dividend & Income	DDF	1.60%	3.38	-0.94	1.55
Gabelli Utility Trust	GUT	1.70%	-0.26	-3.85	-1.83
Royce Value Trust	RVT	2.30%	-4.30	-0.33	-1.11
Gabelli Equity Trust	GAB	29.70%	-16.39	8.89	7.92
DNP Select Income Fund	DNP	67.80%	-12.82	12.78	-7.14

To further test the high level of correlation between the premiums/discounts on these funds and their alpha and lagged alpha, separate non-multi linear regressions were run for each fund against these same variables: alpha against premiums/discounts and lagged alpha against premiums/discounts. In this way, each variable could be separately broken out against premium/discount movement and more clearly observed. The R-Squared and T-Scores on the alpha variable continued to remain strong. Ten out of fourteen funds showed meaningful positive T-Scores, with nine of their R-Squared numbers ranging between 24% and 72%. The lagged alpha variable became slightly stronger. In the multi-linear regressions, seven of fourteen T-Scores were meaningful and positive, 3 were negative but too small to be significant, and three were negative and significant. In the stand alone regressions of lagged alpha against premium/discounts, eight of the fourteen funds showed positive and meaningful T-Scores, with five of their R-Squared numbers ranging from 19% to 79%. Two of the T-Scores were negative and insignificant and the remaining four were negative and significant. However, only the R-Squared number on one of these last four (the DNP Select Income Fund) was large enough to be considered explanatory. The summation of this data is presented in Table C below. A full breakout of the raw regressions can be found in appendix C following this article.

Table C: R-Squared & T-Scores for separate break out of variables against premiums/discounts

		Alpha	
Closed End Fund	**Symbol**	**R-Squared**	**T-Statistic**
Blue Chip Value Fund	BLU	56.40%	34.11
H&Q Healthcare Investors	HQH	45.70%	26.33
H&Q Life Sciences Investors	HQL	40.60%	23.80
Cornerstone Strategic Value Fund	CLM	71.70%	22.28
J Hancock Bank & Thrift Oppty Fund	BTO	34.80%	21.90
Chartwell Dividend & Income Fund	CWF	27.10%	18.28
J Hancock Financial Trends Fund	JHFT	23.70%	16.72
Cornerstone Total Return Fund	CRF	54.70%	15.39
First Financial Fund	FF	8.00%	4.01

Delaware Invtmts. Dividend & Income	DDF	1.20%	3.16
Gabelli Utility Trust	GUT	0.00%	-0.35
DNP Select Income Fund	DNP	6.60%	-3.63
Royce Value Trust	RVT	2.20%	-4.48
Gabelli Equity Trust	GAB	17.00%	-13.58

		6 Month Lagged Alpha	
Closed End Fund	**Symbol**	**R-Squared**	**T-Statistic**
Blue Chip Value Fund	BLU	46.80%	28.12
Cornerstone Strategic Value Fund	CLM	79.00%	27.19
H&Q Healthcare Investors	HQH	26.10%	17.04
H&Q Life Sciences Investors	HQL	18.50%	13.70
Cornerstone Total Return Fund	CRF	45.50%	12.79
Chartwell Dividend & Income Fund	CWF	3.00%	5.29
J Hancock Bank & Thrift Oppty Fund	BTO	0.70%	2.52
Gabelli Equity Trust	GAB	0.30%	1.58
Delaware Investments Dividend & Income	DDF	0.00%	0.27
Royce Value Trust	RVT	0.20%	-1.40
First Financial Fund	FF	3.00%	-2.41
Gabelli Utility Trust	GUT	1.40%	-3.52
J Hancock Financial Trends Fund	JHFT	2.40%	-4.68
DNP Select Income Fund	DNP	39.10%	-10.97

Those funds which could not be regressed on the basis of alpha and lagged alpha, either because their life was too short to come up with meaningful alpha calculations or they were passively managed making such a calculation meaningless, were examined on the basis of market capitalization, volume and dollar volume in relation to premiums/discounts.

The time series regressions of these variables showed, in many instances, high R-Squared numbers. The t-scores between these variables varied within each regression from large positive to large negative numbers. The similar nature of these variables, along with this wide t-score fluctuation, suggests a high level of collinearity amongst them. I did not move further to separate out this internal correlation. As mentioned prior, these numbers must be examined cautiously; correlation may not mean causation. It seems unlikely that

liquidity would be the driver altering a fund's demand and, in turn, its premium/discount. Instead, changes in demand should alter liquidity and thus cause price movement. I, therefore, left my analysis of liquidity variables at this point. Nevertheless, the data from this analysis is presented below in Table D.

Table D: R-Squared & T-Scores for Liquidity Variables

			T-Score		
Closed End Fund	**Symbol**	**R-Squared**	**Market Cap.**	**Volume**	**Dollar Volume**
First Trust/Value Line & Ibbotson Equity	FVI	30.10%	-4.27	-7.99	8.10
BlackRock Dividend Achievers Trust	BDV	56.40%	-5.16	-17.77	17.53
Dreman/Claymore Dividend & Income	DCS	51.60%	-2.90	-9.50	8.67
Gabelli Dividend & Income Trust	GDV	83.80%	-4.85	-29.34	-27.45
Nuveen Diversified Dividend & Income	JDD	73.40%	16.57	1.61	-1.43
Cohen & Steers Select Utility Fund	UTF	25.30%	-0.65	-4.93	5.21
Evergreen Utilities & High Income	ERH	14.10%	2.25	-0.24	0.28
Gabelli Global Utility & Income Trust	GLU	43.80%	2.17	-4.31	4.39
HOLDRS Utilities	UTH	0.00%	-0.11	-0.39	0.34
Reaves Utility Income Trust	UTG	40.70%	3.62	-0.98	0.41
HOLDRS Regional Bank	RKH	90.00%	1.44	-1.46	1.68
RMR F.I.R.E. Fund	RFR	75.30%	46.20	-0.26	0.26
HOLDRS Biotech	BBH	10.00%	-0.99	-0.32	0.40
HOLDRS Pharmaceutical	PPH	80.00%	-2.38	-1.01	1.21

On a cross-sectional basis, the funds were examined at specific moments in time: the last trading day of each month, December and June for the years 2000-2004. The sample size was limited in this regard and, thus, multi-linear regressions could not be performed. Instead, only one variable at a time could be examined in relation to premium/discount movement and, even still, this sample was fairly small diminishing the confidence levels associated with the regressions. Moreover, it is difficult to gain an accurate picture of a funds premium/discount movement in relation to alpha and lagged alpha looking at a small sample snapshot. As such, it is not surprising that few patterns between the variables emerged. One pattern did emerge, however; it will be discussed shortly.

A New Theory on the Closed End Fund Puzzle

The strong alpha and lagged alpha correlation to premium/discount movement can be viewed in several ways. Initially it appears as though a fund's premium or discount may be driven in part by the excess return a portfolio manager is capable of delivering, as well as his or her past management performance. In other words, past performance and current performance influence an investor's capital allocation decisions. This makes clear sense. A fund with a superior track record should experience high demand levels, increased prices and, thus, premiums over NAV and vice versa. This does little, however, to explain why funds with superior track records and large excess returns often trade at large discounts. I believe that alpha and lagged alpha do in fact drive premiums and discounts, but that there is a more fundamental reason why; a reason which may explain why these superior funds do often experience large discounts.

A closed end fund, in its simplest sense, is a corporation. It is, for example, similar to an asset management firm in purpose and service. It garners assets from individuals, be it individual investors or institutional investors, invests them based on a specific investment strategy, takes a management fee from these investors, and, hopefully, delivers them excess returns or alpha. From a corporate finance perspective, a closed end fund is a financial services company, but more simply than this, it is a company. One should care little whether its job is to invest in publicly traded securities or make widgets. In the end, there is only one thing investors care about, that is the cash flow which the entity is able to derive and deliver from the market place.

Why should we price this company any differently than we price another? We should not. A closed end fund can be viewed as an all equity corporation whose book value of equity is marked to market on a daily basis and reported as its NAV. Obtaining future estimates of cash flow on such a corporation, however, would, quite clearly, be difficult; the fund's holdings constantly change, performance varies and innumerable factors effect the market's performance. As such, a discounted cash flow analysis would do little in the way of helping us come up with an accurate market price. However, we have all the information we need to price this security on a relative basis. The main driver of relative value for financial services companies is the price to book value multiple, and, in fact, the strong correlation between premium/discount movement and alpha suggests that this may, in fact, be the multiple driving the closed end funds' market value.

Why does a strong correlation between alpha and lagged alpha suggest any relationship to this multiple? A derivation of a simple dividend discount model yields a clear answer. I will use the example of a stable growth company, paying out most of its free cash flow to equity (FCFE), in order to illustrate this. It makes little difference, however, whether or not a dividend discount model is used or a discounted cash flow model, the relationship between alpha and PBV remains the same.

The value of a stable growth firm, based on the dividend discount model, can be written as follows:

$$P_t = (Div_{t+1})/(K_e - g_s)$$

Where,
P_t = Price of the security today
Div_{t+1} = Expected dividend one year from today
K_e = Cost of equity
g_s = Stable growth rate

If we substitute Div_{t+1} for (EPS_{t+1})(Payout Ratio), we come up with the formula:

$$P_t = [(EPS_{t+1})(\text{Payout Ratio})]/(K_e-g_s)$$

Where,
EPS_{t+1} = Earnings per share one year from today
Payout Ratio = Percent of Net Income paid out as dividends

With some more rearranging, EPS_{t+1} = (ROE)(Book Value of Equity_t) can be substituted into the formula, bringing it to:

$$[(\text{Book Value of Equity}_t)(\text{ROE})(\text{Payout Ratio})]/(K_e-g_s)$$

Where,
Book Value of Equity_t = Book value of equity today (BV_t)
ROE = Return on equity

Writing this equation in terms of price to book, we come up with the formula:

$$(P_t/BV_t) = [(\text{ROE})(\text{Payout Ratio})]/(K_e-g_s)$$

However, if we redefine ROE as the (EPS_t)/(Book Value of Equity_t), rather than (EPS_{t+1})/(Book Value of Equity_t), we can rewrite the PBV equation as:

$$(P_t/BV_t) = [(\text{ROE})(1+g)(\text{Payout Ratio})]/(K_e-g_s)$$

Finally, this formula can be simplified further relating it to excess return or alpha. The growth rate, g, equals:

$$g = (1-\text{Payout Ratio})(\text{ROE})$$

Substituting this equation back into the PBV equation above, we come up with:

$$P/BV = (ROE - g_s)/(K_e - g_s)$$

In this equation, the PBV ratio is an increasing function of ROE and a decreasing function of the cost of equity. It is also a function of the differential between the two, or in other words, a function of alpha.

So how does PBV relate to closed end funds? The price to book value on a closed end fund can be written as:

$$\text{Price to Book Value} = P_t/NAV_t$$

Where,
P_t = Current market price
NAV_t = Current net asset value, as reported at market close

This does assume the NAV on the fund can be viewed as its book value of equity marked to market. In the same token, the premium or discount that a closed end fund is trading at can be written as:

$$\text{Premium/Discount} = (P_t\text{-}NAV_t)/\ NAV_t$$

Rearranging this formula we arrive at:

$$\text{Premium/Discount} = (P_t/NAV_t) - 1 \text{ or Premium/Discount} = (\text{Price to Book Value}) - 1$$

In this way, we observe the clear relationship between PBV and the premium or discount that a fund trades at. If a fund were trading at its NAV, it would have a PBV of one.

Thus, the premium or discount is simply the differential between the PBV a fund is trading at and the PBV it would trade at if its current market price were equal to its NAV.

Thus, the same variable, alpha, whether it be current alpha or lagged alpha, that drives the premiums and discounts on closed end funds drives the price to book value multiple. The PBV multiple is the main relative value driver of financial services companies, the company type a closed end fund most closely resembles. Moreover, the price to book value multiple is a mathematical derivation of the premium/discount level. It is an easy logical step to see the correlation between premiums/discounts and the PBV multiple as a relative value driver of the closed end fund investment vehicle. It, thus, appears that the market is pricing these funds on a PBV multiple, but more than this, as a function of its return on equity and its cost of equity.

To further test the plausibility behind this theory, however, the underlying variables within the PBV equation, return on equity and cost of equity, were regressed against the premium/discounts of each of the actively managed funds. Annual return including dividends was used as a proxy for return on equity and the cost of equity or expected return was obtained from the Capital Asset Pricing Model, as described earlier for the alpha calculation. Consensus growth rates on the funds could not be obtained, but would have provided an interesting variable to examine in relation to premium/discount movement and this theory. The results continued to show very high R-Squared numbers and significant T-Scores, lending further support. Although it seems intuitive that they would, given the link between alpha, these variables, and the previously examined alpha against premium/discount regressions, the fact that both variables are statistically

significant gives them more credence. Statistically one could have shown a strong correlation while the other showed little, and the alpha variable could have still resulted in the high R-Squared numbers observed earlier. Yet both showed a strong correlation, with the annual return variable reporting positive T-Scores and the cost of equity variable reporting negative T-Scores. As in the earlier case, however, there were a few outliers, namely the same funds that fell as outliers in the earlier regressions on alpha and lagged alpha. The data from this analysis is presented in Table E below. A full breakout of the raw regressions can be found in appendix D at the end of this article.

