温州肯恩大学
WENZHOU-KEAN UNIVERSITY

The effect of activist short seller research reports on stock price

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by

HUANG Zhou

1025644

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Abstract

The purpose of this study is to investigate the effect of short seller research reports on prices of stocks that are traded at Hong Kong Stock Exchange. The study collects 17 activist short-selling cases that initiated by Blue Orca Capital, J Capital Research, Bonitas Research and Muddy Waters Research from 2014 to 2019. The study observes negative abnormal return in each of the 20 days after the publication date. The targeted companies' stocks will experience a negative cumulative abnormal return in the approximate one or two months after the publication date. The findings of the study support the argument that short seller research reports have a great negative influence on targeted companies' stocks that are traded at Hong Kong Stock Exchange. The results suggest that activist short sellers have been made profit by trading before the publication day of short sellers research reports and that the decision based on the information released on short seller research reports may not benefit investors.

Table of Contents

Introduction

Although past studies have investigated extensively how the U.S. stock markets are affected by the activist short sellers, seldom of them focus on how companies listed on the Hong Kong Stock Exchange are influenced by short seller research report. Two reasons are the main motivations that why so many activist short sellers like to target companies listed on the Hong Kong Stock Exchange. One reason is that, unlike stock exchanges in China mainland, Hong Kong Stock Exchange does not set limit on how much stock could change in a single day; another reason is that Chinese companies are less likely to comply with related accounting standards.

However, the question how short seller research reports affect prices of targeted companies' stocks that are traded at the Hong Kong Stock Exchange is exclusively important. Many investors make decision based on the third party information released on public, in which activist short sellers research reports are included. If the results show that there is an insignificant relationship between publication of short sellers research reports and targeted companies' stock price, it is pointless or even bad for investors to follow those activist short sellers; if the results show a significant relationship between publication of short sellers research reports and targeted companies' stock price, then investors are better to follow the advices given by those activist short sellers. Short seller research reports are essential for those investors who held targeted companies' stocks because activist short sellers

often set target prices at zero, which may lead to a lot of selling and hence cliff fall of the companies' stock prices.

This study aims to investigate whether the publication of short seller research reports has any impact on common stocks traded at the Hong Kong Stock Exchange. The answer to the question that if there is a significant relationship between the publication of short seller research reports and stock market prices of targeted companies will help the investors to do rational decision when the company in which the investors are holding stocks are targeted. If the result shows that the publication of short seller research reports will have an significant influence on the market stock prices of targeted companies, the investors are better to sell their stocks immediately; if not so, the investors should not make any decision based on the short seller research reports. Furthermore, the study also investigates how the content of those reports affects targeted company's stock price. The finding may show an existence of significant abnormal return in each of the 10 days after the publication date. The targeted companies' stocks will experience a negative cumulative abnormal return in the approximate 5 to 10 days after the publication date. The finding of the study may support the argument that short seller research reports have a great negative influence on targeted companies' stocks that are traded at Hong Kong Stock Exchange. The results may suggest that the decision based on the information released on short seller research reports may benefit investors. Moreover, the results suggest that activist short sellers have traded the targeted companies' stocks before they release their

research report and that the information of releasing reports has been leaked and used for making profit.

Literature Review

Unlike passive short-selling, activist short-selling usually results in much bigger market reactions, and sometimes it even becomes a public signal when the activist short seller shorts stocks (Zhao 2017). Activist short seller targets a company by releasing a short seller research report. Each time when such reports published, targeted companies experienced an average three-day cumulative abnormal return of -6.3% and -13.8%; the cumulative abnormal return are even more negative when the reports assert that they have first-hand evidence (Chen 2014). The negative influence on targeted firms can be huge when short seller seems to be right or when it takes companies too much time to response (Zhao 2017).

Generally, activist short-selling and passive short-selling are conducted because short sellers are driven by incentives of betting on the decline in stock prices (Brent, Morse and Stice 1990). However, short sellers who are motived by tax and hedging are unlikely to perform activist short-selling. Activist short sellers are mainly motivated by profit incentive, and they will publicly disclose their theses, by releasing short seller research reports, that explain the reason why their targeted companies' stocks prices should go down.

