FINANCIAL SERVICES REVIEW, 7(2): 83–93
ISSN: 1057-0810

Closed-End Investment Companies: Historic Returns and Investment Strategies

Carolyn Reichert and J. Douglas Timmons

Studies conducted in the past have identified inefficiencies in the market for Closed-End Investment Company (CEIC) shares. In addition, studies have demonstrated the potential for trading strategies to exploit these inefficiencies. The purpose of this paper is to investigate the possibility of achieving excess returns through the utilization of relatively simple strategies not requiring continuous monitoring of discount(s) or frequent trading. Our investigation demonstrates that realizing excess returns through the use of simple mechanical trading strategies will not be possible.

I. INTRODUCTION

The purpose of this study is to test for Closed-End Investment Company (CEIC) market inefficiency, and therefore the possibility of excess profits. Prior studies have developed complex trading strategies that outperformed the market. Our concern is whether small investors can expect to exceed market returns using uncomplicated techniques to select funds. The plan to be tested is much like the "Dow Dogs" strategy of buying the five Dow Jones Industrial stocks that have the highest yield. Investors who bought these Dow stocks at the beginning of each year, without consideration of any other factors, have fared well (U.S. News & World Report, 1996). Should CEIC investors who buy discounted funds at the beginning of the year, and rebalance their investments after one-year holding periods expect to profit?

This study evaluates four simple CEIC trading strategies. Using one year holding periods, the plans select funds trading at either maximum discounts or higher than average discounts. The appeal of these investment strategies is their simplicity. They provide a longer holding period and fewer transactions than previous studies. The initial investment is smaller, and short selling is not required. This makes the strategies particularly appealing to small investors, who are active in the CEIC market. These investors lack the time and resources to follow the more complex systems developed in earlier studies. In fact, any investor could easily duplicate these strategies.

Carolyn Reichert • Southwest Texas State University. **J. Douglas Timmons** • Department of Economics and Finance, P.O. Box 27, Middle Tennessee State University, Murfreesboro, TN 37132.

II. LITERATURE REVIEW

Premiums and discounts on CEIC shares are determined by comparing the market price of the shares to the Net Asset Value (NAV) of the fund's holdings on a per share basis. If the fund's market price is less than the NAV, then the fund sells at a discount; if it is greater than the NAV, it trades at a premium. When the discount or premium exceeds a value that can be adequately explained by market forces (Malkiel, 1977; Pratt, 1966), the departure from NAV is deemed excessive and suggests market inefficiency in setting fund prices. Thus, the size of the discount or premium is a key consideration in selecting CEIC shares. Most closed-end funds sell at a discount, and this discount has persisted over time (Pontiff, 1994). This paper focuses on profitable trading strategies, rather than explaining the existence of the discount.

Several researchers have devised trading strategies that attempt to select profitable funds based on the size of the discount or premium. Thompson (1978) reveals that funds trading at a premium are bad investments. He creates portfolios that incorporate all funds trading at a discount. He finds significant performance that is consistent across benchmark portfolios, even after adjusting the returns for tax receipt distributions and reinvestment options. Richards, Fraser, and Groth (1980) focus on two strategies: buy and sell trading points and filter rules. Their strategies involve buying CEIC shares trading at a discount and shorting CEIC shares trading at a premium. Using weekly rebalancing, all of their strategies outperform the S&P 500. They find that the extreme buy and sell points and largest filters produce the highest returns. Anderson (1986) extends their study to investigate three different time periods. He demonstrates that only the buy and sell points provide excess returns for all three periods. Brauer (1988) constructs a frequency distribution based on the potential for open ending to get a cutoff for inclusion in the portfolio. His portfolios outperform the S&P 500. Pontiff (1994) separates the funds into groups based on the size of the premium. He finds that premium funds are bad investments. He shows that funds with 20% discounts have expected twelve-month returns that are 6% greater return than non-discounted funds.