Table E: R-Squared and T-Scores for Annual Return and Cost of Equity

		Annual Return	
Closed End Fund	**Symbol**	**R-Squared**	**T-Statistic**
Blue Chip Value Fund	BLU	56.20%	33.95
H&Q Healthcare Investors	HQH	45.20%	26.06
H&Q Life Sciences Investors	HQL	40.00%	23.51
Cornerstone Strategic Value Fund	CLM	71.90%	22.37
J Hancock Bank & Thrift Oppty Fund	BTO	32.10%	20.61
Chartwell Dividend & Income Fund	CWF	27.60%	18.50
J Hancock Financial Trends Fund	JHFT	21.50%	15.69
Cornerstone Total Return Fund	CRF	54.40%	15.30
First Financial Fund	FF	7.60%	3.92
Delaware Investments Dividend & Income	DDF	1.60%	3.62
Gabelli Utility Trust	GUT	0.70%	-2.46
DNP Select Income Fund	DNP	9.50%	-4.42
Royce Value Trust	RVT	2.80%	-5.10
Gabelli Equity Trust	GAB	15.70%	-12.91
		Cost of Equity	
Closed End Fund	**Symbol**	**R-Squared**	**T-Statistic**
Gabelli Utility Trust	GUT	49.40%	-29.63
J Hancock Bank & Thrift Oppty Fund	BTO	30.00%	-19.62
Royce Value Trust	RVT	25.00%	-17.30
J Hancock Financial Trends Fund	JHFT	22.20%	-16.01
DNP Select Income Fund	DNP	56.50%	-15.58
H&Q Healthcare Investors	HQH	19.40%	-14.07
H&Q Life Sciences Investors	HQL	18.90%	-13.91
Blue Chip Value Fund	BLU	9.20%	-9.51
Cornerstone Strategic Value Fund	CLM	28.00%	-8.74

Cornerstone Total Return Fund	CRF	7.80%	-4.07
First Financial Fund	FF	0.40%	-0.91
Chartwell Dividend & Income Fund	CWF	0.20%	1.50
Delaware Investments Dividend & Income	DDF	13.30%	11.05
Gabelli Equity Trust	GAB	19.10%	14.54

On top of this, the earlier cross-sectional regressions, which reported little correlation between alpha and 6 month lagged alpha regressed against premiums/discounts, showed very strong consistency in terms of R-Squared and T-Score numbers when premiums/discounts were regressed against cost of equity. For each cross-sectional regression, the R-Squared numbers were not only large but fell within a stable range: 35%-54%. Moreover, all of the T-Scores were negative, as anticipated given the fact that the variable is a discount rate. The 5 year average and median numbers in the chart above represent a cross-sectional view of the average cost of equity to the median premium/discount. The median number was chosen for the premium/discount so as not to bias it in a positive or negative direction given the tale ends of the data. The average of the cost of equity was chosen because these numbers tended to fluctuate within a tighter band. As mentioned earlier, however, these regressions must be viewed with caution. The limited sample size significantly diminishes the confidence level associated with them. R-Squared and T-Score results can be found in Table F below. Moreover, a breakout of each regression can be found in the accompanying appendix E.

Table F: R-Squared and T-Scores for Cost of Equity

	Cost of Equity	
Date	**R-Squared**	**T-Score**
5 Year Average & Median	35.70%	-2.98
December 31, 2004	42.40%	-3.29
June 30, 2004	38.70%	-3.18
December 31, 2003	50.40%	-4.04
June 30, 2003	53.70%	-4.31

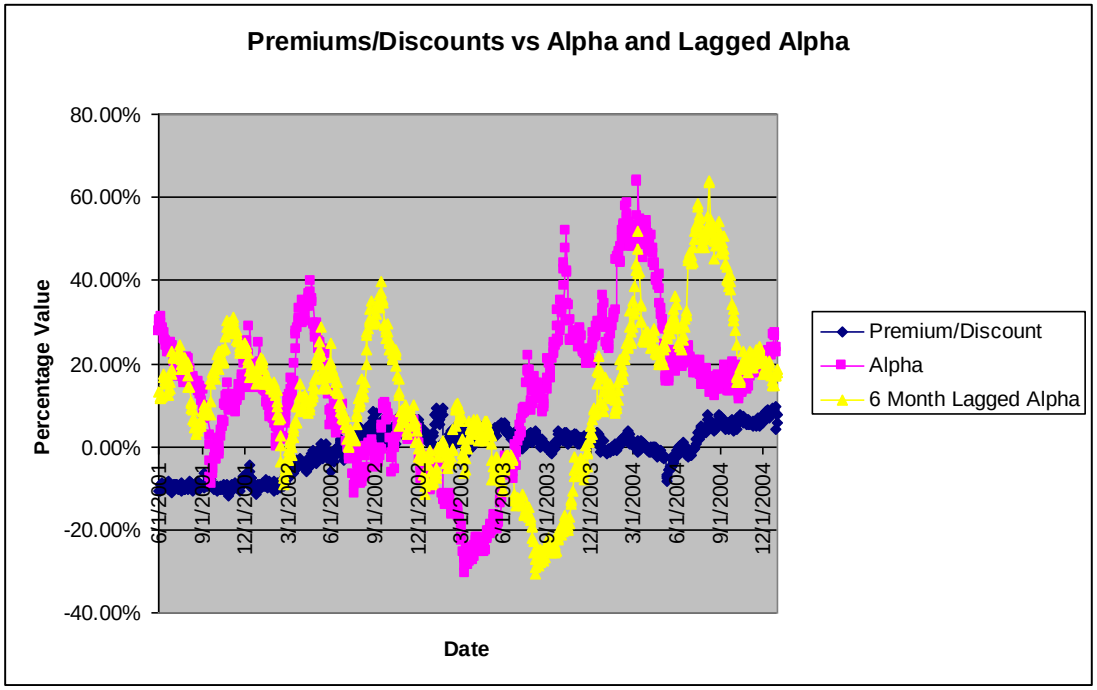
December 31, 2002	46.30%	-3.21
June 28, 2002	34.60%	-2.52
December 31, 2001	36.10%	-2.60
June 29, 2001	45.20%	-3.14
December 29, 2000	42.20%	-2.96
June 30, 2000	38.40%	-2.74

In general, the empirical evidence supports the theory that closed end funds are being driven by the same fundamentals that drive the PBV multiple, and do in fact trade on a PBV basis. As such, the closed end fund should be viewed as an all equity corporation, whose NAV represents its book value of equity marked to market daily and whose price is derived from the same fundamentals that drive valuation. Using a relative approach, especially PBV, makes even more sense given the strong relation of closed end funds to the financial services industry. If closed end funds are being prices on a relative value basis this would lend support to the idea that, on average, the market is pricing closed end funds efficiently.

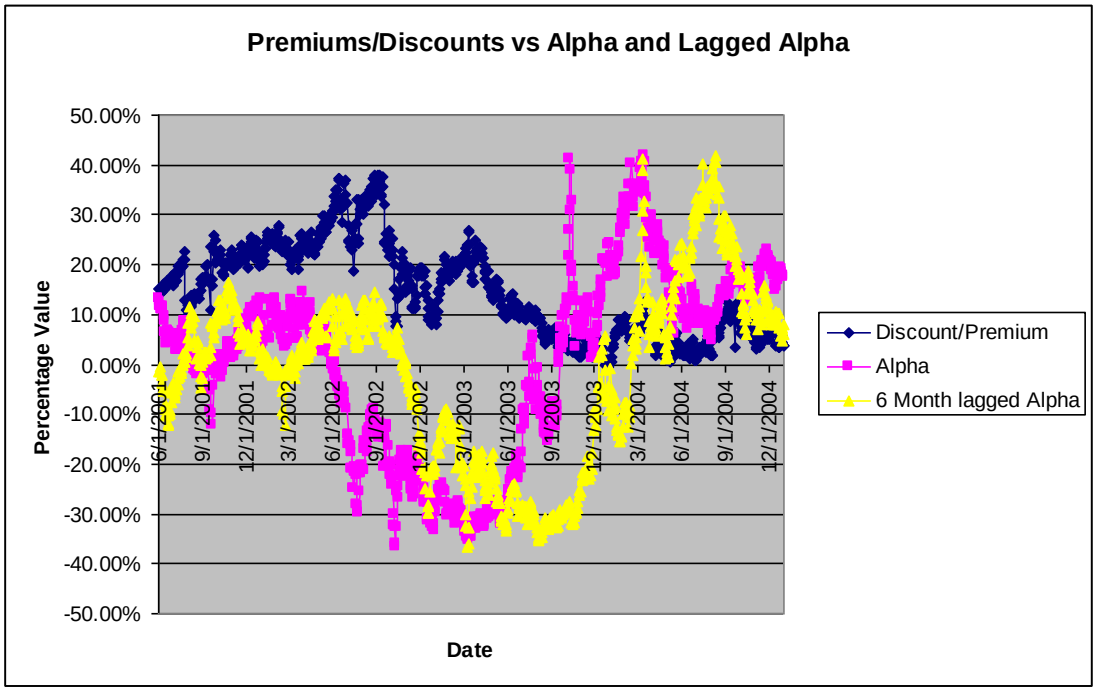
The market efficiency theory does not suggest that securities are never undervalued or overvalued, but that they tend to reflect, on average, their fair market value. Given this idea, the outliers in the aforementioned data can be explained and accounted for. These funds may have been undervalued or overvalued relative to other closed end funds at varying points in time over the last five year period. This would explain the lack of correlation, or opposite than expected correlation, between alpha, lagged alpha, annual return and cost of equity to premiums/discounts seen in the previous regressions. On a time series basis, if the market is, at specific moments in time, not correctly reflecting the fundamentals driving the PBV multiple, the historical data would lead to regression results that differ materially from those which are expected. In fact, if a time series graph

of the premiums/discounts against alpha and lagged alpha are examined for the two largest outliers or two least positively correlated funds, the Royce Value Trust and Gabelli Equity Trust, one can see a visual representation of this market mis-pricing based on a PBV multiple. It appears that at specific points in time, such as June 1, 2002 to September 1, 2003 for both the Royce Value Trust and Gabelli Equity Trust, assuming market growth assumptions remained unchanged, market mis-pricing prevented discounts from increasing as would be expected given the fall in alpha. Likewise, during the period September 1, 2003 to June 1, 2004 for both the Royce Value Trust and Gabelli Equity Trust, as fund performance increases and the alpha and lagged alpha rise, they over shoot premiums/discounts making the funds appear overpriced. These may not be the only reasons for this unexpected alpha/lagged alpha movement in relation to premiums/discounts and would provide an interesting area for further study. In addition to this suspected mis-pricing, the short term volatility in the alpha and lagged alpha variables, which can be observed in the graph, may be altering the regression results. For a full breakout of these charts for each fund, please see appendix A following this article.

Royce Value Trust Fund: Premium/Discount Movement vs. Alpha and Lagged Alpha



Gabelli Equity Trust Fund: Premium/Discount Movement vs. Alpha and Lagged Alpha



Final Thoughts

As the aforementioned analysis has shown, the premiums and discounts on closed end funds show a strong correlation to both alpha and lagged alpha. In turn, both of these variables can be dissected into their component parts, return on equity and cost of equity; which also demonstrate strong correlation to premiums and discounts. When NAV is viewed as a marker for book value of equity, a funds price to book ratio or price to NAV becomes a derivation of the premium or discount it trades at. On top of this, price to book value multiples are driven by the same underlying variables, return on equity and cost of equity, that appear to explain a large portion of the closed end funds' premium/discount movement.

Fundamentally, a closed end fund is no different than an asset management firm or any other firm, for that matter, whose goal it is to generate free cash. As such, it should be priced on the same corporate finance principles. It appears in the case of closed end funds, that the multiple most readily driving the fund's price is the price to book value multiple. Why this multiple? First a closed end fund is most similar to a financial services company in means of cash flow generation. The price to book value multiple is the most commonly used to value these companies on a relative basis. Second, the relative availability and ease of obtaining the information driving this multiple makes it an easy fit for valuing these investment vehicles.