There are several differences between activist short-selling and passive short-selling. Firstly, activist short sellers tend to be more informative and riskier than passive short sellers. Secondly, activist short sellers usually lead to much bigger market reactions than its passive counterpart. Activist short sellers are usually accused of manipulating stock prices by providing misinformation (Zhao 2017). In

the Higher-Order Beliefs theory, a public signal usually facilitate investors in guessing how other investors will react to a certain issue (Gao 2008). Activist short sellers initiate a bearish public signal by publishing short seller research reports. Worrying about other investors will sell soon, an investor will short immediately after being aware of this kind of reports.

Short-selling is risky because of its capped downside but unlimited upside. In theory, stock prices could keep increasing to infinite but could not decrease to negative. In addition, equity-loan lenders are able to change the loan fees or recall the loan at any time. These features make both the noise trader risk and the fundamental risk extensive concerns to short sellers (De Long, Shleifer, Summers and Waldmann 1990). In Diamond's and Verrecchia's study (1987), short-selling's high-risk feature determines its informative feature – only investors who expect that short-selling will be profitable and hence can compensate for the risk are willing to sell short. As Engelberg, Reed, and Ringgenberg (2016) illustrate, stocks that possess more short-selling risk have less price efficiency, lower future returns, and less short-selling.

Activist short sellers behave as an unofficial information intermediary. In the stock market, where information is severely asymmetry, activist short sellers diligently conduct their own work by digging the assessable information of publicly listed companies and publishing negative reports on targeted companies, alleging corporation disclosures untrue or even fraudulent information to their stockholders (Chen 2014).

Two kinds of companies are more likely to be targeted by activist short sellers – companies with egregious overvaluation and companies with high uncertainty (Zhao 2017). Overvaluation features include high asset growth, high P/V ratio, high net operating assets, high accounting-manipulation probability, high P/B ratio compared to peer firms and low recent earning; Uncertainty features include high bid-ask spreads, internal control weaknesses, low accounting quality, few dedicated institutional investors, non-Big Four auditors and absence of blockholders. According to Zhao (2017), overvaluation features affect short-term returns less than long-term returns, but uncertainty features affect short-term returns more than long-term returns.

Among all of the companies that possess overvaluation features and uncertainty features, Chinese companies are more likely to be targeted by activist short sellers. For instance, in 2010, short seller research Muddy Water targeted Oriental Paper and released a thirty-page report questing the authenticity of the firm's financial statements. In 2011, another short seller research Citron Research targeted China MediaExpress and issued a report showing evidence of the stock is fraudulent. In 2011, LM Research targeted China Agritech and claimed that the firm's financial statements were overstated. The list of targeted Chinese companies is long, and it is still enlarging.

The past few years witnessed the growing number of new Chinese public companies. However, Chinese companies are less likely to comply with related accounting standards. For instance, in the United States, the Exchange Commission and the U.S. Securities find that many U.S.-listed Chinese firms have

been using service provided by small auditing firms, many of which may even not have the ability to meet the auditing obligations. Eventually, this kind of situation leaves great risk to both the Chinese companies and their stockholders (Zhao 2014).

Research Design

The study will use student's t test to investigate the relationship between publication of short seller research reports and targeted companies' stock prices at Hong Kong Stock Exchange. The information related to the reports will be collected directly from the websites of activist short sellers, including Blue Orca Capital, J Capital Research, Bonitas Research and Muddy Waters Research. The market prices of targeted companies will be collected from the Bloomberg and the website Yahoo Finance. The collected information will include dates of publication of short seller research reports, and the market prices of targeted companies and Hang Seng Index in 120 days prior to the publication day, the market prices of targeted companies in 90 days after the publication day. The date of publishing short selling reports is Day 0. The length of the event window is 30 days, including 10 days prior to Day 0 and 20 days after the Day 0. The length of the estimation window is 130 days, starting from Day -140 to Day -10. The post-event window is 70 days, counting from Day +20 to Day +90.