Prior studies of closed-end funds have not explicitly considered transaction costs, although Pontiff (1994) does state that the round trip transaction costs needed to eliminate the abnormal returns in his study are 8.25% for buying securities and 3.13% for shorting them. Pesaran and Timmerman (1994) use .5% and 1% rates in their paper on stock market trading with transaction costs. This produces round trip transaction costs of 1% to 2% per CEIC share. Taxes are another important consideration. Morris and Scanlon (1996), Malkiel (1977), and Kim (1994) examine the impact of taxes in explaining the discount. They use a variety of tax rates including 25%, 31% and split rates (31% on dividends and 28% on capital gains). They find that taxes are an important factor in explaining the fund's discount.

Small investors are important in the closed-end fund market. Palomino (1996) hypothesizes that small (or noise) traders may earn higher expected utility than rational investors (by deviating from the Nash equilibrium strategy) because they create additional market volatility. Thus, rational investors are reluctant to trade in small markets, and noise trader risk persists. Some CEIC funds are thinly traded, and small investors have a greater impact in these markets. The initial public offering (IPO) evidence supports the idea that small investors are active in the closed-end fund market. An examination of closed-end fund IPOs reveals no abnormal performance in the first two days of trading (Barry & Jennings,

1993). Subsequently, the price declines sharply as large traders sell to small "noise" traders (Barry & Peavy, 1990; Weiss-Hanley, Lee, & Seguin, 1996).

The primary goal of any trading strategy is to outperform the market portfolio on a risk-adjusted basis. Brickley and Schallheim (1985), Brauer (1984, 1988), Thompson (1978) and Pontiff (1994) all use market and risk-adjusted returns (market model). However, there is some evidence that the market model may be inadequate for examining CEIC funds. Thompson (1978) observes that the two-parameter market model does not describe the return generating process for CEIC funds. Brickley and Schallheim (1985) find evidence that the market model may be inadequate if new (uncertain) information is likely to occur in the marketplace. Barry and Peavy (1990) discover that the IPOs of CEIC funds have low betas in the first trading months due to extensive price stabilization. Beta increases as funds season in the after market. Pontiff (1994) finds that beta increases as fund premiums increase. If new information about the CEIC fund is contained in the premium, this could bias the market model results. Instead of using the market model, Richards, Fraser, and Groth (1980) and Anderson (1986) compare the return and standard deviation of the proposed strategies to the S&P 500. This avoids some of the market model's problems.

Closed-end funds that convert to open-end could bias the results. If the fund liquidates or open-ends, the value of the fund's shares should return to the NAV. Brickley and Schallheim (1985) and Brauer (1984, 1988) present evidence that funds with higher than average discounts are more likely to open-end. After the announcement date, the discount narrows. Investors can earn abnormal returns if they buy the fund (even after the announcement) and hold it until it is open-ended or liquidated.

III. STRATEGIES AND DATA

Previous studies use strategies with complex investing rules, weekly trading and rebalancing, large initial investments, or short selling. In contrast, small investors typically want simple trading rules with a minimum of rebalancing. They lack the time for frequent trading and the money for large initial investments. Small investors are often encouraged to buy assets and hold them for long periods of time to minimize transaction costs. Risk aversion and limited investment knowledge deter them from shorting shares. This paper tests four simple trading strategies to determine if small investors can earn abnormal returns with minimal effort. They are variations of buy and hold strategies with annual rebalancing. This allows the investor to minimize transaction and monitoring costs. They require five or fewer funds, reducing the investment size, and they do not involve shorting CEIC shares.

Four investment strategies are tested: (1) single most discounted CEIC; (2) single most relatively discounted CEIC; (3) five most discounted CEICs; and (4) five most relatively discounted CEICs. For the first strategy, the investor selects the fund trading at the largest percentage discount from the NAV. This is the most discounted CEIC. These shares are purchased and held for one year. The process is repeated at the end of each year. If the year-end calculations show that the most discounted issue has changed, then the original shares are sold and the new most discounted shares are purchased, using all of the funds released by the sale of the old issue.