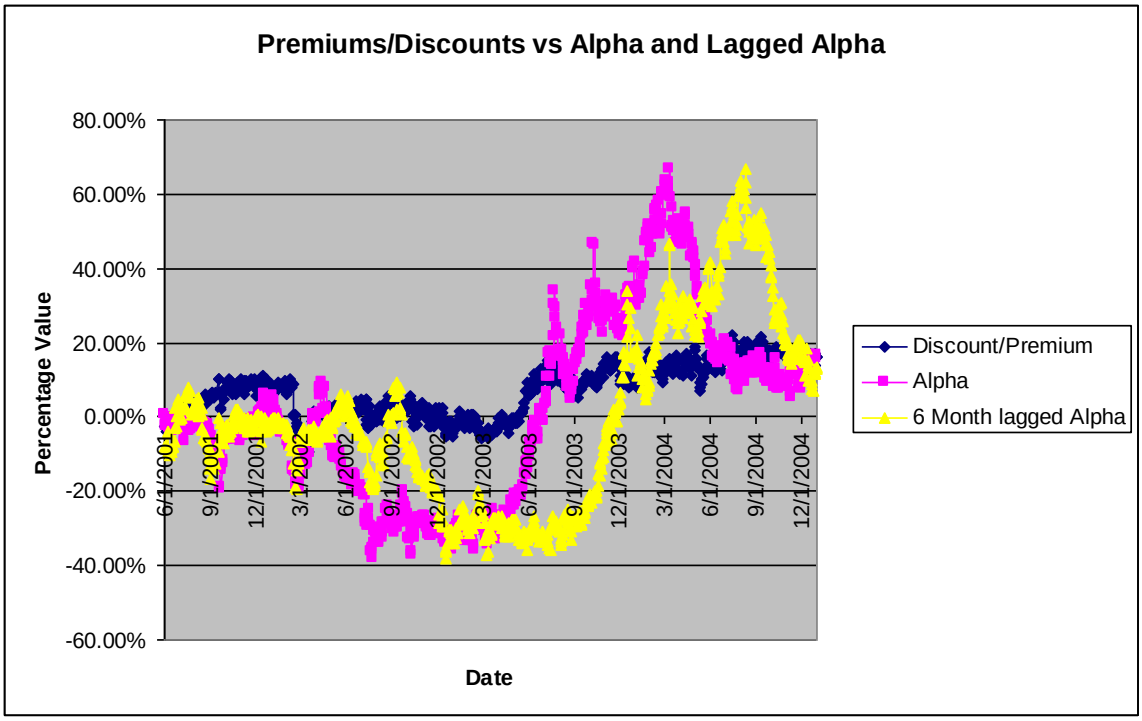
The next step in testing this theory is using cross-sectional regression analysis to come up with a formula for predicting the appropriate price to book value multiple a closed end fund should trade at. In this way, overvalued and undervalued funds can be identified and

their performance observed to test whether the market responds in an efficient manner, overtime driving the fund back to its fair market value. Unfortunately, the cross-sectional sample I obtained through my data collection was too small to accurately perform a statistical analysis which would be meaningful for such a calculation and could forecast price to book value ratios. A time series regression would not accurately forecast whether a fund was overvalued or undervalued relative to the overall market, but only whether it was overvalued or undervalued relative to its own historical pricing. This would do little fundamentally to help determine the accuracy of whether the market was responding efficiently over time in valuing closed end funds. Although my research concludes here, this provides an interesting area for further research.

