# Post-merger performance of acquirer:
Evidence from closed-end funds

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ABSTRACT

This study investigates how mergers and acquisitions of closed-end funds affect acquiring fund performance . Two methods are used to measure post-merger performances of the acquirer funds: stock market approach and discount approach. Stock market approach assesses post-merger performance by employing event study. Discount approach compares pre-merger discounts of the closed-end funds to post-merger discounts. Although the acquirers suffer from negative abnormal returns, the stock market approach does not conclude that there is a significant decrease in the CEF share prices following the mergers. However, when discounts during various pre-merger and post-merger periods are compared, the results indicate that the performance of the acquiring funds widened significantly.

Keywords: Mergers, acquisitions, closed-end funds, acquirer performance, event study.
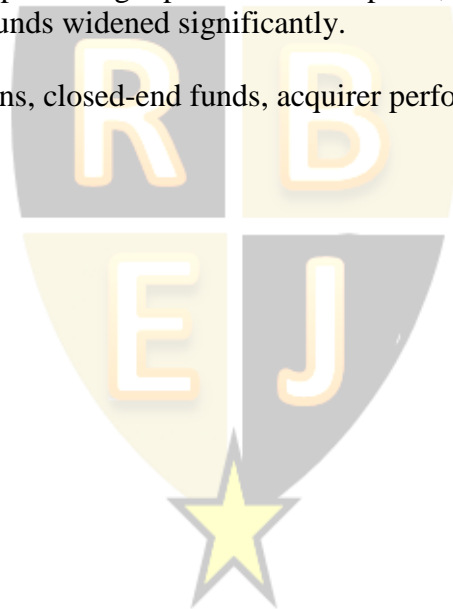
INTRODUCTION

2008 Financial Crisis brought economic and regulatory uncertainties, skittish investors, volatile investment performance. In such an environment, a significant drop in the number of mergers and acquisition (M&A) activities in all financial industries including banking, insurance, and asset management is observed. Many financial companies, possible to acquire other businesses, focused on ameliorating internal cost structures instead of seeking acquisitions. After almost six years, the US economy shows positive signs of recovery which might indicate more M&A activities in the financial sector.

Although there is ample research examining pre and post-merger performances of industrial firms, banks, and insurance companies, the academic literature on mutual funds M&As is limited to only open-end funds (Jayaraman *et al*., 2002; Zhao, 2005). The objective of this paper is to extent this literature by examining M&A's in a different setting which was not analyzed before. More specifically, this paper investigates the effects of mergers and acquisitions on acquirer performance in closed-end funds (CEFs) setting.

The advantage of analyzing post-merger performance in CEF setting is twofold: First, CEFs provide a unique setting, because their underlying assets are portfolios of securities and their net asset values are reported regularly. Accordingly, information asymmetry for a CEF is not as severe as it is for an industrial firm. Therefore, the signaling hypothesis is expected to be less important for CEF mergers. Second advantage, in addition to abnormal returns, discounts which are defined as the percentage difference between the market price and the net asset value (NAV) is used as a proxy for performance measure of CEFs. The investors of CEFs are sensitive to large discounts. In case discounts widen significantly following the completion of M&A, then shareholders would be worse off.

Since previous studies on M&As analyze only industrial firms, banks, and open-end mutual funds, this paper provides an opportunity to test if previous findings can be employed to CEFs. Considering the unique aspects of CEFs, the results could differ.

The remainder of the paper is organized as follows: In next section, some related literature on CEFs and on M&As are presented. Following section describes the data and the methodology used to assess the effects of mergers on CEF performance. Then the results are discussed and final section concludes.

LITERATURE REVIEW

CEF Anomalies

CEFs issue shares to investors at their initial offerings, and then they are closed to additional investment. Investors can sell their shares only on the exchange where the fund is listed. CEFs provide investors with flexibility and access to diverse investments. Assets are professionally managed in accordance with the fund's investment objective and policies, and may be invested in stocks, bonds, or a combination of both. CEF management is similar to an industrial firm management in the sense that both aim to maximize the share price for the investors. Since CEFs have a fixed number of common shares, fund managers do not have to deal with daily inflows and outflows of money unlike open-end funds. Having fewer concerns about liquidity needs allows CEFs to carry minimal cash amounts and enables them to invest in

other securities that have greater total return potential. Also, they can make a long-term investment without undue concern about the liquidity of the investment.