The second strategy involves a similar process, except that each issue's discount is compared to its five-year running average. The issue that is most discounted compared to its average is the most *relatively* discounted CEIC. When five years of history are unavailable, the running average is based on available data. The third and fourth strategies are multiple fund strategies that involve selecting the five most discounted or relatively discounted funds. When using multiple funds, the investor holds an equal amount of all five funds in a portfolio. Carryover funds are held without transactions. If a fund is replaced, the proceeds from the sale of that fund are evenly distributed into the new funds placed in the portfolio.

TABLE 1
F-Test for Equal Variances

Fund Name	*Classification*	*Period of Inclusion*
Adams Express	Diversified	1971-1995
Advance Investors	Diversified	1974-1976
America South Africa (ASA) Ltd.	Specialized	1971-1995
American Utility Shares	Specialized	1973-1978
Carriers-General	Diversified	1971-1981
Central Fund of Canada	International	1988-1990
Central Securities Corp.	Specialized	1986-1995
Cypress Fund	Specialized	1987-1990
Dominick Fund, Inc., The	Diversified	1971-1974
Drexel Utility Shares	Specialized	1973-1981
Duff & Phelps Sel. Utility	Specialized	1988-1990
Emerging Medical	Specialized	1986-1987
First Australia	International	1987-1995
General American Investors	Diversified	1971-1994
Germany Fund	International	1987-1995
Griesedieck Co., The	Diversified	1971-1975
Highland Capital Corp.	Specialized	1976-1982
International Holdings	Diversified	1971-1975
Japan Fund, Inc., The	International	1971-1987
Keystone Inc.	Specialized	1973-1977
Korea Fund	International	1986-1995
Lehman Corp., The	Diversified	1971-1990
Madison Fund, Inc.	Diversified	1971-1982
Malaysia Fund	International	1988-1990
Mexico Fund	International	1987-1990
National Aviation Corp.	Specialized	1971-1979
Nautilus Fund	Diversified	1980-1985
Niagara Share Corp.	Diversified	1971-1990
Petroleum & Resources Corporation	Specialized	1971-1995
Pilgrim Regional	Specialized	1987-1995
Precious Metals	Specialized	1975-1983
Providence Investors, Inc.	Diversified	1971-1976
REIT Income Fund	Specialized	1973-1980
S-G Securities, Inc.	Specialized	1974-1979
Source	Diversified	1975-1995
Surveyor Fund	Specialized	1971-1973
Thai Fund	International	1989-1990
Tri-Continental Corp.	Diversified	1971-1995
U.S. & Foreign Securities Corp.	Diversified	1971-1984
Value Line Development	Specialized	1976-1979
Zweig Fund	Diversified	1987-1995

If funds that subsequently liquidate or open-end have larger discounts than those that do not, our strategies would tend to pick these funds. If we find positive abnormal returns, it could be due to the influence of these funds on the results. Since the focus of the paper is making abnormal profits using a simple trading rule, this would support the use of our rules rather than detract from them.

The data set consists of funds from the Weisenberger *Investment Company Survey* (1965–1990) defined as "Specialized," "International" or "Diversified." Specialized funds consist predominantly of securities from one industry or group of closely related industries, or stocks of a specific type (i.e., letter stock). International funds invest chiefly in the securities of foreign companies. Diversified funds hold a well-diversified portfolio of investments. Due to changes in reporting by Weisenberger, the *S&P NYSE Stock Reports* (1995–1996) are used for the 1991–1995 data.

The final database includes 41 funds: 17 Specialized, 8 International, and 16 Diversified. A complete listing of the funds originally included in the database is provided in Table 1. The data spans December 31, 1965, to December 31, 1995. Five years of data are needed to construct the relatively most discounted strategies, thus all trading strategies begin at year-end 1970 and end at year-end 1995. The data collected for each fund includes classification, year-end price and discount, and distributions during the year. Capital gains distributions are included as distributions. The year-end price is the actual transaction price.