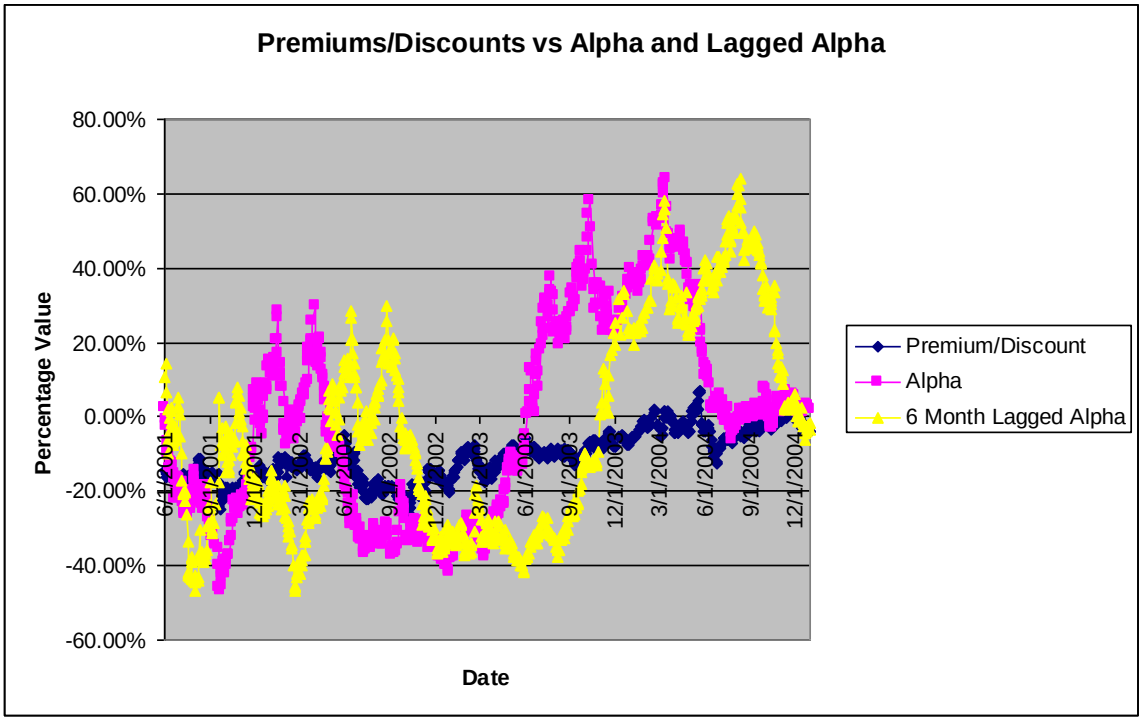
Appendix A

Time Series Graphs of Premiums/Discounts to Alpha and Lagged Alpha Movement

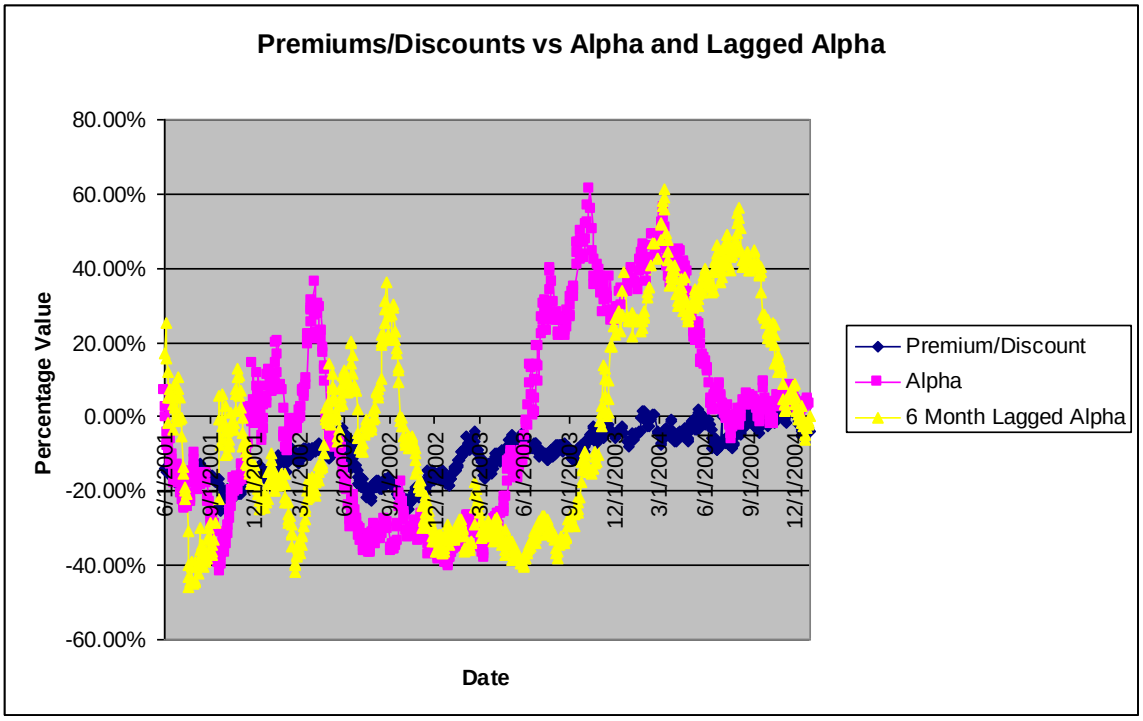
Blue Chip Value Fund



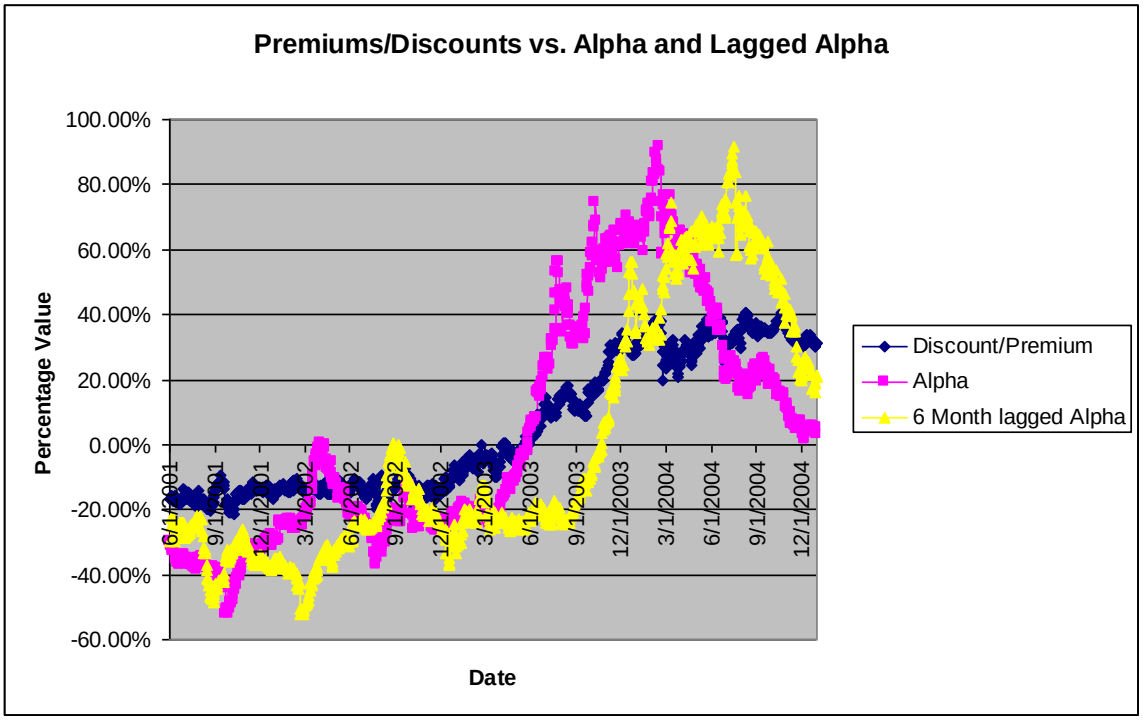
H&Q Healthcare Investors



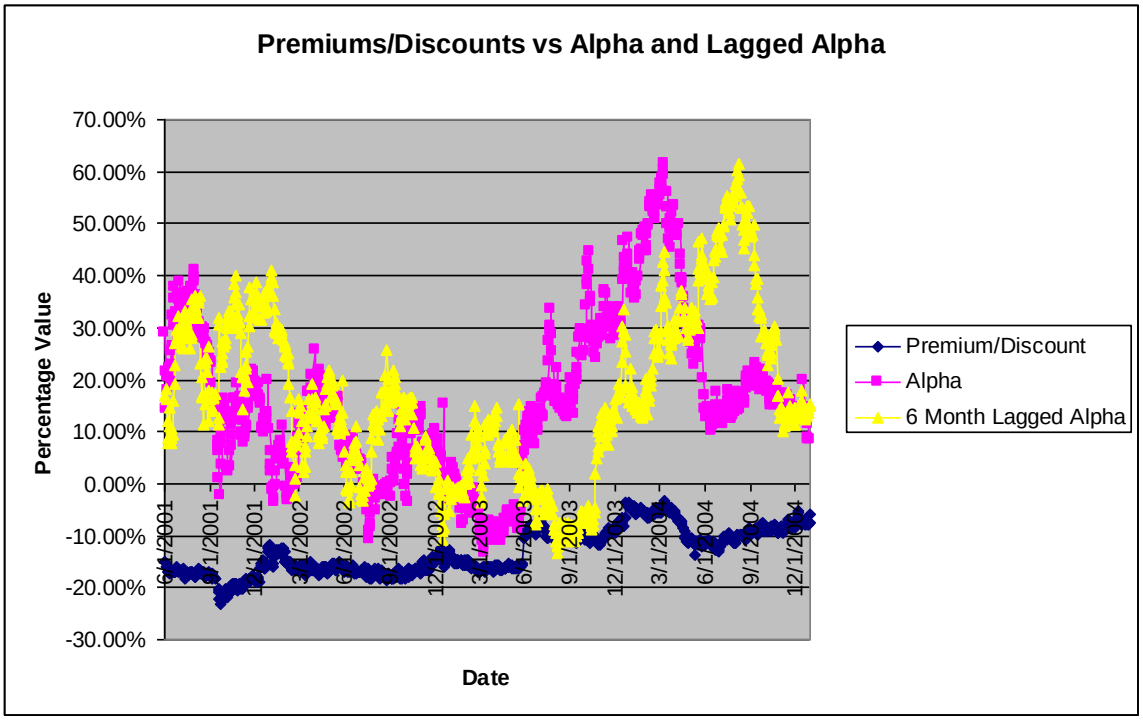
H&Q Life Sciences Investors



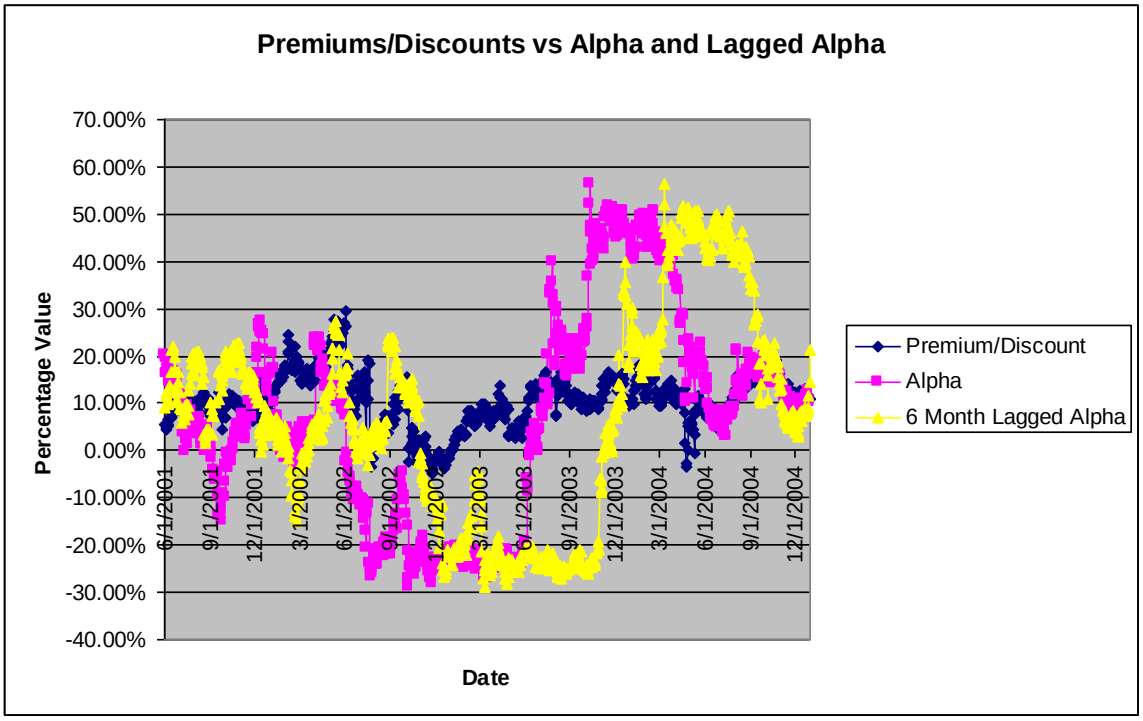
Cornerstone Strategic Value Fund



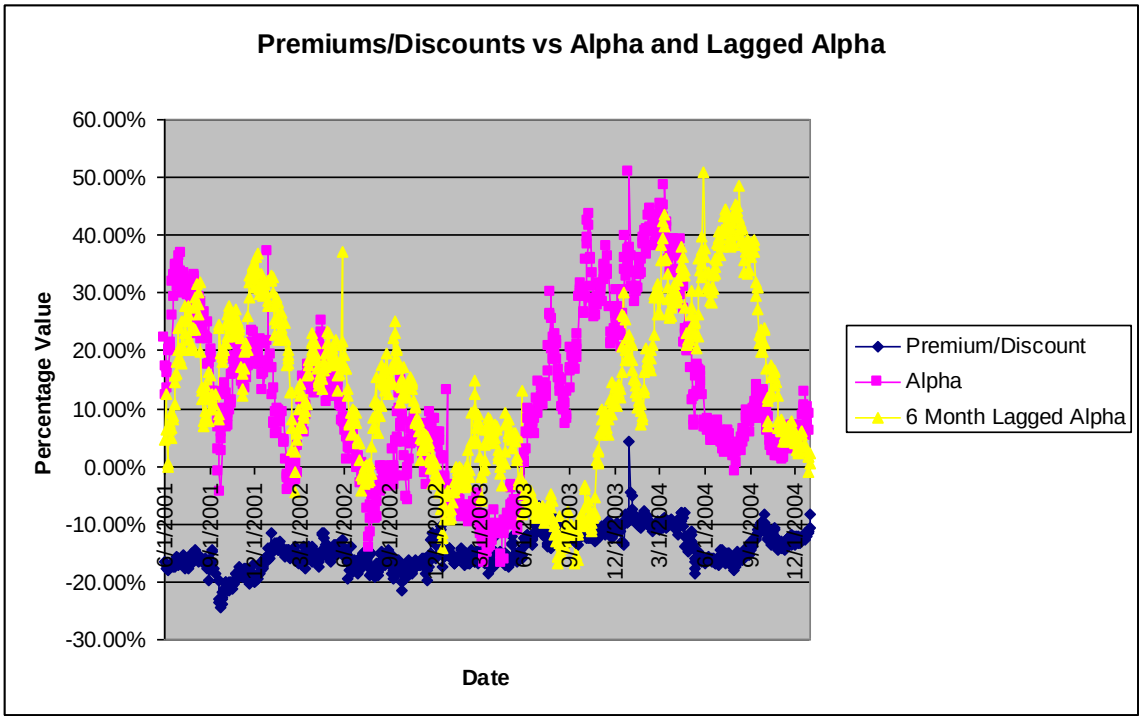
John Hancock Bank & Thrift Opportunity Fund



