**The Timing of Activist Returns**

I would especially like to thank Farrokh Emami-Langroodi. Any errors, of course, are the responsibility of the author.

 ABSTRACT

 This paper models the timing of Activist returns using a Stackelberg equilibrium. Empirical evidence supports this model with Activist returns significantly positively related to the S&P 500, CRB commodity index, the unemployment rate and the size anomaly. Activists negotiate higher returns during weaker economic time periods. Activist returns are, also, positively related to the size effect because Activists have more negotiating leverage against smaller firms.

Introduction

 Many studies of Activism concentrate on corporate governance, governance laws, voting rights and monitoring roles of large institutional investors. This paper examines the nature and timing of the returns from Activist investing. This study controls for the CAPM and Fama-French 3 Factor CAPM risk factors and identifies additional factors which are related to the state of the economy. A Stackleberg equilibrium model indicates that an Activist has more credibility during weaker economic periods and this gives the Activist more negotiating power. This causes the current management team to take on strategies recommended by the Activist. The Activist becomes a partial manager by proxy and this will result in a decrease in agency costs. Activism has large costs. Weaker economic conditions reveal more information to investors when managers have actually underperformed in their industry and the overall market. As a result, Activist credibility is higher during weak economic conditions. During weaker economic time periods, an Activist will be more credible and have more negotiating power to enhance change in the targeted company and have a larger effect on the returns.

 In the previous literature, corporate governance issues and ownership levels affect the behavior of targeted companies and Activists. In \_\_\_\_\_\_\_\_\_ Entrepreneurial Shareholder Activism (2009) the returns to activism rise on the announcement of a 13D filing and hedge funds typically target more profitable firms. In Li Kein and Zein (Dec 2006) they find that financial institutions have a low monitoring role in most firms. They suggest that core holdings may be decreased to lower agency costs and induce more monitoring by larger investors. In Electing Directors \_\_\_\_\_\_\_\_\_\_ (Oct 2009) they examine voting procedures and find that institutions that are more active may moderate management behavior during elections for directors and compensation voting, however, the impact may be small. In Smith (1996), the results from CALPERS indicate that targeted firms frequently change or adapt policies and those that adapt seem to increase firm value, while those that oppose the adoption of Activism realize a decrease in shareholder wealth. Jensen (1989, 1993) argue that agency costs will decrease if firms use more debt. Activists and others will be more likely to monitor the targeted firm. Masulis, Wang and Xie (2007) find that large bidders with more antitakeover provisions have lower returns upon mergers and the separation of CEO and Chair of the Board is value enhancing. Therefore, the characteristics of the acquirer can be perceived as an Activst that lowers agency costs or a Conglomerate that increases agency costs. Grinstein and Michaely (2005) find that institutional investors have preferences on dividends and the type of change an Activist is proposing is relevant. Maug (2008) finds that liquid stock markets make corporate governance more effective. This has implications for small firms and Activism. Cremers and Nair (2005) find that small firms are more vulnerable to Activists. Thus, the size effect should be examined in this study. Kini, Kracaw and Mian (2004) find that the discipline of the takeover market is the court of last resort. Novaes (2002) finds that an increase in leverage is value enhancing if the management team or the firm is not pressured into refinancing. They, also, find reputation is important.

 In summary, the previous literature indicates that Activism has costs related to capital implementation and reputation is a factor in communicating a better plan to realize the value of a poor performing company. Activism success is related to the size of the targeted firm. Monitoring behavior by large institutions seems to work, but the threat of a takeover seems to have a larger impact on management behavior and policy changes. Negotiating power seems to be important, however, no study has examined the timing of Activist returns and the factors that drive these returns from a macro or asset pricing related model. This paper models the Activist situation as a Stackleberg model. The Activist moves first. However, the Activist is more credible when the market reveals the targeted firm is actually underperforming. This will occur more frequently during weaker economic time periods. The next section is the Stackelberg equilibrium model. Section three describes the dataset for Activist hedge funds. Section four describes the empirical methodology (CAPM and 3 Factor CAPM with macroeconomic variables). Section five lists the empirical results supporting the model and Section six summarizes the paper.