The net asset value (NAV) of a fund is defined as the market value of the securities held less the liabilities, all divided by the number of shares outstanding.[1] Because their shares represent mainly a portfolio of traded securities, there is less information asymmetry about CEFs, and they are much easier to value than industrial firms. The efficient market hypothesis suggests that NAV should be equal to the market value of the shares of the fund. However, closed-end funds often trade above or below their NAV.

There is empirical evidence reporting that both American and British closed-end funds are issued at a premium to their NAV of up to 10% and 5%, respectively (Dimson and Minio-Kozerski, 1999). This premium is associated with underwriting fees and start-up costs. However, it is replaced by a discount within a period of a few months. US CEFs trade at a significant average discount of 10% relative to NAV within 24 weeks following the initial public offering (Weiss, 1989). It is difficult to arbitrage the fund discount, since the underlying portfolio of the fund contains many assets. Discounts seem to continue, with wide fluctuations over time, until the termination of the fund through either liquidation or open-ending. Following the termination of the closed-end fund share price rise, and thus the discount diminishes (Brickley and Schallheim, 1985, Misra *et al.,* 2009).

In the literature, various explanations are provided for CEF discounts. Malkiel (1977), Brickley *et al.* (1991), Neal and Wheatley (1998) tried to relate CEF discounts to tax liabilities, unrealized capital gains and illiquidity of the underlying assets. Boudreax (1973), Deaves and Krinsky (1994), Baur *et al.* (1990) argued that agency costs and managerial performance were responsible for CEF discounts. According to Bonser Neal *et al.* (1990), Chang *et al.* (1995), Bekeart and Urias (1996) discounts in CEFs were results of market segmentation. Although the big variety in the explanations, the puzzle of CEF discounts is not fully resolved. As a result of this, DeLong *et al.* (1990), Lee *et al.* (1991), Gemmil and Thomas (2002) attempted to bring behavioral explanations.

Lee *et al.* (1990) state that there are four puzzles associated with CEFs: First, why do investors pay a premium in the initial public offering of the fund? Then, why is this premium replaced by a persistent discount? Next, why do these discounts fluctuate widely? Finally, why do they shrink when CEFs are terminated? Given this background, widening discounts can force CEFs to merge with other CEFs managed by the same fund family. However this merger may not be to the best interest of the acquirer funds' investors, as their discounts might widen.

Previous Literature on Mergers

M&As had a significant impact on the financial industry around the world and there is a rich literature, which can be divided into three categories: synergy, hubris, and "building empires". In the first category, the total value after the merger is greater than the sum of values of each firm due to increased efficiency and increased market power. Hubris results from winner's curse, causing bidders to overpay while value remains unchanged. The last category

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[1] In addition to issuing common shares, closed-end funds have the ability to utilize leverage through the issuance of debt, including notes, commercial paper, or preferred shares. Under the Investment Company Act of 1940, closed-end funds must maintain asset coverage of at least 300% (200%) with respect to debt (preferred stock).

includes mergers in which total value is decreased as a result of managers "building empires" for their self-interests opposed to the shareholders' interests.

In order to assess the effect of M&As on the acquirer and on the target companies, either stock performance or accounting variables (which measure performance) are used. According to Sudarsanan and Mahate (2003), M&A announcement generally result in significant performance improvements on the target companies. On average, target stock returns are significantly positive, independent from the market studied and the data period employed as it is reported in Dodd and Ruback (1977); Bradley (1980); Franks and Harris (1989); and Jarrell and Poulsen (1989).

On the other hand, there are some studies which document insignificant positive or negative abnormal returns to the acquirer firms in financial industry (Berger, 1997; Bauer *et al.,* 2009; DeLong and DeYoung, 2007) as well as for industrial firms (Chatterjee, 1992; Higson and Elliott, 1998; Kennedy and Limmack, 1996). A number of studies document that bidding firms do not benefit from the acquisitions, as measured by short-term (Dodd, 1980; Malatesta, 1983) and long-term (Asquith, 1983) firm value.

While these studies report that bidders typically do not experience any positive abnormal returns in the period surrounding the announcement, Dodd and Ruback (1977); Bradley and Sundaram (2006); and Franks and Harris (1989) found that acquiring firms do experience some significant returns. Evidence supporting post-merger performance improvement of acquirers is compiled from different industries. Cornett and Tehranian (1992) report improvement in post-merger operating performance for US banks. Sudarsanam and Mahate (2003) concluded similar results for British industrial firms.

Accounting-based studies are also far from being conclusive about post M&A performance of the acquiring firms.