For informational purposes, results are provided for four "pooled" portfolios: (1) all specialized funds; (2) all diversified funds; (3) all international funds; and (4) all funds (aggregate). Since these portfolios are for comparative purposes and assume rebalancing each year, they are assessed transaction costs annually at the full value of the portfolio. This is necessary to avoid complex distribution decision processes that, in the end, would appear arbitrary and would cloud the results of the strategies above.

For comparative purposes the S&P 500 Index is also presented. Data for the S&P 500 Index comes from the *S&P Security Price Index Record* and the *S&P Stock Market Encyclopedia*. The investor starts at year-end 1970 by purchasing the S&P 500 Index, which is held for the entire sample period. Taxes and transaction costs are applied to the index (on both capital gains and dividends). Annualized yields on three month T-bills are used to estimate the risk-free rate. This information is obtained from *Business Statistics,* (1963–91), and the *Statistical Abstract of the United States* (1996).

IV. METHODOLOGY

Annual holding period returns are computed as follows:

$$R_1 = \frac{(P_1 - P_0) + D_1}{P_0} \tag{1}$$

Where

R_1 = Annual return
P_0 = Price at end of previous year
P_1 = Price at end of current year
D_1 = Distributions made during the current year

Two types of costs are considered in computing the holding period returns: transaction costs and taxes. Each time a fund is bought or sold, transaction costs are assessed. For simplicity, a flat fee is applied to the entire amount purchased or sold by the investor. When purchasing a fund, the investor pays an additional percentage B to the broker, and $P_0(1 + B)$ is used in place of P_0. When selling a fund, the investor loses percentage B to the broker, and $P_1(1 - B)$ is used in place of P_1. Two rates are tested: .5% for low transaction costs and 1% for high transaction costs.

Taxes are more problematic. The data spans a longer time period than previous studies of taxes and CEIC funds, and individual tax rates vary considerably over the study period. In order to evaluate trading strategies rather than tax rate changes, this study uses a flat tax rate of 40%. The flat rate allows consideration of the tax impact from trades without adding variability from changing tax rates. The 40% rate accommodates the wide range of tax rates on dividends and capital gains over the 1965 to 1995 time period (other tax rates are also tested, with no significant difference in the results).

When a fund is sold or liquidated, capital gains (losses) are realized. For convenience, capital losses are assumed to offset other capital gains (so the loss results in tax savings). Brokerage fees are included in assessing the taxable amount of the gain (loss). Two different methods are used to compute capital gains. The actual method uses the price change over the fund's entire holding period. Since the tax is only paid when the fund is sold, there could be complications with using the actual gain in computing annual returns. Annual returns examine the annual change in price, but the taxable amount is based on a gain earned over multiple years. To remedy this problem, the approximate method uses the fund's price change over the last year to compute the taxable gain. Since both methods produce similar results, only the approximate method is reported. All distributions by the fund are adjusted for taxes. For informational purposes, before-tax returns with no transaction costs are also computed.

The annual returns are used to calculate both geometric and arithmetic means. For statistical analysis requiring an estimate of the mean, the arithmetic mean is used. The sample standard deviation is calculated for each strategy to estimate overall risk. To assess market

TABLE 2
F-Test for Equal Variances

	After-Tax Returns 1% Transaction Costs	*Before-Tax Returns No Transaction Costs*
Strategy	*Computed F-Value*	*Computed F-Value*
Most Discounted	1.67	3.89*
Most Relatively Discounted	3.46*	5.32*
5 Most Discounted	1.38	2.25**
5 Most Relative Discounted	1.60	2.13**
Specialized	0.79	2.12**
Diversified	0.52	1.39
International	1.88***	5.07*
Aggregate	0.58	1.58

Notes: *Significant at the 1% level (Critical F-value = 2.66).
**Significant at the 5% level (Critical F-value = 1.98).
***Significant at the 10% level (Critical F-value = 1.70).