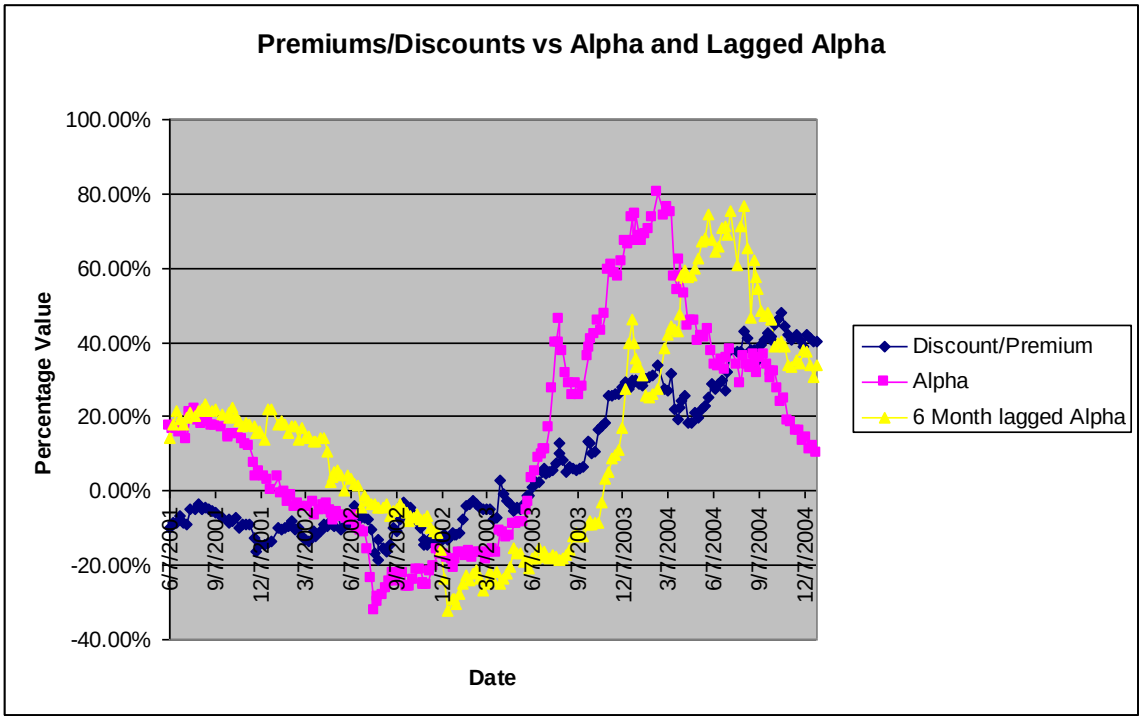
Chartwell Dividend & Income Fund



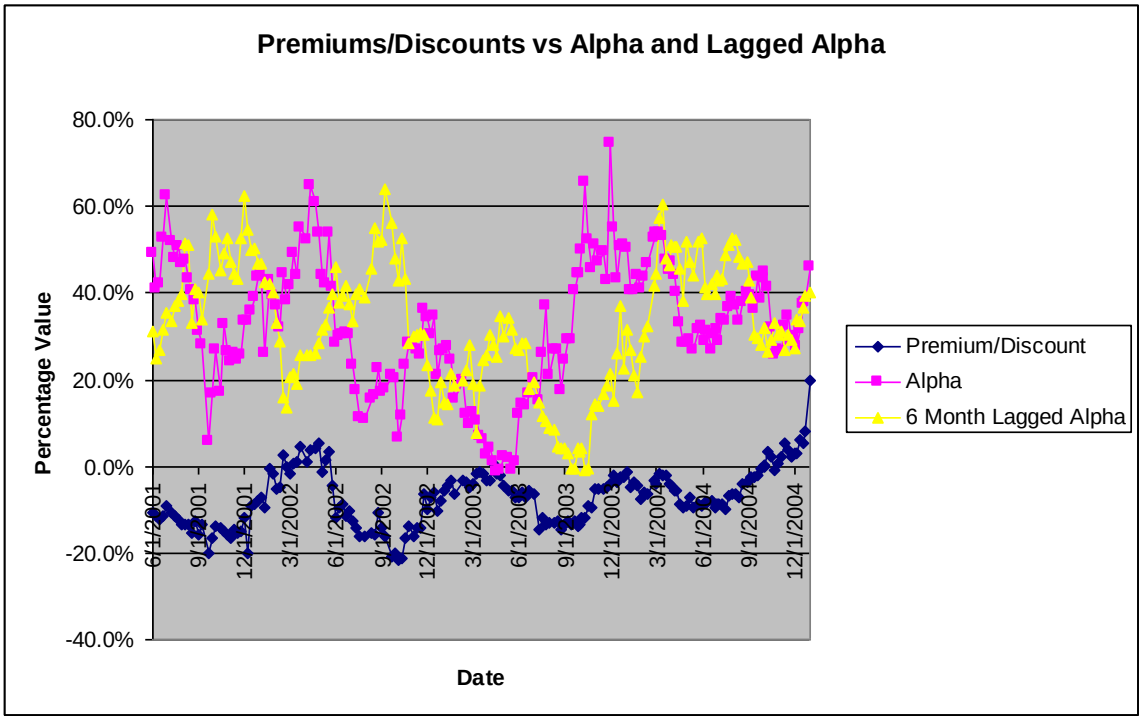
John Hancock Financial Trends Fund



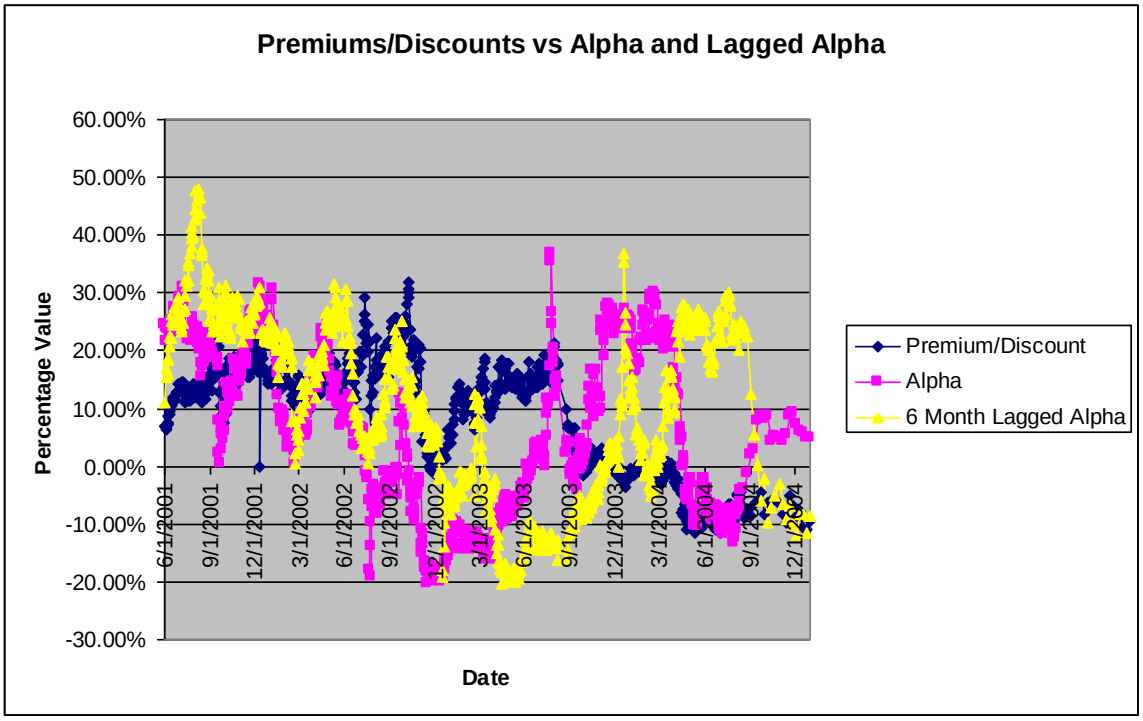
Cornerstone Total Return Fund



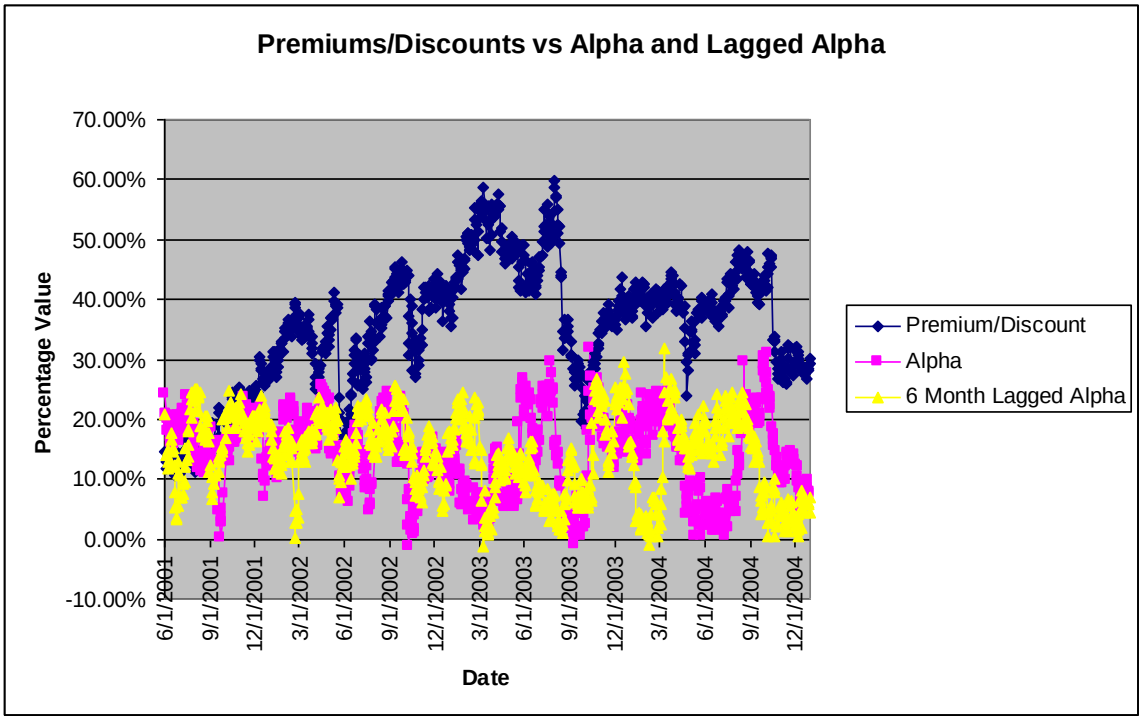
First Financial Fund



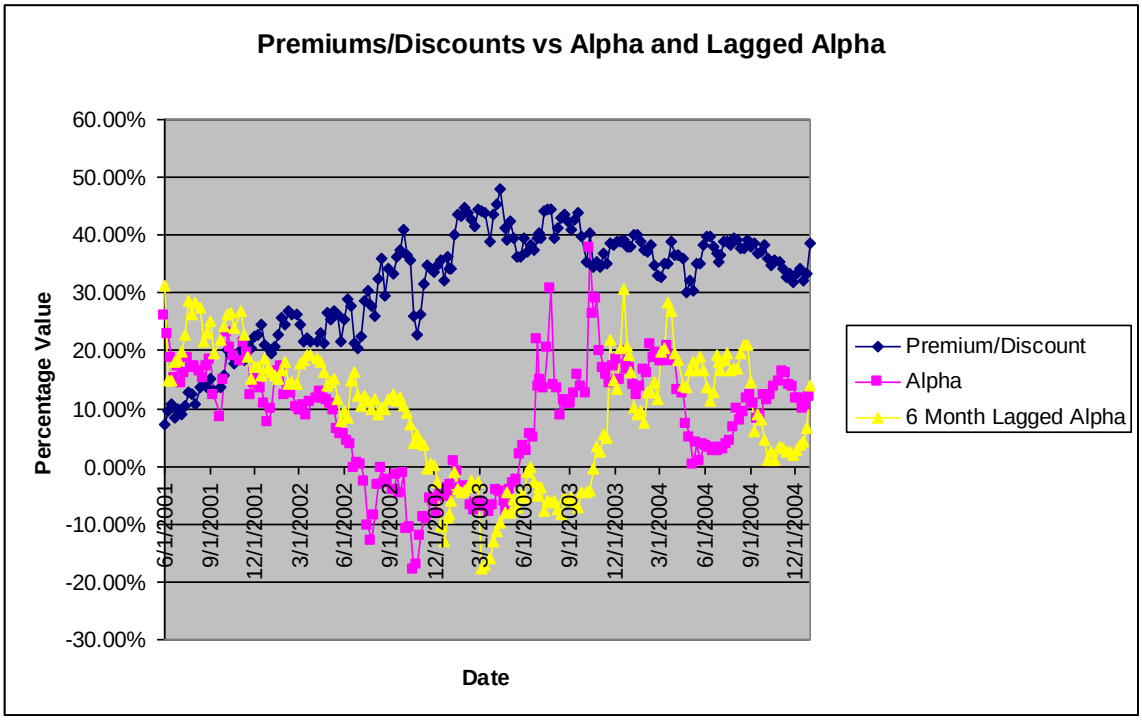
Delaware Investments Dividend & Income Fund



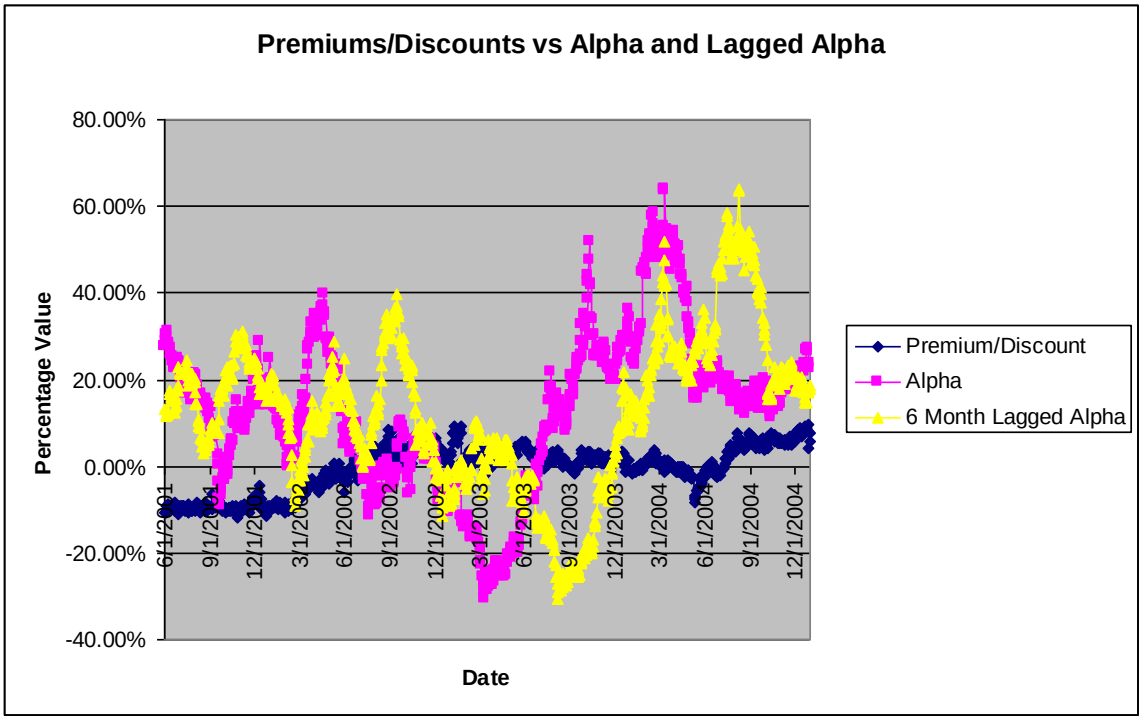
Gabelli Utility Trust Fund



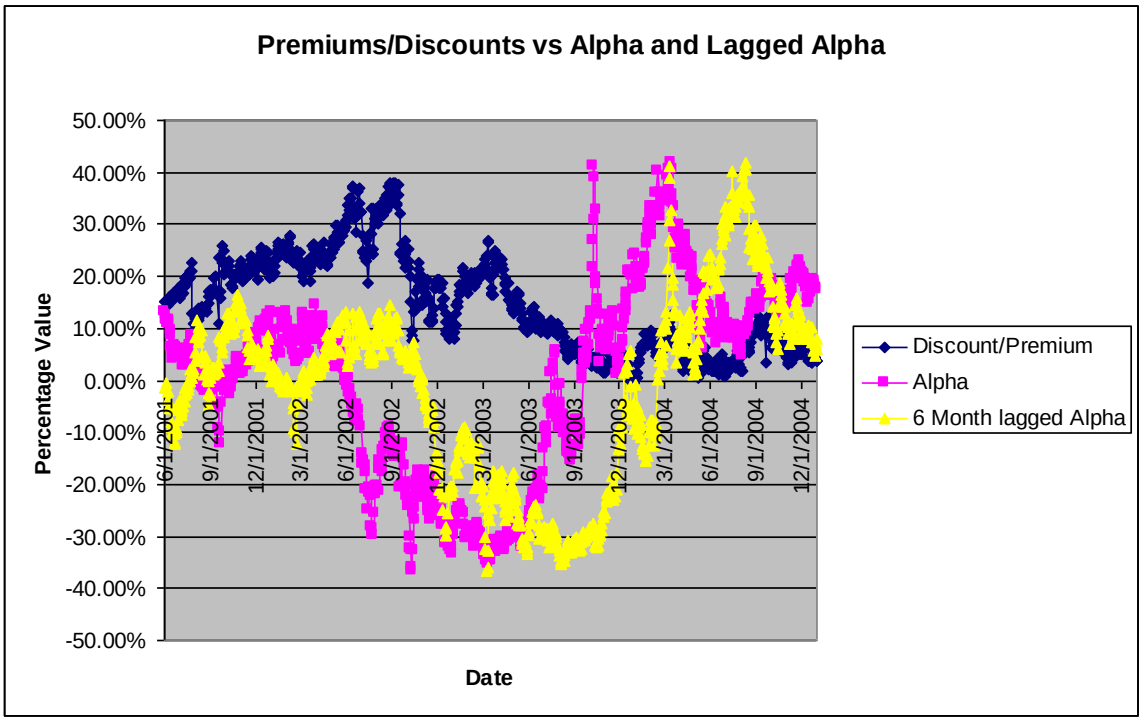
DNP Select Income Fund



Royce Value Trust Fund



Gabelli Equity Trust Fund



Appendix B-

Regressions of Alpha, Lagged Alpha and Dollar Volume vs. Premiums/Discounts

Regression Analysis- Cornerstone Strategic Value Fund

```
The regression equation is:
Discount/Premium = 0.0373 + 0.256 Alpha + 0.304 6 Month lagged Alpha
+0.000000 $ Volume

Predictor        Coef       StDev          T        P
Constant     0.037253    0.005782       6.44    0.000
Alpha         0.25604     0.01904      13.45    0.000
6 Month       0.30358     0.01949      15.57    0.000
$ Volume   0.00000005  0.00000002       3.05    0.003

S = 0.06900     R-Sq = 89.3%     R-Sq(adj) = 89.1%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         3      7.6755      2.5585    537.32    0.000
Residual Error   194      0.9237      0.0048
Total            197      8.5992

Source       DF      Seq SS
Alpha         1      6.1648
6 Month       1      1.4665
$ Volume      1      0.0442
```

Regression Analysis- Blue Chip Value Fund

```
The regression equation is:
Premium/Discount = 0.0807 -0.000000 $ Volume + 0.110 6 Month Lagged
Alpha + 0.155 Alpha

Predictor        Coef       StDev          T        P
Constant     0.080680    0.001866      43.23    0.000
$ Volume  -0.00000003  0.00000000      -8.70    0.000
6 Month      0.109551    0.006463      16.95    0.000
Alpha        0.154672    0.006406      24.14    0.000

S = 0.03891     R-Sq = 69.1%     R-Sq(adj) = 69.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         3      3.0373      1.0124    668.71    0.000
Residual Error   896      1.3565      0.0015
Total            899      4.3938

Source       DF      Seq SS
$ Volume      1      0.0994
6 Month       1      2.0554
Alpha         1      0.8825
```

Regression Analysis- Cornerstone Total Return Fund

```
The regression equation is:
Premium/Discount = - 0.0408 + 0.287 Alpha + 0.255 6 Month Lagged Alpha
+0.000000 $ Volume

Predictor        Coef       StDev          T        P
Constant     -0.04075     0.01083      -3.76    0.000
Alpha         0.28729     0.03820       7.52    0.000
6 Month       0.25533     0.03656       6.98    0.000
$ Volume   0.00000020  0.00000004       4.63    0.000

S = 0.1141      R-Sq = 66.4%     R-Sq(adj) = 65.9%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         3      4.9878      1.6626    127.81    0.000
Residual Error   194      2.5235      0.0130
Total            197      7.5113

Source       DF      Seq SS
Alpha         1      4.1090
6 Month       1      0.6001
$ Volume      1      0.2786
```

Regression Analysis- H&Q Healthcare Investors

```
The regression equation is:
Premium/Discount = - 0.103 + 0.143 Alpha + 0.0732 6 Month Lagged Alpha
+0.000000 $ Volume

Predictor        Coef       StDev          T        P
Constant    -0.103281    0.002295     -45.00    0.000
Alpha        0.143164    0.006271      22.83    0.000
6 Month      0.073249    0.005956      12.30    0.000
$ Volume   0.00000000  0.00000000       1.08    0.280

S = 0.04375     R-Sq = 54.8%     R-Sq(adj) = 54.6%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         3     1.90418     0.63473    331.63    0.000
Residual Error   822     1.57329     0.00191
Total            825     3.47747

Source       DF      Seq SS
Alpha         1     1.58893
6 Month       1     0.31302
$ Volume      1     0.00223
```