METHODS

Data

Sample points are hand-collected by scrutinizing all delisting codes for CEFs listed on the Center for Research in Security Prices (CRISP). The search yields a sample of 307 CEF, which were delisted between the period 1973 and 2005. This sample was then compared to an additional data set obtained from SDC Thompson Merger Database, which covers all financial companies including CEFs. In the final phase, Applications of Deregistration of Certain Financial Companies – Mergers (40-8F-M) filings from Security Exchange Commission (SEC) archives are compiled. These processes resulted in a sample of 90 CEF M&A deals with 59 acquirers between 1994 and 2005 period.

For this 90 observations, press releases are collected through Lexis-Nexis, Bloomberg and Wall Street Journal Indexes. For each merger, a target fund, an acquiring fund, an announcement date for the M&A, and a termination date for the target fund are identified. The data includes fund family, inception date, fund type, expense ratio, and portfolio turnover ratio. NAVs are collected from Bloomberg.

Weekly discounts of the both target and acquirer CEFs are collected from Wall Street Journal and Bloomberg.

The breakdown of the sample between acquirer and target funds indicate that these 90 target funds are acquired by 59 CEFs. Single State Muni Bond Funds and National Muni Bond

Funds predominate both the target and the acquirer funds sample. Table 1 summarizes market value, number of outstanding shares, price, NAV, and age of the acquiring funds. The average market value of the funds is slightly over $185 million whereas the average market value of the target funds (not reported in the table) is almost $88 million. The smallest acquiring fund has a value of $65 million, while the largest one has a value exceeding $632 million.

Hypotheses

This paper analyzes how the post-merger performance of the acquirer CEFs is affected by M&A deals. Therefore hypotheses tested are as follows::
H1: There is a significant decrease in the stock prices of the acquirer funds following the M&A.
H2: There is a significant increase in the discounts of the acquirer funds following the M&A.

Performance Measurement

In order to assess the impact of M&As on the acquirer funds' performance two approaches are used: stock market approach and discount approach.

Stock Market Approach

The average daily abnormal returns to M&A announcements are measured by using event study The expected returns are calculated from using the market model parameters estimated from the control period of 220 days, –250 to –31 day relative to announcement date. CRSP equally-weighted index is used as a proxy for the market (The results are robust with regard to value-weighted index). Abnormal returns are computed as the difference between the actual returns and the expected returns based on the estimated parameters from the market model:

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t})$$

where $AR_{i,t}$ is the abnormal return of the CEF i at time t; $R_{i,t}$ is actual return of CEF i at time t; α_i and β_i are market model parameters; and $R_{m,t}$ is return of the market at time t.
The average daily abnormal return of surviving company is:

$$AAR_t = \frac{1}{n} \sum_{i=1}^{n} AR_{i,t}$$

where n is the sample size, and $AR_{i,t}$ is the abnormal return of the ith CEF at time t.
Cumulative abnormal returns over various holding periods at time t relative to time equals:

$$CAR_{t_1,t_2} = \sum_{i=t_1}^{t_2} AAR_t$$

To compute standardized abnormal return at day t :

$$SAR_{i,t} = \cfrac{AR_{i,t}}{\sigma_i \sqrt{1+\dfrac{1}{T_i}+\dfrac{(R_{m,t}-\bar{R}_m)^2}{\sum\limits_{\tau}^{T_i}(R_{m,t}-\bar{R}_m)^2}}}$$

where σ_i is the standard deviation of the residuals in the market model estimation period; T_i the number of days in the estimation period; $R_{m,t}$ is the return to the equally –weighted market portfolio on day t and $\bar{R}_m$ is the mean return to the market portfolio over the estimation period.

In order to examine whether the abnormal return on day *t* is statistically significant, $z-$ statistic is computed as:

$$z = \sqrt{n}\,\overline{SAR_t}$$

where *n* is the sample size, and $\overline{SAR_t}$ is the average standardized abnormal return at day t.

Stock market approach is used to evaluate hypothesis 1. Accordingly, if hypothesis 1 holds, significant negative returns following the M&A announcement are expected.