TABLE 3

Summary Statistics for After-Tax Returns with 1% Transaction Costs

Strategy	*Average*	*Minimum*	*Maximum*	*Standard Deviation*	*Beta*	*Coefficient of Variation*	*Sharpe Index*	*Geometric Mean*	*Two Sample t-statistic*
Trading Strategies:									
Most Discounted	13.87%	-11.85%	78.88%	0.196	0.61	1.41	1.33	12.40%	0.6093
Most Relatively Discounted	14.54%	-27.47%	77.04%	0.282	0.79	1.94	0.98	11.34%	0.5766
5 Most Discounted	12.84%	-20.81%	47.74%	0.178	0.95	1.39	1.33	11.47%	0.4245
5 Most Relative Discounted	13.23%	-20.69%	70.16%	0.192	0.82	1.45	1.28	11.78%	0.4868
Pooled Portfolios:									
Specialized	7.57%	-19.29%	39.20%	0.134	0.54	1.77	0.84	6.78%	-0.8102
Diversified	7.09%	-13.45%	26.08%	0.109	0.60	1.54	0.93	6.57%	-1.0069
International	11.72%	-21.89%	58.92%	0.208	0.82	1.77	1.01	9.95%	0.1694
Aggregate	8.15%	-15.50%	32.56%	0.116	0.63	1.42	1.09	7.56%	-0.7072
Comparison:									
S&P 500	10.85%	-26.50%	34.00%	0.152	1.00	1.40	1.00	9.78%	
T-Bills	2.79%	1.21%	5.63%	0.011		0.38		2.78%	

TABLE 4

Summary Statistics for Before-Tax Returns with No Transaction Costs

Strategy	*Average*	*Minimum*	*Maximum*	*Standard Deviation*	*Beta*	*Coefficient of Variation*	*Sharpe Index*	*Geometric Mean*	*Two Sample t-statistic*
Trading Strategies:									
Most Discounted	21.70%	-18.16%	136.04%	0.309	0.92	1.43	1.54	18.54%	1.249
Most Relatively Discounted	22.41%	-24.24%	98.67%	0.362	0.94	1.61	1.38	17.60%	1.189
5 Most Discounted	20.97%	-18.80%	67.92%	0.235	1.14	1.12	1.92	18.80%	1.404*
5 Most Relative Discounted	21.28%	-18.65%	81.89%	0.229	0.90	1.08	2.02	19.34%	1.486*
Pooled Portfolios:									
Specialized	14.81%	-30.83%	68.61%	0.228	0.88	1.54	1.11	12.65%	0.319
Diversified	13.97%	-20.95%	46.25%	0.185	0.98	1.33	1.22	12.53%	0.190
International	21.85%	-35.31%	102.13%	0.353	1.24	1.62	1.36	17.11%	1.140
Aggregate	15.78%	-24.42%	57.29%	0.197	1.01	1.25	1.44	14.16%	0.545
Comparison:									
S&P 500	13.04%	-24.35%	36.41%	0.157	1.00	1.20	1.00	11.93%	
T-Bills	6.97%	3.02%	14.08%	0.027	-	0.38		6.94%	

Note: *Significant at the 10% level.

risk, each strategy's beta is computed. The coefficient of variation and the Sharpe Index allow investors to analyze return in conjunction with risk. Investors want a small coefficient of variation since it indicates a smaller standard deviation for a given return. In contrast, they want a large Sharpe Index because it means a better yield with respect to the standard deviation. The Sharpe Index focuses on the risk premium, while the coefficient of variation considers the total return. For each fund, the Sharpe Index is divided by the S&P 500's Sharpe Index to produce a relative index value.

