Exploiting the Weekend Effect by Trading Closed-End Funds

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Abstract

Closed-end mutual funds allow equity portfolios to be traded like individual stocks and provide a way to implement trading strategies designed to exploit the weekend effect that has been observed in portfolio returns for over a century. Weekend effect trading is aimed at taking a short position on Friday to capture a negative return on Monday. Investor behavior causes this effect through individuals selling stocks on Mondays as a result of weekend portfolio review and/or through short-sellers covering positions on Fridays. After transaction costs, weekend trading is most profitable after the market declines between .5% and 1.5% on Friday.

Introduction

The pattern of positive Friday returns followed by negative Monday returns was termed the weekend effect over two decades ago (French 1980) but exists in data going back to 1885 (Bessembinder and Hertzel 1993). Investors might wonder if the weekend effect can be used to increase trading profits, and we apply trading rules developed from previous research to the daily returns on U.S. closed-end funds (CEFs). Our objectives are to determine: the possibility of making weekend trading profits, the characteristics of the CEFs that exhibit successful weekend trading, the best trading rules to use, and the effect of transaction costs.

Previous weekend effect research analyzes portfolio returns—mainly the S&P 500 and size-based portfolios—to diversify away the potentially confounding effect of unsystematic risk in individual stocks. Practical application is difficult because "trading a portfolio" means buying and selling the individual stocks in the portfolio—and generating round-trip transaction costs on each stock traded over the weekend. CEFs invest in the securities of other corporations and generate income and capital gains from managing these investments. CEFs are traded like individual stocks on the NYSE, which permits trading of a whole equity portfolio at one market price, and can be traded any time the exchange is open, providing traders with liquidity and flexibility. CEFs have a single investment objective or characteristic (such as small growth or large value), which allows for measuring trading profitability while avoiding both selection basis and micro-structure problems that can occur in the trading of individual (especially small) stocks, such as lack of liquidity, non-synchronized trading, and high transaction costs.

Explanations for the weekend effect focus on regularities in investor behavior. Miller (1988) argues that on Mondays negative returns indicate sell orders exceed buy orders and because brokerage houses make predominately buy recommendations during the workweek while individuals perform personal business like reviewing portfolios on the weekend, individuals sell decisions are executed Monday mornings. On Mondays, individuals are net sellers (Kamara 1997) and NYSE trading volume and block-trade percentage are lowest while odd-lot sales percentage, attributed to individuals, is the highest (Lakonishok and Maberly 1990).

Chen and Singal (2003) contend that the weekend effect is driven by investors who sell short. Short selling requires constant monitoring, and conditions relating to borrowed shares change daily. When trading cannot occur, as on the weekend, short sellers cannot control losses from positive stock price movements, so they close speculative positions on Fridays, driving up prices, and reestablish new short positions on Mondays, driving down prices. High volatility stocks are likely to provide more profitable opportunities than those with low volatility, and Chen and Singal find that the weekend effect is greater in stocks with high volatility. We show that CEFs with higher volatility have greater weekend trading profits, confirming Chen and Singal's result.

Still, in an efficient market, the effects of regular investor behavior should be arbitraged away, and Kamara (1997) shows that the weekend effect has disappeared over time for the S&P 500 index. We examine the practical value of the weekend effect using closed-end funds to trade non-S&P 500 portfolios, determine which CEFs are most appropriate for weekend trading, develop trading strategies that differ in how weekends are selected for trading, include estimates of transaction costs, and evaluate the risk of the trading strategies.

The Trading Strategies

The strategies we use reflect findings from the previous research on the weekend effect.

Buy and hold Strategy. This is our benchmark strategy. No weekend trading is involved: a portfolio is bought at the beginning of the sample period and held until the end of the period.

Weekly Strategy. We extrapolate from French (1980) and propose a naive trading strategy: weekend trading occurs every weekend. This rule generates the maximum number of trades.

Cross (1973) documents "non-random movements" in the S&P composite index over the 1953-1970 period and tabulates declines on 60.5% of all Mondays and 76.0% of those following a Friday decline. From 1953 to 1977, French (1980) finds Monday average returns for the S&P 500 index to be significantly negative, not attributable to calendar-time or trading-time effects, and different from returns for other days following a closed market (i.e., holidays).

Negative Friday Strategy. We extrapolate from Chow, Hsiao, and Solt (1997), who develop a simple positive-feedback trading strategy: weekend trading occurs only if the Friday return is negative or less than some cut-off value. Bessembinder and Hertzel (1993) find that the Friday-Monday return correlation is the highest of all pairs of weekdays.