Regression Analysis- H&Q Life Sciences Investors

The regression equation is:
Premium/Discount = - 0.0825 + 0.140 Alpha + 0.0580 6 Month Lagged Alpha
-0.000000 $ Volume

Predictor	Coef	StDev	T	P
Constant	-0.082511	0.003296	-25.03	0.000
Alpha	0.139846	0.006967	20.07	0.000
6 Month	0.057970	0.006526	8.88	0.000
$ Volume	-0.00000003	0.00000001	-5.01	0.000

S = 0.04785 R-Sq = 47.0% R-Sq(adj) = 46.8%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	1.67893	0.55964	244.44	0.000
Residual Error	826	1.89113	0.00229		
Total	829	3.57006			

Source	DF	Seq SS
Alpha	1	1.45020
6 Month	1	0.17128
$ Volume	1	0.05745

Regression Analysis- John Hancock Bank & Thrift Opportunity Fund

The regression equation is:
Premium/Discount = - 0.157 + 0.167 Alpha - 0.0252 6 Month Lagged Alpha
+0.000000 $ Volume

Predictor	Coef	StDev	T	P
Constant	-0.157193	0.002002	-78.53	0.000
Alpha	0.167496	0.007861	21.31	0.000
6 Month	-0.025235	0.007511	-3.36	0.001
$ Volume	0.00000000	0.00000000	4.33	0.000

S = 0.03449 R-Sq = 37.0% R-Sq(adj) = 36.7%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	0.62486	0.20829	175.05	0.000
Residual Error	896	1.06610	0.00119		
Total	899	1.69096			

Source	DF	Seq SS
Alpha	1	0.58863
6 Month	1	0.01390
$ Volume	1	0.02232

Regression Analysis- John Hancock Financial Trends Fund

The regression equation is:

```
Premium/Discount = - 0.152 + 0.120 Alpha - 0.0627 6 Month Lagged Alpha
+0.000000 $ Volume

Predictor        Coef       StDev          T        P
Constant    -0.152459    0.001407    -108.37    0.000
Alpha        0.119576    0.006115      19.55    0.000
6 Month     -0.062728    0.006020     -10.42    0.000
$ Volume   0.00000001  0.00000000       1.78    0.076

S = 0.02532     R-Sq = 32.3%     R-Sq(adj) = 32.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         3    0.273584    0.091195    142.22    0.000
Residual Error   896    0.574519    0.000641
Total            899    0.848103

Source       DF      Seq SS
Alpha         1    0.201364
6 Month       1    0.070195
$ Volume      1    0.002024
```

Regression Analysis- Chartwell Dividend & Income Fund

```
The regression equation is:
Premium/Discount = 0.0945 + 0.135 Alpha - 0.00593 6 Month Lagged Alpha
+0.000000 $ Volume

Predictor        Coef       StDev          T        P
Constant     0.094450    0.003174      29.76    0.000
Alpha        0.134880    0.007845      17.19    0.000
6 Month     -0.005934    0.007818      -0.76    0.448
$ Volume   0.00000001  0.00000001       0.59    0.557

S = 0.04789     R-Sq = 27.2%     R-Sq(adj) = 27.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         3     0.76805     0.25602    111.62    0.000
Residual Error   896     2.05511     0.00229
Total            899     2.82316

Source       DF      Seq SS
Alpha         1     0.76586
6 Month       1     0.00140
$ Volume      1     0.00079
```

Regression Analysis- First Financial Fund

```
The regression equation is:
Premium/Discount = - 0.0930 + 0.100 Alpha - 0.0740 6 Month Lagged Alpha
```

+0.000000 $ Volume

Predictor	Coef	StDev	T	P
Constant	-0.09299	0.01464	-6.35	0.000
Alpha	0.10029	0.02962	3.39	0.001
6 Month	-0.07400	0.02949	-2.51	0.013
$ Volume	0.00000003	0.00000001	5.04	0.000

S = 0.05872 R-Sq = 21.4% R-Sq(adj) = 20.1%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	0.172344	0.057448	16.66	0.000
Residual Error	184	0.634489	0.003448		
Total	187	0.806833			

Source	DF	Seq SS
Alpha	1	0.064270
6 Month	1	0.020444
$ Volume	1	0.087631

Regression Analysis- Delaware Investments Dividend & Income Fund

The regression equation is:
Premium/Discount = 0.0794 + 0.0870 Alpha - 0.0224 6 Month Lagged Alpha
+0.000000 $ Volume

Predictor	Coef	StDev	T	P
Constant	0.079401	0.005600	14.18	0.000
Alpha	0.08698	0.02571	3.38	0.001
6 Month	-0.02235	0.02369	-0.94	0.346
$ Volume	0.00000002	0.00000001	1.55	0.121

S = 0.09577 R-Sq = 1.6% R-Sq(adj) = 1.3%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	0.121527	0.040509	4.42	0.004
Residual Error	797	7.310743	0.009173		
Total	800	7.432270			

Source	DF	Seq SS
Alpha	1	0.091489
6 Month	1	0.007917
$ Volume	1	0.022120

Regression Analysis- Gabelli Utility Trust Fund

The regression equation is:
Premium/Discount = 0.391 - 0.0138 Alpha - 0.212 6 Month Lagged Alpha
-0.000000 $ Volume

```
Predictor        Coef       StDev          T        P
Constant      0.39148     0.01259      31.09    0.000
Alpha        -0.01381     0.05307      -0.26    0.795
6 Month      -0.21223     0.05512      -3.85    0.000
$ Volume  -0.00000002  0.00000001      -1.83    0.067

S = 0.1061      R-Sq = 1.7%      R-Sq(adj) = 1.4%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         3     0.17774     0.05925      5.26    0.001
Residual Error   896    10.09552     0.01127
Total            899    10.27325

Source       DF      Seq SS
Alpha         1     0.00137
6 Month       1     0.13846
$ Volume      1     0.03791
```

Regression Analysis- Royce Value Trust Fund

```
The regression equation is:
Premium/Discount = 0.00669 - 0.0450 Alpha - 0.0035 6 Month Lagged Alpha
-0.000000 $ Volume

Predictor        Coef       StDev          T        P
Constant     0.006689    0.004344       1.54    0.124
Alpha        -0.04503     0.01047      -4.30    0.000
6 Month      -0.00347     0.01047      -0.33    0.740
$ Volume  -0.00000000  0.00000000      -1.11    0.269

S = 0.05374     R-Sq = 2.3%      R-Sq(adj) = 2.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         3    0.061690    0.020563      7.12    0.000
Residual Error   896    2.587929    0.002888
Total            899    2.649619

Source       DF      Seq SS
Alpha         1    0.058029
6 Month       1    0.000128
$ Volume      1    0.003533
```

Regression Analysis- Gabelli Equity Trust Fund

```
The regression equation is:
Premium/Discount = 0.104 - 0.267 Alpha + 0.151 6 Month Lagged Alpha
+0.000000 $ Volume
```

Predictor	Coef	StDev	T	P
Constant	0.103821	0.006096	17.03	0.000
Alpha	-0.26702	0.01629	-16.39	0.000
6 Month	0.15054	0.01693	8.89	0.000
$ Volume	0.00000003	0.00000000	7.92	0.000

S = 0.07893 R-Sq = 29.7% R-Sq(adj) = 29.5%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	2.35801	0.78600	126.16	0.000
Residual Error	896	5.58210	0.00623		
Total	899	7.94010			

Source	DF	Seq SS
Alpha	1	1.35286
6 Month	1	0.61392
$ Volume	1	0.39123

Regression Analysis- DNP Select Income Fund

The regression equation is:
Premium/Discount = 0.532 - 7.63 Alpha + 7.60 6 Month Lagged Alpha
- 0.303 $ Volume

Predictor	Coef	StDev	T	P
Constant	0.53207	0.01386	38.39	0.000
Alpha	-7.6274	0.5952	-12.82	0.000
6 Month	7.6015	0.5947	12.78	0.000
$ Volume	-0.30289	0.04240	-7.14	0.000

S = 0.05388 R-Sq = 67.8% R-Sq(adj) = 67.2%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	3	1.12898	0.37633	129.63	0.000
Residual Error	185	0.53708	0.00290		
Total	188	1.66606			

Source	DF	Seq SS
Alpha	1	0.15754
6 Month	1	0.82331
$ Volume	1	0.14813

Appendix C-

Regressions of Alpha against Premiums/Discounts & Lagged Alpha against Premiums/Discounts

Regression Analysis- Blue Chip Value Fund

```
The regression equation is:
Premium/Discount = 0.0680 + 0.215 Alpha

Predictor        Coef       StDev          T        P
Constant     0.067982    0.001542      44.09    0.000
Alpha        0.214565    0.006290      34.11    0.000

S = 0.04616     R-Sq = 56.4%     R-Sq(adj) = 56.4%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1      2.4800      2.4800   1163.67    0.000
Residual Error   898      1.9138      0.0021
Total            899      4.3938

The regression equation is:
Premium/Discount = 0.0715 + 0.197 Lagged Alpha

Predictor        Coef       StDev          T        P
Constant     0.071510    0.001700      42.05    0.000
Lagged A     0.197188    0.007014      28.12    0.000

S = 0.05101     R-Sq = 46.8%     R-Sq(adj) = 46.8%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1      2.0570      2.0570    790.48    0.000
Residual Error   898      2.3368      0.0026
Total            899      4.3938
```

Regression Analysis- H&Q Healthcare Investors

```
The regression equation is:
Premium/Discount = - 0.104 + 0.170 Alpha

Predictor        Coef       StDev          T        P
Constant    -0.103949    0.001678     -61.94    0.000
Alpha        0.170033    0.006458      26.33    0.000

S = 0.04787     R-Sq = 45.7%     R-Sq(adj) = 45.6%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1      1.5889      1.5889    693.27    0.000
Residual Error   824      1.8885      0.0023
Total            825      3.4775
```

The regression equation is:
Premium/Discount = - 0.104 + 0.119 Lagged Alpha

Predictor	Coef	StDev	T	P
Constant	-0.103946	0.001969	-52.79	0.000
Lagged A	0.119426	0.007008	17.04	0.000

S = 0.05586 R-Sq = 26.1% R-Sq(adj) = 26.0%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.90617	0.90617	290.39	0.000
Residual Error	824	2.57130	0.00312		
Total	825	3.47747			

Regression Analysis- H&Q Life Sciences Investors

The regression equation is:
Premium/Discount = - 0.0982 + 0.164 Alpha

Predictor	Coef	StDev	T	P
Constant	-0.098194	0.001762	-55.73	0.000
Alpha	0.163621	0.006875	23.80	0.000

S = 0.05060 R-Sq = 40.6% R-Sq(adj) = 40.5%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	1.4502	1.4502	566.44	0.000
Residual Error	828	2.1199	0.0026		
Total	829	3.5701			

The regression equation is:
Premium/Discount = - 0.0981 + 0.104 Lagged Alpha

Predictor	Coef	StDev	T	P
Constant	-0.098072	0.002074	-47.30	0.000
Lagged A	0.103516	0.007557	13.70	0.000

S = 0.05929 R-Sq = 18.5% R-Sq(adj) = 18.4%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.65958	0.65958	187.64	0.000
Residual Error	828	2.91048	0.00352		
Total	829	3.57006			

Regression Analysis- Cornerstone Strategic Value Fund

The regression equation is:
Premium/Discount = 0.0315 + 0.485 Alpha

Predictor	Coef	StDev	T	P
Constant	0.031494	0.008007	3.93	0.000
Alpha	0.48518	0.02178	22.28	0.000

S = 0.1114 R-Sq = 71.7% R-Sq(adj) = 71.5%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	6.1648	6.1648	496.35	0.000
Residual Error	196	2.4344	0.0124		
Total	197	8.5992			

The regression equation is:
Premium/Discount = 0.0605 + 0.494 Lagged Alpha

Predictor	Coef	StDev	T	P
Constant	0.060496	0.006815	8.88	0.000
Lagged A	0.49446	0.01819	27.19	0.000

S = 0.09588 R-Sq = 79.0% R-Sq(adj) = 78.9%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	6.7972	6.7972	739.32	0.000
Residual Error	196	1.8020	0.0092		
Total	197	8.5992			

Regression Analysis- John Hancock Bank & Thrift Opportunity Fund

The regression equation is:
Premium/Discount = - 0.157 + 0.165 Alpha

Predictor	Coef	StDev	T	P
Constant	-0.157385	0.001672	-94.10	0.000
Alpha	0.165248	0.007546	21.90	0.000

S = 0.03504 R-Sq = 34.8% R-Sq(adj) = 34.7%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.58863	0.58863	479.53	0.000
Residual Error	898	1.10233	0.00123		
Total	899	1.69096			

The regression equation is:
Premium/Discount = - 0.135 + 0.0227 Lagged Alpha

```
Predictor        Coef       StDev          T        P
Constant    -0.135010    0.002098     -64.35    0.000
Lagged A     0.022711    0.009013       2.52    0.012

S = 0.04324     R-Sq = 0.7%      R-Sq(adj) = 0.6%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1    0.011872    0.011872      6.35    0.012
Residual Error   898    1.679087    0.001870
Total            899    1.690959
```