The research will use Market Model to generate expected return:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

Where R_{it} is the return of targeted companies' stocks on day t, R_{mt} is the return of the market, which is calculated by Hang Seng Index, α_i and β_i are derived from ordinary least squares, and ε_{it} is the error term.

The abnormal return is calculated as:

$$A_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$$

The formula of calculating average abnormal return of all the targeted companies' stocks is:

$$A_t = \frac{1}{N}\sum_{i=1}^{N} A_{it}$$

Where A_t is average abnormal return of all targeted companies' stocks.

The t value for average abnormal return is calculated as:

$$T_t = \frac{A_t}{S(A)}$$

Where $S(A)$ is the standard deviation which is generated from the estimation window:

$$S(A) = \sqrt{\frac{1}{129}\sum_{t=-140}^{-10} A_t^2}$$

The cumulative abnormal return of all the targeted companies' stocks in the event window is calculated as follow.

$$CAR_{m.n} = \sum_{t=-m}^{t=n} A_{i,t}$$

Where m and n are the number of days before and after the event day respectively.

The targeted companies and their stock codes are listed below.

Stock codes	Targeted companies	Stock codes	Targeted companies
1717	Ausnutria Dairy	8207	Chong Sing
1360	NOVA Group	2200	Hosa International
1910	Samsonite	1363	CT Environmental
0607	Fullshare Holdings	2010	Real Nutriceutical
3823	Tech Pro Technology Development	0931	China LNG Group
0067	China Lumena New	2020	ANTA Sports
3998	Bosideng	1999	Man Wah Holdings
1044	Hengan	6863	China Huishan Dairy
1228	Superb Summit International		

To test the relationship between publication of short seller research reports and targeted companies' stock prices, the study will collect the data of the market prices of targeted companies in 10 days prior to the publication day and in 20 days after the publication day. Then, the study will calculate the difference between actual market return and expected return in each of those days; the difference is abnormal return. The study will generate the average abnormal return of all targeted companies. In the calculation, the study will regard the average abnormal return as the sample mean and the number 0 as the population mean. After that, the study will calculate the t value and hence generate the statistically significant. The student's t test examines the null hypothesis that the average abnormal returns are equal to zero.

Furthermore, the study will also test another null hypothesis that the cumulative abnormal returns are equal to zero. In order to do this, the study will calculate the cumulative abnormal returns around the publication date, including combined periods, prior to publication periods and after-publication periods. The combine periods are (-1, +1), which means one day before and after the publication date, (-

3, +3), (-5, +5) and (-10, +10). The prior to publication periods are (-3, -1), (-5, -1) and (-10, -1). The after-publication periods are (+1, +5), (+1, +10), (+1, +20). The purpose to test null hypotheses in combined periods and prior to publication periods is to investigate if activist short sellers disclose the information in the short seller research reports to some traders before the publication date of the reports or if the activist short sellers made large volume transaction privately before the publication date of the short seller research reports.

Results

Table 1

Daily average abnormal returns (AARs) in event window[1]

Event days	AARs	standard deviation	t-value	p-value
-10	-0.57%	0.018124	-1.3021	10.57%
-9	-0.88%	0.039236	-0.92103	18.54%
-8	0.51%	0.040877	0.513236	69.26%
-7	-6.57%	0.20936	-1.2947	10.69%
-6	-2.44%	0.035765	-2.80882***	0.63%
-5	-1.12%	0.019416	-2.38218**	1.50%
-4	-0.52%	0.040149	-0.5328	30.07%
-3	0.68%	0.053237	0.524371	69.64%
-2	-0.19%	0.028369	-0.27015	39.52%
-1	-0.07%	0.018083	-0.17034	43.34%
0	-11.06%	0.232597	-1.96117**	3.38%
+1	-3.28%	0.153152	-0.88239	19.53%
+2	-0.59%	0.057962	-0.42179	33.94%
+3	6.82%	0.237644	1.182757	87.29%
+4	1.73%	0.051737	1.378225	90.64%
+5	1.20%	0.055662	0.889766	80.66%
+6	-0.57%	0.080935	-0.29277	38.67%
+7	-0.04%	0.02161	-0.0853	46.65%
+8	0.25%	0.067723	0.150414	55.88%
+9	-0.24%	0.025974	-0.38751	35.17%
+10	-2.68%	0.057272	-1.92852**	3.59%
+11	0.03%	0.023638	0.046171	51.81%
+12	0.39%	0.047326	0.339263	63.06%
+13	-0.34%	0.024619	-0.57631	28.62%
+14	0.22%	0.014868	0.608473	72.43%
+15	-0.16%	0.024737	-0.26276	39.80%
+16	-0.31%	0.022665	-0.55858	29.21%
+17	-0.67%	0.043113	-0.64187	26.50%