It is important to determine if the proposed strategies outperform the market on a risk-adjusted basis. The market model requires either a pre-event estimation period for determining beta or co-estimating beta and abnormal returns through the construction of portfolios. Data limitations prevent either of these techniques from being used in this paper. In addition, the market model may be inadequate for examining CEIC funds. Consequently, this paper compares the return and standard deviation of the proposed strategies to the S&P 500. A two-sample t-test is performed to determine if the returns for the proposed strategies are significantly different from the S&P 500.

V. RESULTS

Before performing the two-sample t-test, an F-test is used to determine if the S&P 500 and the test strategy have equal variances. If the variances are unequal, it is necessary to adjust the test statistic to reflect this fact. The results are presented in Table 2. Because transaction costs of .5% and 1% produced virtually identical results, only the statistics for the higher transaction costs are reported in Tables 2 and 3. Most of the after-tax returns have equal variances to the S&P 500. However, the before-tax returns do not. When the two-sample t-test for equal means are re-run assuming unequal variances, similar results occur. Only the equal variance results are reported.

Table 3 contains summary statistics for the after-tax returns using transaction costs of 1%. The four trading strategies have higher arithmetic and geometric means than either the S&P 500 or the pooled portfolios. All four also have higher standard deviations than the S&P 500. Since the tested strategies require annual rebalancing while the S&P buy and hold strategy does not, taxes and transaction costs are incurred more frequently. This could confound the after-tax measurement of beta. The coefficient of variation and Sharpe Index provide mixed results. Three of the trading strategies have a higher Sharpe Index than the S&P 500. Since a higher Sharpe Index is desirable, this supports the use of these trading strategies. With 1% transaction costs, the pooled portfolios have a higher coefficient of variation than the S&P 500. Since investors want a lower coefficient of variation, this result does not support the use of pooled portfolios. The two-sample t-test determines if a trading strategy or pooled portfolio outperforms the S&P 500 on a risk-adjusted basis. None of the t-statistics are significant, even at the 10% level. This suggests that none of the simple trading strategies outperform the S&P 500.

The summary statistics for the before-tax returns (no transaction costs) are presented in Table 4. Both the trading strategies and the pooled portfolios have higher arithmetic and geometric means than the S&P 500. In addition, the geometric means of the trading strategies exceeds that of the pooled portfolios. All of the trading strategies have a higher minimum and maximum than the S&P 500. The S&P 500 has a lower standard deviation than

any of the tested strategies or pooled portfolios. Betas for the trading strategies range from .90 to 1.14. Most of the results for the coefficient of variation are mixed, although the pooled portfolios do have higher coefficients of variation than the S&P 500. This suggests pooled portfolios should not be used. Both the trading strategies and the pooled portfolios have Sharpe Indexes in excess of 1.0. This suggests the use of neither of these investing methods. Thus, the coefficient of variation and the Sharpe Index provide conflicting evidence on the use of pooled portfolios. The two-sample t-test is significant at the 10% level for only two of the tested strategies. None of the t-statistics for the pooled portfolios are significant. Although two of the trading strategies marginally outperform the S&P 500 on a risk-adjusted basis, taxes and transaction costs erode away these marginal benefits.

VI. CONCLUSION

The most obvious differences between this study and others are the temporal distribution of the data and the consideration of taxes and transaction costs. The strategies tested in this paper are simple and relatively inexpensive. Investors need to purchase at most five funds to implement the trading plan. Short selling is not used, and rebalancing occurs annually. The purpose of the study is to determine if a simple trading strategy can yield superior performance without substantially increasing risk.

The results do not support the use of a simple mechanical strategy. Even when marginally significant before-tax returns are available, transaction costs and taxes erode the benefits. Excess returns are not possible for investors lacking the time or resources to actively trade in the marketplace. Small investors following simple trading rules with a minimum of rebalancing are unlikely to earn the abnormal returns documented in earlier studies. This should serve as a warning to investors lured by the promise of excess returns from CEIC funds selling at discounts. It is important for small investors to be aware of the need for additional monitoring, more frequent trading, larger initial investments, or short selling if they want to use CEIC funds to outperform the market. Investors wanting to avoid these complications should consider alternative investments.