Section 2

 Assume there are two states of nature, G (good economic performance) and B (weak economic performance for the economy). The Activist, A, will face returns that are conditional on the state of nature G or B. The Activist can choose to be active, A, or not active, NA. The cost of Activism is Ca. During G the cost of Activism results in the following:

In G state: Ra(A:G) – Ca < R( NA:G) so the Activist is Not Active.

In B state: Ra(A:B) – Ca > R(NA:B) so the Activist is Active.

Once the Activist becomes Active, the Activist moves first and the targeted firm’s management must react. The Target Management, TM, must respond to Activism with Acceptance or Rejection of the proposals. In a good state, TM will not accept because the cost of activism and the lack of information that would reveal underperformance prevents other investors from acquiring control and removing the manager. In addition, these factors prevent other investors from joining the dissent and driving the stock price down further.

The utility of TM depends on the stock price and control premiums received as manager of the corporation. Therefore, U (RTM , Cm(IR) ) , where the utility of TM depends on the stock price and the control premium related to investor relationships. The control premiums imply that TM will not respond to proposals unless the Activist actually purchases shares in the company. In other words, the Activist must become Active for the TM to respond. The Utility of TM implies that three cases will determine the response of the TM. The Activist can be Active, A, or Not Active, NA. The manager can choose to Follow Active, FA, or Not Follow Active, NFA.

1. Good State: RTM (SNA : G) + Cm(IR) > RTM (SA : G). Activist will choose Not Active, NA, and Target manager will choose to Not Follow Activist, NFA.
2. Active and Bad State : RTM (SA : AB) > RTM ( SNA : B) + Cm(IR). Target manager will choose to Follow the Activist Strategies.
3. Not Active and Bad State: RTM (SNA : NAB) + Cm(IR) > RTM (SA : B). This is the case of the Activist choosing Not Active and the Target manager choosing Not Follow Activist strategies (doing nothing).

A, B and C above, indicate the following Stackelberg Equilibrium positions are given in Bold in the boxes below.

Stackelberg Equilibrium

In the Good state, TM will maximize utility by not responding or changing behavior. In the Not Active and Bad state, the TM will only respond to threats that are implemented because the benefits to control are too high. In the Active and Bad state, TM will change behavior to keep control benefits. The negotiating power of the Activist has increased during this time period and the TM cannot ignore the threat. To ignore this threat is to lose all of the control premiums.

 This implies that the timing of returns is related to the macroeconomic environment and when bad information is revealed to the market. During time periods of poor performance, financial opportunities may not be available to some firms. This lack of ability to finance operations in either the stock or bond markets may reveal weak management ability. Time periods with weaker economic performance will reveal which companies cannot refinance and increase the negotiating power to those investors willing to invest in weaker companies. The Activist can extract higher returns during weaker economic periods.



Section 3

Data and Methodology

 The data used for this study includes hedge fund Activists category monthly returns from January, 2005 to June, 2015 from Hedge Fund Research. The category returns use data from all reported funds with an Activist mandate. Institutional investors have had a large impact on the reporting of hedge fund returns, thus lowering the bias in certain types of cases. Steady inclusion in an index is almost a requirement for most large investors. Any missed or late reporting is a red flag that would cause capital to leave the fund. The usual types of bias still occur with survival bias, as is true with any stock index. The macroeconomic data is gathered

 I. Data Construction

For the purpose of our analysis, we have collected and utilized the monthly rate of return data for 36 hedge fund strategies and sub-strategies such as Equity Hedge, Event Driven, Macro/CTA, and Relative Value from the Hedge Fund Research Inc.’s (HFR) HFRX indices. The return data for main strategies such as Equity Hedge, Event Driven, Macro/CTA, and Relative Value covers the January 1998 to June 2015 period. Most of the remaining sub-strategies data cover the period of January 2005 and January 2006 to June 2015.

The corresponding data for other indices and percent rate of change used in our regression analyses such as S&P 500 monthly Total Return, CRB Index monthly Total Return, high grade Copper (CU) price (US Cents/Pound), Gold Bullion (XAU) price-New York (USD/Ounce), West Texas Intermediate (WTI) Oil Price (USD/Barrel), U.S. Dollar Trade Weighted Index (DXY), Euros per US Dollar (USD/EUR), Japanese Yen per US Dollar (USD/JPY), U.S. 10-year Government Bond Total Return Index, U.S. T-Bill Total Return Index, U.S. Industrial Production Index (INDPRO), U.S. Personal Consumption Expenditures (PCE), U.S. Real PCE, and U.S. Consumer Price Index (CPI) data are collected from “Global Financial Data” database.