[1] *Statistically significant at 10%

**Statistically significant at 5%

***Statistically significant at 1%

+18	-1.33%	0.019923	-2.75119***	0.71%
+19	-0.48%	0.023569	-0.84279	20.59%
+20	0.70%	0.026648	1.087614	85.36%

The analysis period extends for day -10 to day +20 relative to publication day. Among those days, day -6, day -5, day 0, day +10 and day +18 are statistically significant at 5% level or at 1% level. Day -5 and day -6 are prior to publication date, but the results show they have a negative return and are statistically significant. It suggests that the information might have been used by activist short sellers for their trading. Furthermore, the standard deviations on day -5 and day -6 are relatively smaller than the publication day and after publication period, suggesting that the risk of activist short seller's speculation behavior is relatively low. Day 0 is the publication day, and in this day the market has experienced a -11.06% abnormal return with a 5% significant level. It suggests that the investors' decisions have been influenced by the activist short sellers research report and that a lot of bid orders have been generated on the publication day. The stock prices have been dramatically response to the reports, so the market is efficient. Day +10 and day +18 are prior to publication date, and the results show they have a negative return and are statistically significant. Wrong response of targeted companies or additional evidence from the activist short sellers may have been contributed to the result.

Table 2

Cumulative abnormal returns (CARs) in the event window

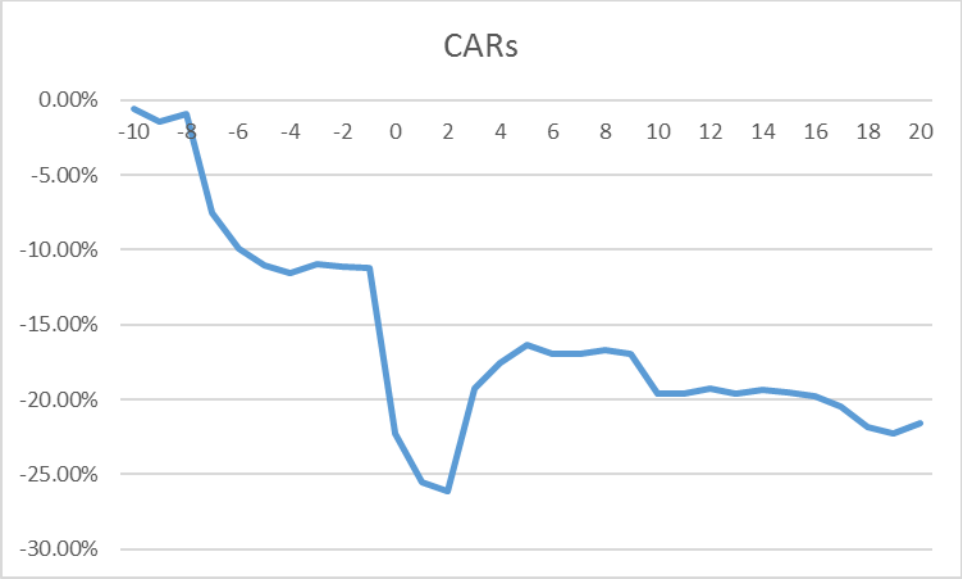

Table 2 presents the cumulative abnormal returns during 10 days prior to the publication date and 20 days after the publication date. The overall trend of CARs in the graph is downward sloping, but the lowest point is in day 0 instead of day 20. This suggests that the market has overacted on the short seller research reports publication day. It also suggests that it would be profitable for activist short seller to short sell stocks before they release their short selling research reports. Moreover, it supports the view that investors may not benefit from the activist short sellers research reports if they trade based on the information on the publication day.