Fourth Monday Strategy. This strategy follows from Wang, Li, and Erickson's (1997): weekend trading occurs on the fourth Monday (and fifth Monday if it occurs) of each month, generating either one or two trades per month. They find that on the 4th and 5th Mondays of the month, returns average -.20% to -.40%, that Monday returns are positively correlated with the previous day's return (typically Friday), and that the effect not related to option expiration dates.

Both Strategy. Conditions underlying the previous two strategies must be met: weekend trading occurs before the fourth and fifth (if available) Monday of the month only if the previous Friday's return is negative.

Either Strategy. Conditions for either the Negative Friday or the Fourth Monday Strategies must be met: weekend trading occurs either if the previous Friday's return is negative or if the weekend is before the fourth or fifth (if available) Monday of the month.

The Closed-End Fund Data

The CEF sample is taken from the Morningstar Principia Pro January 2002 Close-End Fund Research data disk and the sample period is from January 4, 1988 to December 31, 2001. We searched for all close-end equity funds (CEF) with inception dates earlier than December 1987 and with equity style box ratings.[1] This search yielded 38 CEFs, of which 21 are domestic equity, 11 are international equity, and 6 are convertible security CEFs. Daily returns are taken from the CRSP data base, and the sample includes 3,533 daily observations, of which 671 are Mondays. For comparison purposes, data for the S&P 500 index also are compiled.

Applying the Trading Strategies

Four transactions take place on each weekend traded: selling a long and buying a short position on Friday, then reversing these positions on Monday. Exhibit 1 presents the ending wealth resulting from applying the trading strategies. Since transaction costs are not included, Exhibit 1 shows the maximum potential of weekend trading in the CEFs. The results are presented for each fund category and for the 21 domestic equity funds by equity style ratings. Some of the equity style boxes contain only 1 or 2 funds, so the results are presented for the 8 Large, 6 Medium, and 7 Small CEFs and 5 Value, 12 Blend, and 4 Growth CEFs rather than for each box. The entries in Exhibit 1 are the average of the ending wealth of the underlying CEFs.

For the S&P 500, the Weekly, Fourth Monday, and Either Strategies destroys wealth relative to the Buy & Hold Strategy while the Negative Friday and Both Strategies produce about 10.0% and 60.0% greater ending wealth respectively. For domestic and international equity CEFs, the Fourth Monday and Both Strategies perform well, with ending wealth 2 to almost 6 times greater than the Buy & Hold Strategy. Overall, the Fourth Monday Strategy appears to be the best strategy while the small and growth equity styles tend to perform the best in Exhibit 1.

Exhibit 1 suggests that convertible security, large, medium, and blend funds have similar results as do international equity, small, value, and growth funds. As Exhibit 2 indicates, this splits the CEFs into high variability (average standard deviations for daily returns of 1.7% or more) and low variability groups. More variable CEFs have better weekend trading results, and this is consistent with Chen and Singal's (2003) finding for highly volatile stocks.

Exhibit 1
Average Ending Wealth for the Trading Strategies with Beginning Wealth of $1,000

	Buy & Hold	Weekly	Negative Friday
Weekends traded	671	671	294
S&P 500	5,513	1,442	6,010
CEF Category			
Domestic Equity	8,999	5,507	12,987
Convertible Securities	6,361	3,279	5,176
International Equity	6,095	8,498	13,461
Domestic Equity Funds by Equity Style			
Large	7,619	3,171	9,123
Medium	7,971	3,301	9,252
Small	11,926	15,173	25,092
Value	9,872	18,874	25,689
Blend	8,231	2,716	8,763
Growth	10,318	8,958	16,837

Exhibit 1
Average Ending Wealth for the Trading Strategies with Beginning Wealth of $1,000 (continued)

	Fourth Monday	Both	Either
Weekends traded	297	133	448
S&P 500	5,377	9,032	3,578
CEF Category			
Domestic Equity	21,544	19,904	14,058
Convertible Securities	7,677	7,633	5,206
International Equity	35,011	23,673	19,909
Domestic Equity Funds by Equity Style			
Large	15,394	14,727	9,536
Medium	14,183	14,855	8,834
Small	43,525	35,045	31,164
Value	27,558	21,144	33,482
Blend	14,960	15,836	8,278
Growth	45,016	35,226	21,517

Exhibit 2
Mean and Average Standard Deviations by Equity Style (21 Domestic Equity CEFs only)

	Mean Monday	Standard Deviation	Mean All Days	Standard Deviation
Large	0.07%	1.31%	0.06%	1.18%
Medium	0.06%	1.34%	0.05%	1.20%
Small	-0.02%	2.09%	0.07%	2.01%
Value	-0.05%	1.81%	0.06%	1.73%
Blend	0.08%	1.29%	0.06%	1.14%
Growth	0.01%	2.16%	0.07%	2.09%