The 3-month and 12-month LIBOR rates based on U.S. Dollar, U.S. Government 10-year Treasury Bond Yield, U.S. Government 3-month T-Bill yield are collected from Federal Reserve Bank of St. Louis (FRED) database.

U.S. Total Balance of International Trade (BOT) data is collected from U.S. Census Bureau, Foreign Trade Division. U.S. monthly Unemployment rate data is collected from U.S. Bureau of Labor Statistics (BLS).

For our macroeconomic models, we have used the Credit Spread as the difference between effective yield of BofA Merrill Lynch U.S. Corporate BBB Index and U.S. 3-month T-Bill yield. The BofA Merrill Lynch U.S. Corporate BBB Index data is collected from Federal Reserve Bank of St. Louis (FRED) database and is a subset of the BofA Merrill Lynch US Corporate Master Index tracking the performance of US dollar denominated investment grade rated corporate debt publically issued in the US domestic market. This subset includes all securities with a given investment grade rating BBB. When the last calendar day of the month takes place on the weekend, weekend observations will occur as a result of month ending accrued interest adjustments.

For calculating the Size Premium (Small Cap – Large Cap), represented by “SML”, the Russell 2000 Total Return Index and Russell 1000 Total Return Index are collected from “Global Financial Data” database and used for Small Cap and Large Cap stocks respectively.

Similarly, Russell 1000 Value Index and Russell 1000 Growth Index are collected from “Global Financial Data” database and used for calculating the Value Premium (High P/M (Value) – Low P/M (Growth)), represented by “HML”.

Descriptive Statistics

Place Table here

## OLD Regression Model (With Correction for Non-Stationarity) without SML & HML

|  |  |
| --- | --- |
| **Dependent Variable: ED\_ACTIVIST** |  |
| Method: Stepwise Regression |  |
| Sample (adjusted): 2005M02 2015M06 |  |
| Included observations: 125 after adjustments |
| Number of always included regressors: 1 |  |
| Number of search regressors: 15 |  |
| **Selection method: Stepwise forwards & backwards** |  |
| Stopping criterion: p-value forwards/backwards = 0.05/0.05 |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.\*   |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.003002 | 0.001975 | 1.519520 | 0.1312 |
| **SP500** | 0.670959 | 0.054734 | 12.25849 | 0.0000 |
| **CRB** | 0.183364 | 0.042489 | 4.315539 | 0.0000 |
| **UNEMPLOY** | 3.564282 | 1.086142 | 3.281600 | 0.0013 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.716070 |     Mean dependent var | 0.006834 |
| **Adjusted R-squared** | **0.709031** |     S.D. dependent var | 0.040157 |
| S.E. of regression | 0.021661 | **Akaike info criterion** | **-4.795086** |
| Sum squared resid | 0.056776 | **Schwarz criterion** | **-4.704580** |
| Log likelihood | 303.6929 |     Hannan-Quinn criter. | -4.758318 |
| F-statistic | 101.7206 | **Durbin-Watson stat** | **2.011880** |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Diagnostics:**

* **No Serial Correlation based on the Durbin Watson stat. for both models.**
* **No Severe Multicollinearity based on the VIF test for both models.**
* **No unconditional Heteroskedasticity based on White test for both models.**
* **No Conditional Heteroskedasticity based on the ARCH test, ONLY for Backward Model (on the RHS)**
* **CONCLUSION: ED-Activist return is significantly affected by S&P 500, CRB, and US Unemployment Rate.**

**CORRELATION TABLE**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **ED\_ACTIVIST** | **SP500** | **CRB** | **UNEMPLOYMENT** | **SML** | **HML** |
| **ED\_ACTIVIST** | 100% | 80% | 61% | 7% | 42% | 2% |
| **SP500** | 80% | 100% | 53% | 16% | 41% | 13% |
| **CRB** | 61% | 53% | 100% | 6% | 18% | -9% |
| **UNEMPLOYMENT** | 7% | 16% | 6% | 100% | 4% | 2% |
| **SML** | 42% | 41% | 18% | 4% | 100% | 11% |
| **HML** | 2% | 13% | -9% | 2% | 11% | 100% |