Regression Analysis- Chartwell Dividend & Income Fund

```
The regression equation is:
Premium/Discount = 0.0957 + 0.133 Alpha

Predictor        Coef       StDev          T        P
Constant     0.095749    0.001676      57.14    0.000
Alpha        0.132824    0.007265      18.28    0.000

S = 0.04786     R-Sq = 27.1%     R-Sq(adj) = 27.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1     0.76586     0.76586    334.29    0.000
Residual Error   898     2.05731     0.00229
Total            899     2.82316

The regression equation is:
Premium/Discount = 0.102 + 0.0442 Lagged Alpha

Predictor        Coef       StDev          T        P
Constant     0.101987    0.001934      52.75    0.000
Lagged A     0.044180    0.008355       5.29    0.000

S = 0.05522     R-Sq = 3.0%      R-Sq(adj) = 2.9%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1    0.085245    0.085245     27.96    0.000
Residual Error   898    2.737917    0.003049
Total            899    2.823162
```

Regression Analysis- John Hancock Financial Trends Fund

The regression equation is:
Premium/Discount = - 0.158 + 0.104 Alpha

Predictor	Coef	StDev	T	P
Constant	-0.157789	0.001162	-135.78	0.000
Alpha	0.104366	0.006242	16.72	0.000

S = 0.02684 R-Sq = 23.7% R-Sq(adj) = 23.7%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.20136	0.20136	279.60	0.000
Residual Error	898	0.64674	0.00072		
Total	899	0.84810			

The regression equation is:
Premium/Discount = - 0.141 - 0.0327 Lagged Alpha

Predictor	Coef	StDev	T	P
Constant	-0.141040	0.001373	-102.70	0.000
Lagged A	-0.032665	0.006980	-4.68	0.000

S = 0.03036 R-Sq = 2.4% R-Sq(adj) = 2.3%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.020193	0.020193	21.90	0.000
Residual Error	898	0.827910	0.000922		
Total	899	0.848103			

Regression Analysis- Cornerstone Total Return Fund

The regression equation is:
Premium/Discount = - 0.0028 + 0.500 Alpha

Predictor	Coef	StDev	T	P
Constant	-0.00277	0.01049	-0.26	0.792
Alpha	0.49980	0.03249	15.39	0.000

S = 0.1318 R-Sq = 54.7% R-Sq(adj) = 54.5%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	4.1090	4.1090	236.71	0.000
Residual Error	196	3.4023	0.0174		
Total	197	7.5113			

The regression equation is:
Premium/Discount = 0.0071 + 0.470 Lagged Alpha

Predictor	Coef	StDev	T	P

Constant	0.00713	0.01138	0.63	0.532
Lagged A	0.46967	0.03671	12.79	0.000

S = 0.1445 R-Sq = 45.5% R-Sq(adj) = 45.2%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	3.4184	3.4184	163.70	0.000
Residual Error	196	4.0929	0.0209		
Total	197	7.5113			

Regression Analysis- First Financial Fund

The regression equation is:
Premium/Discount = - 0.112 + 0.126 Alpha

Predictor	Coef	StDev	T	P
Constant	-0.11239	0.01128	-9.96	0.000
Alpha	0.12626	0.03147	4.01	0.000

S = 0.06318 R-Sq = 8.0% R-Sq(adj) = 7.5%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.064270	0.064270	16.10	0.000
Residual Error	186	0.742564	0.003992		
Total	187	0.806833			

The regression equation is:
Premium/Discount = - 0.0454 - 0.0783 Lagged Alpha

Predictor	Coef	StDev	T	P
Constant	-0.04543	0.01165	-3.90	0.000
Lagged A	-0.07830	0.03252	-2.41	0.017

S = 0.06486 R-Sq = 3.0% R-Sq(adj) = 2.5%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.024390	0.024390	5.80	0.017
Residual Error	186	0.782444	0.004207		
Total	187	0.806833			

Regression Analysis- Delaware Investments Dividend & Income Fund

```
The regression equation is:
Premium/Discount = 0.0835 + 0.0755 Alpha

Predictor        Coef       StDev          T        P
Constant     0.083502    0.003701      22.56    0.000
Alpha         0.07551     0.02393       3.16    0.002

S = 0.09585     R-Sq = 1.2%      R-Sq(adj) = 1.1%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1    0.091489    0.091489      9.96    0.002
Residual Error   799    7.340781    0.009187
Total            800    7.432270

The regression equation is:
Premium/Discount = 0.0876 + 0.0061 Lagged Alpha

Predictor        Coef       StDev          T        P
Constant     0.087587    0.004113      21.29    0.000
Lagged A      0.00606     0.02224       0.27    0.785

S = 0.09644     R-Sq = 0.0%      R-Sq(adj) = 0.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1    0.000691    0.000691      0.07    0.785
Residual Error   799    7.431579    0.009301
Total            800    7.432270
```

Regression Analysis- Gabelli Utility Trust Fund

```
The regression equation is:
Premium/Discount = 0.355 - 0.0183 Alpha

Predictor        Coef       StDev          T        P
Constant     0.355145    0.008362      42.47    0.000
Alpha        -0.01835     0.05308      -0.35    0.730

S = 0.1070      R-Sq = 0.0%      R-Sq(adj) = 0.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1     0.00137     0.00137      0.12    0.730
Residual Error   898    10.27189     0.01144
Total            899    10.27325

The regression equation is:
Premium/Discount = 0.379 - 0.188 Lagged Alpha

Predictor        Coef       StDev          T        P
```

```
Constant     0.379326    0.008398      45.17    0.000
Lagged A     -0.18759     0.05331      -3.52    0.000

S = 0.1062      R-Sq = 1.4%      R-Sq(adj) = 1.3%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1     0.13975     0.13975     12.38    0.000
Residual Error   898    10.13350     0.01128
Total            899    10.27325
```

Regression Analysis- DNP Select Income Fund

```
The regression equation is:
Premium/Discount = 0.340 - 0.240 Alpha

Predictor        Coef       StDev          T        P
Constant     0.340262    0.008558      39.76    0.000
Alpha        -0.24033     0.06619      -3.63    0.000

S = 0.09123     R-Sq = 6.6%      R-Sq(adj) = 6.1%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1     0.10974     0.10974     13.19    0.000
Residual Error   187     1.55633     0.00832
Total            188     1.66606

The regression equation is:
Premium/Discount = 0.369 - 0.528 Lagged Alpha

Predictor        Coef       StDev          T        P
Constant     0.368846    0.006929      53.23    0.000
Lagged A     -0.52785     0.04813     -10.97    0.000

S = 0.07363     R-Sq = 39.1%     R-Sq(adj) = 38.8%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1     0.65216     0.65216    120.28    0.000
Residual Error   187     1.01391     0.00542
Total            188     1.66606
```

Regression Analysis- Royce Value Trust Fund

The regression equation is:
Premium/Discount = 0.00250 - 0.0451 Alpha

Predictor	Coef	StDev	T	P
Constant	0.002499	0.002221	1.13	0.261
Alpha	-0.04515	0.01007	-4.48	0.000

S = 0.05372 R-Sq = 2.2% R-Sq(adj) = 2.1%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.058029	0.058029	20.11	0.000
Residual Error	898	2.591590	0.002886		
Total	899	2.649619			

The regression equation is:
Premium/Discount = - 0.00156 - 0.0141 Lagged Alpha

Predictor	Coef	StDev	T	P
Constant	-0.001561	0.002233	-0.70	0.485
Lagged A	-0.01413	0.01012	-1.40	0.163

S = 0.05426 R-Sq = 0.2% R-Sq(adj) = 0.1%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.005741	0.005741	1.95	0.163
Residual Error	898	2.643878	0.002944		
Total	899	2.649619			

Regression Analysis- Gabelli Equity Trust Fund

The regression equation is:
Premium/Discount = 0.145 - 0.210 Alpha

Predictor	Coef	StDev	T	P
Constant	0.144856	0.002855	50.74	0.000
Alpha	-0.21010	0.01547	-13.58	0.000

S = 0.08565 R-Sq = 17.0% R-Sq(adj) = 16.9%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	1.3529	1.3529	184.43	0.000
Residual Error	898	6.5872	0.0073		
Total	899	7.9401			

The regression equation is:
Premium/Discount = 0.145 + 0.0279 Lagged Alpha

Predictor	Coef	StDev	T	P
Constant	0.145027	0.003140	46.18	0.000
Lagged A	0.02791	0.01767	1.58	0.115

S = 0.09390 R-Sq = 0.3% R-Sq(adj) = 0.2%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.021997	0.021997	2.49	0.115
Residual Error	898	7.918106	0.008817		
Total	899	7.940104			

Appendix D-

Regressions of Annual Return against Premiums/Discounts & Cost of Equity against Premiums/Discounts

Regression Analysis- Blue Chip Value Fund

```
The regression equation is:
Premium/Discount = 0.0588 + 0.216 Annual Return

Predictor        Coef       StDev          T        P
Constant     0.058800    0.001586      37.06    0.000
Annual R     0.216184    0.006367      33.95    0.000

S = 0.04629     R-Sq = 56.2%     R-Sq(adj) = 56.2%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1      2.4699      2.4699   1152.83    0.000
Residual Error   898      1.9239      0.0021
Total            899      4.3938

The regression equation is:
Premium/Discount = 0.199 - 3.01 Cost of Equity

Predictor        Coef       StDev          T        P
Constant      0.19905     0.01361      14.62    0.000
Cost of       -3.0149      0.3170      -9.51    0.000

S = 0.06667     R-Sq = 9.2%      R-Sq(adj) = 9.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1     0.40204     0.40204     90.44    0.000
Residual Error   898     3.99177     0.00445
Total            899     4.39381
```

Regression Analysis- H&Q Healthcare Investors

```
The regression equation is:
Premium/Discount = - 0.113 + 0.171 Annual Return

Predictor        Coef       StDev          T        P
Constant    -0.113182    0.001680     -67.37    0.000
Annual R     0.171225    0.006570      26.06    0.000

S = 0.04810     R-Sq = 45.2%     R-Sq(adj) = 45.1%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1      1.5712      1.5712    679.19    0.000
Residual Error   824      1.9062      0.0023
Total            825      3.4775
```

The regression equation is:
Premium/Discount = 0.107 - 4.00 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.10739	0.01553	6.91	0.000
Cost of	-4.0027	0.2844	-14.07	0.000

S = 0.05833 R-Sq = 19.4% R-Sq(adj) = 19.3%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.67388	0.67388	198.06	0.000
Residual Error	824	2.80359	0.00340		
Total	825	3.47747			

Regression Analysis- H&Q Life Sciences Investors

The regression equation is:
Premium/Discount = - 0.107 + 0.164 Annual Return

Predictor	Coef	StDev	T	P
Constant	-0.107152	0.001781	-60.17	0.000
Annual R	0.164463	0.006993	23.52	0.000

S = 0.05084 R-Sq = 40.0% R-Sq(adj) = 40.0%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	1.4298	1.4298	553.14	0.000
Residual Error	828	2.1403	0.0026		
Total	829	3.5701			

The regression equation is:
Premium/Discount = 0.116 - 3.99 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.11622	0.01579	7.36	0.000
Cost of	-3.9904	0.2869	-13.91	0.000

S = 0.05912 R-Sq = 18.9% R-Sq(adj) = 18.8%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.67623	0.67623	193.49	0.000
Residual Error	828	2.89383	0.00349		
Total	829	3.57006			

Regression Analysis- Cornerstone Strategic Value Fund

The regression equation is:

```
Premium/Discount = 0.0121 + 0.492 Annual Return

Predictor        Coef       StDev          T        P
Constant     0.012140    0.008156       1.49    0.138
Annual R      0.49193     0.02199      22.37    0.000

S = 0.1111      R-Sq = 71.9%     R-Sq(adj) = 71.7%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1      6.1789      6.1789    500.37    0.000
Residual Error   196      2.4203      0.0123
Total            197      8.5992

The regression equation is:
Premium/Discount = 0.696 - 16.5 Cost of Equity

Predictor        Coef       StDev          T        P
Constant      0.69569     0.07411       9.39    0.000
Cost of       -16.527       1.892      -8.74    0.000

S = 0.1777      R-Sq = 28.0%     R-Sq(adj) = 27.7%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1      2.4099      2.4099     76.31    0.000
Residual Error   196      6.1893      0.0316
Total            197      8.5992
```

Regression Analysis- John Hancock Bank & Thrift Opportunity Fund

```
The regression equation is:
Premium/Discount = - 0.164 + 0.159 Annual Return

Predictor        Coef       StDev          T        P
Constant    -0.163717    0.001979     -82.75    0.000
Annual R     0.159164    0.007723      20.61    0.000

S = 0.03575     R-Sq = 32.1%     R-Sq(adj) = 32.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1     0.54300     0.54300    424.77    0.000
Residual Error   898     1.14796     0.00128
Total            899     1.69096

The regression equation is:
Premium/Discount = 0.0233 - 3.37 Cost of Equity

Predictor        Coef       StDev          T        P
Constant     0.023331    0.007968       2.93    0.003
Cost of       -3.3698      0.1718     -19.62    0.000
```

S = 0.03631 R-Sq = 30.0% R-Sq(adj) = 29.9%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.50724	0.50724	384.81	0.000
Residual Error	898	1.18372	0.00132		
Total	899	1.69096			

Regression Analysis- Chartwell Dividend & Income Fund

The regression equation is:
Premium/Discount = 0.0918 + 0.135 Annual Return

Predictor	Coef	StDev	T	P
Constant	0.091761	0.001747	52.54	0.000
Annual R	0.134725	0.007282	18.50	0.000