The Effect of Transaction Costs

Trading costs are composed of explicit costs, like broker commissions and taxes, and implicit costs, like a trade's price impact and the opportunity cost of not executing a trade in a timely manner. Berkowitz and Logue (2001) estimate that the commission for a large-capitalization equity transaction in 1997 is $0.05 per share[2] and the market impact is as much as $0.09 per share. In an example, Berkowitz and Logue use transaction costs of 0.15%, a figure we use here.[3]

Exhibit 3 presents the ending wealth for the Negative Friday and Both Strategies with initial wealth of $10 thousand and transaction costs of .15% on each of the four weekend trading transactions[4]. Due to their poor performance in Exhibit 2, convertible security CEFs are not included. The Weekly, Fourth Monday, and Either Strategies perform worse than the Buy & Hold Strategy after transaction costs and are not included in Exhibit 3.

The Negative Friday Strategy performs well when Friday declines are -1.0% or -1.5% (77 and 42 weekends, respectively), and the Both Strategy performs well when the cutoff is -.5% or -1.0% (73 and 36 weekends, respectively). In Part B, the funds with higher volatility—international, small, and growth—have much better performance at these cutoffs than the Buy & Hold. These results suggest successful trading occurs on roughly 5.0% to 11.0% of all weekends and 12.0% to 25.0% of weekends following negative Fridays.

Exhibit 4 presents results for the best strategy, including transaction costs, for the domestic equity and international CEFs (S, M, and L refer to Small, Medium, and Large, while V, B, and G refer to Value, Blend, and Growth, equity styles), sorted in descending order by the percentage difference from the Buy & Hold Strategy. As in Chen and Singal (2003), higher variability is associated with a greater weekend effect—the correlation between the strategies' standard deviation and the percent difference from the Buy & Hold Strategy is .77.

Selectivity about which weekend to trade is important. The Both Strategy is best for 16 CEFs, the Negative Friday Strategy is best for 15 CEFs, and the Fourth Monday Strategy is best for 1 CEF. The Negative Friday Strategy with a -1.0% cutoff is the best strategy for nine, or 28%, of the CEFs, trading on 77 weekends, or 26.2% of weekends following negative Fridays.

Being too selective reduces the potential for weekend trading gains. Part B of Exhibit 3 shows that the largest Friday declines select the fewest weekends for trading but do not produce the largest increases over the Buy & Hold Strategy. In Exhibit 4, the best strategy for SWZ, GAB, TUX, DNP, and ADX selects 25 or fewer weekends for trading but fails to out perform the Buy & Hold for three of the funds. All five of these funds are in the lower variability group.

Weekend effect trading is not without risk. Comparing the average daily return columns (computed for all days in the sample period) for the trading strategies and the Buy & Hold support this notion: weekend trading enhances daily returns on average by .01% and up to .04% for CEFs with higher variability.[5] To weekend traders, downside risk might be the relevant consideration, so we present the best strategy's semi-standard deviation in Exhibit 4 along with its ratio to the Buy & Hold Strategy's semi-standard deviation. Of the 11 CEFs that have a positive percentage difference from the Buy & Hold, ten have lower semi-standard deviations than the Buy & Hold Strategy.

Concluding Comments

Our analysis identifies trading strategies that can be used to successfully exploit the weekend effect in closed-end funds. Our advice is to be selective about which weekends to trade and to trade CEFs with more variability in daily returns. A positive feedback trading strategy (based on negative Friday returns) is the best strategy for 31 of the 32 CEFs, and in conjunction with the 4th Monday Strategy for about half of the CEFs. Roughly speaking, a weekend trading signal occurs when the S&P 500 declines by 1.0% on Friday, and this translates into trading on approximately 10.0% of all weekends and 25.0% of Negative Friday weekends. Weekend trading involves risk, but applying the best weekend trading strategies enhances the reward-to-variability ratio over the Buy & Hold strategy.

Endnotes

[1] The equity style box is a 3 x 3 matrix comprised of two dimensions: the fund's investment methodology (value, growth, or a blend of value and growth) and the size of companies invested in (large, medium, or small). Morningstar assigns each fund to one of nine boxes after determining the fund's size and investment approach.

[2] These are gross commissions that do not reflect the value of soft dollar and commission recapture arrangements. Only the investor can know with any precision the net cost of commissions.

[3] Total transaction costs have also been estimated to range from 0.18% to as much as 1% of the principal amount of the transaction Estimates of commission and market impact costs are from Abel-Noser Benchmarks and The Plexus Change Commentary, January 1998.

[4] Due to space limitation, Exhibit 3 and 4 are provided by author upon request.

[5] Based on the average daily return in Exhibit 1 of .05%, over one year of trading, enhancing daily returns by .01% to .04% would increase the annual return by approximately 3.0% to 15.0%.

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