## NEW Regression Model (With Correction for Non-Stationarity) with SML & HML

***This model includes SML and HML in the pool of ALL the Macroecon. variables and eliminate the insignificant ones by stepwise elimination.***

|  |  |
| --- | --- |
| **Dependent Variable: ED\_ACTIVIST** |  |
| Method: Stepwise Regression |  |
| Sample (adjusted): 2005M02 2015M06 |  |
| Included observations: 125 after adjustments |
| Number of always included regressors: 1 |  |
| Number of search regressors: 17 |  |
| **Selection method: Stepwise forwards & backwards** |  |
| Stopping criterion: p-value forwards/backwards = 0.05/0.05 |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.\*   |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.003325 | 0.001929 | 1.724077 | 0.0873 |
| **SP500** | 0.612806 | 0.057471 | 10.66282 | **0.0000** |
| **CRB** | 0.193752 | 0.041585 | 4.659148 | **0.0000** |
| **UNEMPLOY** | 3.548066 | 1.058556 | 3.351798 | **0.0011** |
| **SML** | 0.242505 | 0.089191 | 2.718958 | **0.0075** |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.732547 |     Mean dependent var | 0.006834 |
| **Adjusted R-squared** | **0.723632** |     S.D. dependent var | 0.040157 |
| S.E. of regression | 0.021111 | **Akaike info criterion** | **-4.838869** |
| Sum squared resid | 0.053481 | **Schwarz criterion** | **-4.725736** |
| Log likelihood | 307.4293 |     Hannan-Quinn criter. | -4.792909 |
| F-statistic | 82.16926 |     Durbin-Watson stat | 1.991277 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

* **CONCLUSION: ED-Activist return is significantly affected by S&P 500, CRB, US Unemployment Rate, and SML (Size Premium).**
* **This model has the best Adj. R-Sq, AIC and SIC in compared with the OLD model and the next model (which includes the Insignificant HML in the model).**

 The model that includes S&P500, CRB, Unemployment rate, and SML has the best Adj. R-Sq, AIC and SIC among ALL the models presented in this report

**Descriptive Statistics**

|  |
| --- |
| ***ED: Activist*** |
|  |  |
| Mean | 0.68% |
| Standard Error | 0.36% |
| Median | 1.03% |
| Standard Deviation | 4.00% |
| Sample Variance | 0.16% |
| Kurtosis | 2.54 |
| Skewness | -0.89 |
| Range | 0.26 |
| Minimum | -0.16 |
| Maximum | 0.10 |
| Sum | 0.86 |
| Count | 126 |

|  |
| --- |
| ***S&P 500*** |
|  |  |
| Mean | 0.60% |
| Standard Error | 0.38% |
| Median | 1.28% |
| Standard Deviation | 4.24% |
| Sample Variance | 0.18% |
| Kurtosis | 2.97 |
| Skewness | -1.06 |
| Range | 0.29 |
| Minimum | -0.18 |
| Maximum | 0.10 |
| Sum | 0.75 |
| Count | 126 |

|  |
| --- |
| ***Unemployment Rate*** |
|  |  |
| Mean | 6.88% |
| Standard Error | 0.17% |
| Median | 6.65% |
| Mode | 4.70% |
| Standard Deviation | 1.88% |
| Sample Variance | 0.04% |
| Kurtosis | -1.47 |
| Skewness | 0.20 |
| Range | 0.06 |
| Minimum | 0.04 |
| Maximum | 0.10 |
| Sum | 8.67 |
| Count | 126 |

|  |
| --- |
| ***CRB Index*** |
|  |  |
| Mean | -0.18% |
| Standard Error | 0.48% |
| Median | 0.59% |
| Standard Deviation | 5.39% |
| Sample Variance | 0.29% |
| Kurtosis | 3.13 |
| Skewness | -0.94 |
| Range | 0.38 |
| Minimum | -0.25 |
| Maximum | 0.13 |
| Sum | -0.22 |
| Count | 126 |

***ED-Activist and S&P 500 scale on the Left Vertical axis. Unemployment scale on the Right Vertical axis.***

 References

AAA

This model ADDS SML and HML to the initial (OLD) model without using any stepwise elimination.