Discount Approach

One of the performance measures of CEFs is discount. Discount is the difference between the exchange-traded share price and the NAV of the fund. It is computed as (Price / NAV) – 1. Conventionally, discounts are reported in positive numbers. Accordingly, premiums are negative discounts. Large discounts hurt CEF investors. In order to reduce the discounts, CEF managers go for tender offers where investors can redeem their shares above the market prices. According to Misra *et al.* (2009), persistent discounts may force managers to convert CEFs into open-end funds through reorganizations, or mergers with open-end funds. Because the legal structure of CEFs requires a stable asset base, portfolio manager can make longer-term investment decisions based on the fund's investment strategy without being affected by the shareholders buying or selling activities and worrying about potential redemption considerations. On the other hand, open-end funds' asset base are much more volatile because of purchase and redemption request by shareholders. Accordingly, investor sentiment is more likely to affect the asset base of a CEF than the investment philosophy of the fund. Lee *et al.* (1991) attempt to explain the discount on CEFs by behavioral explanations and their results are consistent with this view. From a managerial perspective, there is one more disadvantage associated with converting a CEF into and open-end fund: While open-end funds cannot add leverage to their portfolios, CEF managers can use this opportunity in order to amplify returns. Considering all of these factors, CEF managers have strong incentives to reduce the discounts and keep the fund's closed-end structure

Discount approach is used to test hypothesis 2, which suggests that discounts of the acquirer CEFs is expected to widen following the M&A.

RESULTS

Stock Market Approach

Abnormal returns of 59 surviving CEFs during the M&A announcements are estimated based on a market model using equally-weighted CRSP index as the market estimated over the

period t = [-250, - 31] relative to the announcement date. Table 2 presents cumulative abnormal returns (CAR) for different periods with the corresponding z-statistics reported in the last column.

CAR (-2, 2) values are negative but not significant. The results are confirmed when different windows are used. Based on the stock market approach, hypothesis 1 is rejected. The results are also robust with regard to value-weighted CRSP index. Therefore, it can be concluded that although negative returns are observed, share prices of surviving CEFs following the M&A event do not drop significantly.

Discount Approach

The average discount of the sample for acquirer funds one year surrounding the M&A event is presented in Figure 1.

Discounts of CEFs are published on o weekly basis. As it can be observed from the figure 1, the discount of the acquirer funds increases following the M&A announcement and it takes approximately 6 months before it drops to the pre-announcement level.

Table 2 presents discounts of the acquiring funds at different time windows. To compare change in discounts before and after the merger, two-sample t-test is used. The discounts of the acquiring funds rose significantly in all periods reported. The average discount for the week prior to M&A jumped from 6.54% (7.08% median) to 7.71% (7.46% median) in one week following the M&A.

Thus, the results provide support for hypothesis 2, which suggest that the discounts of the acquiring funds increase significantly following the M&A event.

CONCLUSION

This study examines the impact of mergers and acquisitions on acquirer performance in CEFs setting by using 59 U.S. merger deals between 1994 and 2005 period. The post-merger performances of CEFs are measured by following two methods: First is stock market approach, where an event study is employed to assess the impact of M&A announcement on the acquirer fund. Second is discount approach, where the discounts of the acquiring CEFs are compared by using a one year window before and after the M&A announcement.

Although the acquirers suffer from negative abnormal returns, the stock market approach does not conclude that there is a significant decrease in the CEF share prices following the mergers. However, when discounts during various pre-merger and post-merger periods are compared, the results indicate that the performance of the acquiring funds worsened significantly. Deep discounts hurt CEF investors and may eventually force the fund to reorganize into open-end fund. The sample is predominantly composed of muni funds, which display smaller discounts compared to foreign equity funds. Therefore, significantly increasing discounts following the completion of M&A can be a disincentive for the managers of CEFs.

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APPENDIX

Table 1. Selected Descriptive Statistics of the Acquiring CEFs

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
Market value of equity (millions of $)	185.07	123.56	147.49	65.22	632.62
Shares outstanding (millions)	16.17	10.37	15.26	4.42	58.70
Price per share ($)	12.71	13.19	2.61	7.56	16.50
Net asset value ($)	12.53	13.00	2.39	5.06	16.11
Age of the fund (years)	6.31	5	4.44	1	17

Table 2. Cumulative Abnormal Announcement Returns for Surviving Funds

Period	CAR (%)	z- stat
(-5,-3)	0.1223	-0.2122
(-2,2)	-0.2289	-0.6666
(3,5)	0.0298	0.3833

*, **, *** Statistically significant at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively

Table 3: Change in Discounts

Pre-Merger Discounts		Post-Merger Discount		Difference
	(1)		(2)	(2) – (1)
pre-merger	6.54%	post-merger	7.71%	1.17% ***
pre 1	6.99%	post 1	8.15%	1.16% ***
pre 6	4.26%	post 6	6.56%	2.30% ***
pre 12	3.64%	post 12	4.64%	1.00% ***

*, **, *** Statistically significant at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively

Figure 1. Behavior of Discounts of acquirer CEFs surrounding the M&A