S = 0.04771 R-Sq = 27.6% R-Sq(adj) = 27.5%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.77915	0.77915	342.31	0.000
Residual Error	898	2.04401	0.00228		
Total	899	2.82316			

The regression equation is:
Premium/Discount = 0.0935 + 0.406 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.093512	0.007973	11.73	0.000
Cost of	0.4058	0.2710	1.50	0.135

S = 0.05600 R-Sq = 0.2% R-Sq(adj) = 0.1%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.007034	0.007034	2.24	0.135
Residual Error	898	2.816128	0.003136		
Total	899	2.823162			

Regression Analysis- John Hancock Financial Trends Fund

The regression equation is:
Premium/Discount = - 0.162 + 0.0993 Annual Return

Predictor	Coef	StDev	T	P
Constant	-0.161596	0.001375	-117.52	0.000
Annual R	0.099316	0.006329	15.69	0.000

S = 0.02722 R-Sq = 21.5% R-Sq(adj) = 21.4%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.18253	0.18253	246.27	0.000
Residual Error	898	0.66557	0.00074		
Total	899	0.84810			

The regression equation is:
Premium/Discount = - 0.0541 - 2.06 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	-0.054079	0.005774	-9.37	0.000
Cost of	-2.0577	0.1285	-16.01	0.000

S = 0.02711 R-Sq = 22.2% R-Sq(adj) = 22.1%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.18832	0.18832	256.31	0.000
Residual Error	898	0.65979	0.00073		
Total	899	0.84810			

Regression Analysis- Cornerstone Total Return Fund

The regression equation is:
Premium/Discount = - 0.0152 + 0.502 Annual Return

Predictor	Coef	StDev	T	P
Constant	-0.01519	0.01092	-1.39	0.166
Annual R	0.50161	0.03278	15.30	0.000

S = 0.1322 R-Sq = 54.4% R-Sq(adj) = 54.2%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	4.0883	4.0883	234.10	0.000
Residual Error	196	3.4229	0.0175		
Total	197	7.5113			

The regression equation is:
Premium/Discount = 0.270 - 8.25 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.26996	0.05093	5.30	0.000
Cost of	-8.254	2.028	-4.07	0.000

S = 0.1880 R-Sq = 7.8% R-Sq(adj) = 7.3%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.58524	0.58524	16.56	0.000
Residual Error	196	6.92603	0.03534		
Total	197	7.51127			

Regression Analysis- First Financial Fund

The regression equation is:
Premium/Discount = - 0.116 + 0.122 Annual Return

Predictor	Coef	StDev	T	P
Constant	-0.11616	0.01239	-9.37	0.000
Annual R	0.12238	0.03122	3.92	0.000

S = 0.06330 R-Sq = 7.6% R-Sq(adj) = 7.1%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.061553	0.061553	15.36	0.000
Residual Error	186	0.745280	0.004007		
Total	187	0.806833			

The regression equation is:
Premium/Discount = - 0.0467 - 0.591 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	-0.04673	0.02711	-1.72	0.086
Cost of	-0.5914	0.6482	-0.91	0.363

S = 0.06572 R-Sq = 0.4% R-Sq(adj) = 0.0%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.003595	0.003595	0.83	0.363
Residual Error	186	0.803239	0.004318		
Total	187	0.806833			

Regression Analysis- Delaware Investments Dividend & Income Fund

The regression equation is:
Premium/Discount = 0.0804 + 0.0851 Annual Return

Predictor	Coef	StDev	T	P
Constant	0.080414	0.004008	20.07	0.000
Annual R	0.08508	0.02348	3.62	0.000

S = 0.09566 R-Sq = 1.6% R-Sq(adj) = 1.5%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.12011	0.12011	13.12	0.000
Residual Error	799	7.31216	0.00915		
Total	800	7.43227			

The regression equation is:

Premium/Discount = - 0.0558 + 4.92 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	-0.05585	0.01342	-4.16	0.000
Cost of	4.9200	0.4453	11.05	0.000

S = 0.08983 R-Sq = 13.3% R-Sq(adj) = 13.1%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.98497	0.98497	122.07	0.000
Residual Error	799	6.44730	0.00807		
Total	800	7.43227			

Regression Analysis- Gabelli Utility Trust Fund

The regression equation is:
Premium/Discount = 0.374 - 0.128 Annual Return

Predictor	Coef	StDev	T	P
Constant	0.373991	0.009409	39.75	0.000
Annual R	-0.12782	0.05189	-2.46	0.014

S = 0.1066 R-Sq = 0.7% R-Sq(adj) = 0.6%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.06896	0.06896	6.07	0.014
Residual Error	898	10.20430	0.01136		
Total	899	10.27325			

The regression equation is:
Premium/Discount = 0.630 - 10.9 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.629905	0.009699	64.95	0.000
Cost of	-10.9217	0.3686	-29.63	0.000

S = 0.07606 R-Sq = 49.4% R-Sq(adj) = 49.4%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	5.0785	5.0785	877.90	0.000
Residual Error	898	5.1948	0.0058		
Total	899	10.2733			

Regression Analysis- DNP Select Income Fund

The regression equation is:
Premium/Discount = 0.351 - 0.284 Annual Return

```
Predictor        Coef       StDev          T        P
Constant     0.350630    0.009421      37.22    0.000
Annual R     -0.28437     0.06435      -4.42    0.000

S = 0.08982     R-Sq = 9.5%      R-Sq(adj) = 9.0%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1     0.15754     0.15754     19.53    0.000
Residual Error   187     1.50852     0.00807
Total            188     1.66606

The regression equation is:
Premium/Discount = 0.551 - 9.66 Cost of Equity

Predictor        Coef       StDev          T        P
Constant      0.55075     0.01545      35.65    0.000
Cost of       -9.6626      0.6201     -15.58    0.000

S = 0.06226     R-Sq = 56.5%     R-Sq(adj) = 56.3%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1     0.94116     0.94116    242.79    0.000
Residual Error   187     0.72491     0.00388
Total            188     1.66606
```

Regression Analysis- Royce Value Trust Fund

```
The regression equation is:
Premium/Discount = 0.00553 - 0.0512 Annual Return

Predictor        Coef       StDev          T        P
Constant     0.005533    0.002500       2.21    0.027
Annual R     -0.05121     0.01004      -5.10    0.000

S = 0.05355     R-Sq = 2.8%      R-Sq(adj) = 2.7%

Analysis of Variance

Source            DF          SS          MS         F        P
Regression         1    0.074566    0.074566     26.00    0.000
Residual Error   898    2.575053    0.002868
Total            899    2.649619

The regression equation is:
Premium/Discount = 0.167 - 3.88 Cost of Equity

Predictor        Coef       StDev          T        P
Constant     0.166513    0.009945      16.74    0.000
Cost of       -3.8788      0.2242     -17.30    0.000

S = 0.04704     R-Sq = 25.0%     R-Sq(adj) = 24.9%
```

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.66235	0.66235	299.30	0.000
Residual Error	898	1.98727	0.00221		
Total	899	2.64962			

Regression Analysis- Gabelli Equity Trust Fund

The regression equation is:
Premium/Discount = 0.154 - 0.201 Annual Return

Predictor	Coef	StDev	T	P
Constant	0.153523	0.002960	51.86	0.000
Annual R	-0.20109	0.01558	-12.91	0.000

S = 0.08636 R-Sq = 15.7% R-Sq(adj) = 15.6%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	1.2428	1.2428	166.63	0.000
Residual Error	898	6.6974	0.0075		
Total	899	7.9401			

The regression equation is:
Premium/Discount = - 0.107 + 5.84 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	-0.10744	0.01757	-6.12	0.000
Cost of	5.8418	0.4018	14.54	0.000

S = 0.08460 R-Sq = 19.1% R-Sq(adj) = 19.0%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	1.5126	1.5126	211.33	0.000
Residual Error	898	6.4275	0.0072		
Total	899	7.9401			

Appendix E-

Cross Section Regressions of Cost of Equity against Premiums/Discounts

Regression Analysis- 5 Year Average & Median Numbers

The regression equation is:
Premium/Discount = 0.393 - 7.93 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.3935	0.1343	2.93	0.010
Cost of	-7.932	2.663	-2.98	0.009

S = 0.1102 R-Sq = 35.7% R-Sq(adj) = 31.7%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.10786	0.10786	8.87	0.009
Residual Error	16	0.19448	0.01215		
Total	17	0.30234			

Regression Analysis- December 31, 2004

The regression equation is:
Premium/Discount = 0.559 - 10.1 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.5589	0.1448	3.86	0.001
Cost of	-10.146	3.083	-3.29	0.005

S = 0.1300 R-Sq = 40.4% R-Sq(adj) = 36.6%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.18316	0.18316	10.83	0.005
Residual Error	16	0.27051	0.01691		
Total	17	0.45367			

Regression Analysis- June 30, 2004

The regression equation is:
Premium/Discount = 0.404 - 9.75 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.4044	0.1171	3.45	0.003
Cost of	-9.750	3.067	-3.18	0.006

S = 0.1333 R-Sq = 38.7% R-Sq(adj) = 34.9%

Analysis of Variance

Source	DF	SS	MS	F	P

Regression	1	0.17964	0.17964	10.10	0.006
Residual Error	16	0.28448	0.01778		
Total	17	0.46412			

Regression Analysis- December 31, 2003

The regression equation is:
Premium/Discount = 0.438 - 10.7 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.43822	0.09286	4.72	0.000
Cost of	-10.691	2.649	-4.04	0.001

S = 0.1135 R-Sq = 50.4% R-Sq(adj) = 47.4%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.21001	0.21001	16.29	0.001
Residual Error	16	0.20628	0.01289		
Total	17	0.41629			

Regression Analysis- June 30, 2003

The regression equation is:
Premium/Discount = 0.431 - 11.0 Cost of Equity

Predictor	Coef	StDev	T	P
Constant	0.43099	0.08827	4.88	0.000
Cost of	-10.967	2.544	-4.31	0.001

S = 0.1091 R-Sq = 53.7% R-Sq(adj) = 50.8%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.22105	0.22105	18.58	0.001
Residual Error	16	0.19039	0.01190		
Total	17	0.41144			

Regression Analysis- December 31, 2002

The regression equation is:
Premium/Discount = 0.398 - 11.0 Cost of Equity

14 cases used 1 cases contain missing values

Predictor	Coef	StDev	T	P
Constant	0.3977	0.1318	3.02	0.011
Cost of	-10.950	3.406	-3.21	0.007

S = 0.1377 R-Sq = 46.3% R-Sq(adj) = 41.8%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.19604	0.19604	10.34	0.007
Residual Error	12	0.22760	0.01897		
Total	13	0.42363			

Regression Analysis- June 28, 2002

The regression equation is:
Premium/Discount = 0.402 - 9.27 Cost of Equity

14 cases used 1 cases contain missing values

Predictor	Coef	StDev	T	P
Constant	0.4019	0.1593	2.52	0.027
Cost of	-9.273	3.679	-2.52	0.027

S = 0.1480 R-Sq = 34.6% R-Sq(adj) = 29.2%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.13915	0.13915	6.35	0.027
Residual Error	12	0.26285	0.02190		
Total	13	0.40200			

Regression Analysis- December 31, 2001

The regression equation is:
Premium/Discount = 0.381 - 9.80 Cost of Equity

14 cases used 1 cases contain missing values

Predictor	Coef	StDev	T	P
Constant	0.3810	0.1525	2.50	0.028
Cost of	-9.805	3.769	-2.60	0.023

S = 0.1346 R-Sq = 36.1% R-Sq(adj) = 30.7%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.12253	0.12253	6.77	0.023
Residual Error	12	0.21730	0.01811		
Total	13	0.33982			

Regression Analysis- June 29, 2001

The regression equation is:

Premium/Discount = 0.497 - 9.16 Cost of Equity

14 cases used 1 cases contain missing values

Predictor	Coef	StDev	T	P
Constant	0.4967	0.1712	2.90	0.013
Cost of	-9.158	2.913	-3.14	0.008

S = 0.1035 R-Sq = 45.2% R-Sq(adj) = 40.6%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.10590	0.10590	9.88	0.008
Residual Error	12	0.12860	0.01072		
Total	13	0.23450			

Regression Analysis- December 29, 2000

The regression equation is:
Premium/Discount = 0.511 - 8.19 Cost of Equity

14 cases used 1 cases contain missing values

Predictor	Coef	StDev	T	P
Constant	0.5110	0.2076	2.46	0.030
Cost of	-8.186	2.764	-2.96	0.012

S = 0.07958 R-Sq = 42.2% R-Sq(adj) = 37.4%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.055564	0.055564	8.77	0.012
Residual Error	12	0.076001	0.006333		
Total	13	0.131565			

Regression Analysis- June 30, 2000

The regression equation is:
Premium/Discount = 0.501 - 7.98 Cost of Equity

14 cases used 1 cases contain missing values

Predictor	Coef	StDev	T	P
Constant	0.5012	0.2194	2.28	0.041
Cost of	-7.982	2.917	-2.74	0.018

S = 0.08171 R-Sq = 38.4% R-Sq(adj) = 33.3%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	0.050009	0.050009	7.49	0.018

Residual Error	12	0.080125	0.006677
Total	13	0.130135	

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