Dependent Variable: ED\_ACTIVIST

Method: Least Squares

Sample (adjusted): 2005M02 2015M06

Included observations: 125 after adjustments

Variable Coefficient Std. Error t-Statistic Prob.

C 0.003262 0.001963 1.661665 0.0992

SP500 0.614361 0.058224 10.55160 0.0000

CRB 0.192297 0.042382 4.537256 0.0000

UNEMPLOY 3.491616 1.099656 3.175190 0.0019

SML 0.243172 0.089612 2.713628 0.0076

HML -0.022783 0.113917 -0.200000 0.8418

R-squared 0.732637 Mean dependent var 0.006834

Adjusted R-squared 0.721403 S.D. dependent var 0.040157

S.E. of regression 0.021196 Akaike info criterion -4.823205

Sum squared resid 0.053463 Schwarz criterion -4.687446

Log likelihood 307.4503 Hannan-Quinn criter. -4.768053

F-statistic 65.21752 Durbin-Watson stat 1.996736

Prob(F-statistic) 0.000000

 CONCLUSION: ED-Activist return is significantly affected by S&P 500, CRB, US Unemployment Rate, and SML (Size Premium), but HML (Value Premium) is Insignificant.

This is our so-called 6-Factor Model which includes S&P500, D-ratio, L-ratio, R-ratio, SML and HML. THERE IS NO STEPWISE ELIMINATION USED IN THIS MODEL (SEE THE NEXT MODEL)

Dependent Variable: ED\_ACTIVIST

Method: Least Squares

Sample: 2005M04 2014M12

Included observations: 117

Variable Coefficient Std. Error t-Statistic Prob.

C -0.003406 0.003169 -1.074719 0.2849

SP500 0.722777 0.055972 12.91313 0.0000

SS 0.001327 0.000802 1.654305 0.1009

S2 -0.057715 0.131837 -0.437772 0.6624

S6 -0.507724 1.614608 -0.314456 0.7538

SML 0.196106 0.102997 1.904009 0.0595

HML -0.244078 0.124913 -1.953977 0.0532

R-squared 0.686466 Mean dependent var 0.006964

Adjusted R-squared 0.669364 S.D. dependent var 0.041033

S.E. of regression 0.023594 Akaike info criterion -4.597653

Sum squared resid 0.061236 Schwarz criterion -4.432394

Log likelihood 275.9627 Hannan-Quinn criter. -4.530560

F-statistic 40.13980 Durbin-Watson stat 1.869647

Prob(F-statistic) 0.000000

 CONCLUSION: ED-Activist return is significantly affected by S&P 500.

This is our so-called 6-Factor Model which includes S&P500, D-ratio, L-ratio, R-ratio, SML and HML. STEPWISE ELIMINATION IS PERFORMED ON THE ABOVE-MENTIONED VARIABLES TO GENERATE THE BEST MODEL OUT OF THESE VARIABLES.

Dependent Variable: ED\_ACTIVIST

Method: Stepwise Regression

Sample: 2005M04 2014M12

Included observations: 117

Number of always included regressors: 1

Number of search regressors: 6

Selection method: Stepwise forwards & backwards

Stopping criterion: p-value forwards/backwards = 0.05/0.05

Variable Coefficient Std. Error t-Statistic Prob.\*

C -0.002941 0.003073 -0.957122 0.3405

SP500 0.752564 0.051525 14.60574 0.0000

SS 0.000878 0.000372 2.358921 0.0200

R-squared 0.663927 Mean dependent var 0.006964

Adjusted R-squared 0.658031 S.D. dependent var 0.041033

S.E. of regression 0.023995 Akaike info criterion -4.596609

Sum squared resid 0.065638 Schwarz criterion -4.525784

Log likelihood 271.9016 Hannan-Quinn criter. -4.567854

F-statistic 112.6059 Durbin-Watson stat 1.756289

Prob(F-statistic) 0.000000

 CONCLUSION: ED-Activist return is significantly affected by S&P 500 and D-ratio.

.

ED-Activist sorted in a descending order.