Table 3

Cumulative abnormal returns (CARs) in different windows[2]

Windows	CARs	Standard deviation	t-value	p-value
(-1, +1)	-14.42%	0.343351753	-1.731117	5.13%
(-3, +3)	-7.70%	0.151509894	-2.0955951**	2.62%
(-5, +5)	-6.41%	0.189340627	-1.3959779	9.09%
(-10, +10)	-19.66%	0.269999412	-3.0016993***	0.42%
(-3, -1)	0.42%	0.070201522	0.24460328	59.51%
(-5, -1)	-1.22%	0.068228733	-0.7397421	23.51%
(-10, -1)	-11.17%	0.236272338	-1.9500587**	3.45%
(+1, +5)	5.88%	0.165982769	1.45989457*	91.82%
(+1, +10)	2.58%	0.166717636	0.63849805	73.39%
(+1, +20)	0.63%	0.1949367	0.13300224	55.21%

Only three periods are statistically significant in the table, which are (-10, +10), (+1, +5) and (-10, -1). Both windows show a considerable negative cumulative abnormal return. For the combined period (-3, +3) and (-10, +10), CARs are -7.7% and -19.66% with significant level at 5% and 1% respectively. It suggests that

[2] *Statistically significant at 10%
**Statistically significant at 5%
***Statistically significant at 1%

activist short sellers have traded the targeted companies' stocks before they release their research report. For the prior to publication period (-10, -1), CAR is -11.17% and significant at 5% level. Based on the result, we can conclude that activist short sellers research reports provide valuable information to investors. For the after-publication period (+1, +5), CAR is 5.88% with a 10% significant level. It suggests that the information has been processed by investors and that some investors start buying back the stocks because they believe that the stocks are undervalued. Moreover, the standard deviations for all of those periods are relatively high, suggesting the risk of holding or shorting the targeted companies' stocks is high.

Hypotheses	**Result**
H1. The average abnormal returns are equal to zero.	Rejected
H2. The cumulative abnormal returns are equal to zero.	Rejected

To sum up, both hypotheses are rejected in certain days and period in the event window. The first null hypotheses are rejected at day -6, day -5, day 0, day +10 and day +18, and the average abnormal returns are -2.44%, -1.12%, -11.06%, -2.68% and -1.33%. The second null hypotheses are rejected in the periods (-3, +3), (-10, +10), (-10, -1) and (+1, +5), and the cumulative abnormal returns are -7.70%, -19.66%, -11.17% and 5.88%.

Contributions and Limitations

The answer to the question that if there is a significant relationship between the publication of short seller research reports and stock market prices of targeted companies will help the investors to do rational decision when the company in which the investors are holding stocks are targeted. The result shows that the publication of short seller research reports has an significant influence on the market stock prices of targeted companies, so the investors are better to sell their stocks immediately; if not so, the investors should not make any decision based on the short seller research reports.

Furthermore, the study tests the relationship between the cumulative abnormal returns of targeted companies and the publication of short seller research reports. If the results show significant negative cumulative abnormal returns during the after-publication periods, the investors can stop loss by selling the targeted companies stocks or make money by purchasing short options. The study also reveals that activist short sellers may have traded in the stock market before the publication day.

However, some limitations may exist and hence may reduce the credibility of the results of the study. For instance, the number of collected reports are too little, and many of them are currently inaccessible; other events such as US-China trade war and Hong Kong protests may also influence Hong Kong stock market and hence the results of the study; and some reports may hard to classify based on the classification listed above. Moreover, the study does not consider and weight the

credibility and reputation of each activist short seller. In fact, some activist short sellers such as Muddy Water are more popular and hence have more influence than other activist short sellers.

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