REFERENCES

Anderson, S. C. (1986). Closed-end funds versus market efficiency. *Journal of Portfolio Management*, Fall, 63–65.

Barry, C. B., & Jennings, R. H. (1993). The opening price performance of initial public offerings of common stock. *Financial Management*, *22*(1), 54–63.

Barry, C. B., & Peavy, J. W., III. (1990). Risk characteristics of closed-end stock fund IPOs. *Journal of Financial Services Research*, *4*(1), 65–76.

Brauer, G. A. (1984). 'Open-ending' closed-end funds. *Journal of Financial Economics*, *13*(4), 491–507.

Brauer, G. A. (1988). Closed-end fund shares' abnormal returns and the information content of discounts and premiums. *Journal of Finance*, *43*(1), 113–127.

Brickley, J., & Schallheim, J. S. (1985). Lifting the lid on closed-end investment companies: A case of abnormal returns. *Journal of Financial and Quantitative Analysis*, *20*(1), 107–118.

Federal Reserve Board (1975, 1979, 1982, 1985, 1988, and 1991). Interest Rates: Money and Capital Markets (Statistical Table). *Federal Reserve Bulletin.*

Kim, C.-S. (1994). Investor tax-trading opportunities and discounts on closed-end mutual funds. *Journal of Financial Research, 17*(1), 65–75.

Malkiel, B. G. (1977). The valuation of closed-end investment company shares. *Journal of Finance,* June, 847–859.

Morris, M. H., & Scanlon, K. (1996). A reexamination of the tax motivation for closed-end discounts. *Journal of Accounting, Auditing, and Finance, 11*(2), 323–332.

Palomino, F. (1996). Noise trading in small markets. *Journal of Finance, 51*(4), 1537–1550.

Pesaran, M. H., & Timmermann, A. (1994). Forecasting stock returns: An examination of stock market trading in the presence of transaction costs. *Journal of Forecasting, 13*(4), 335–367.

Pontiff, J. (1994). Closed-end fund premia and returns: Implications for financial market equilibria. *Journal of Financial Economics, 37*(3), 341–370.

Pratt, E. J. (1966). Myths associated with closed-end investment company discounts. *Financial Analysts Journal,* July-August.

Richards, R. M., Fraser, D. R., & Groth, J. C. (1980). Winning strategies for closed-end funds. *Journal of Portfolio Management,* Fall, 50–55.

Standard & Poor's. (1995–1996). *S&P NYSE Stock Reports.*

Standard & Poor's. (1994). Annual range, and close of daily indexes (Statistical table, p. 1). *S&P Security Price Index Record.*

Standard & Poor's. (1994). Yield of the S&P daily stock price indexes (Statistical table, p. 127). *S&P Security Price Index Record.*

Standard & Poor's. (1995–1996). Market measures (Statistical table). *S&P Stock Market Encyclopedia, 17*(1), 3.

Standard & Poor's. (1996). Market measures (Statistical table). *S&P Stock Market Encyclopedia, 18*(1), 3.

Thompson, R. (1978). The information content of discounts and premiums on closed-end funds. *Journal of Financial Economics, 6,* 151–186.

U.S. Department of Commerce. (1992). Money and interest rates (Statistical table). *Business Statistics 1963–91* (27th ed.).

U.S. Department of Commerce. (1996). Money market interest rates and mortgage rates: 1980 to 1995 (Statistical table, p. 520). *Statistical Abstract of the United States 1996,* (116th ed.).

U.S. News & World Report. (1996). *Going For the Gold,* 121(2), 71.

Weisenberger, A. (1965–1990). Statistical survey of closed-end investment companies (Statistical table). *Investment company survey,* Part IV.

Weiss-Hanley, K., Lee, C. M. C., & Seguin, P. J. (1996). The marketing of closed-end fund IPOs: Evidence from transactions data. *Journal of Financial Intermediation, 5*(2), 127–159.