Progressive Report

1. Background

   This project focuses on exploring how the consensus and earnings (beat/miss) reflect on stock price changes, therefore suggestions can be made to support stock trading activities. I used to analyze the relationship between beat/miss with alpha, now I mainly focus on stock price, retrace period when a retrace range is given. I generate some visualization results.

2. Data

   The data I used for analysis is each **10 equities** from USA, **semiconductor** and **IT**. I used 10 years beat/miss and stock price data. However, the historical range can be specified as we want.

3. Assumptions

   There are some assumptions for the analysis:

   (1) Definition of "up/down"

   Up: ① average of the first four trading days ***above*** zero

   ② In the first four trading days, three of them have a return ***greater*** than zero

   Down: ① average of the first four trading days ***below*** zero

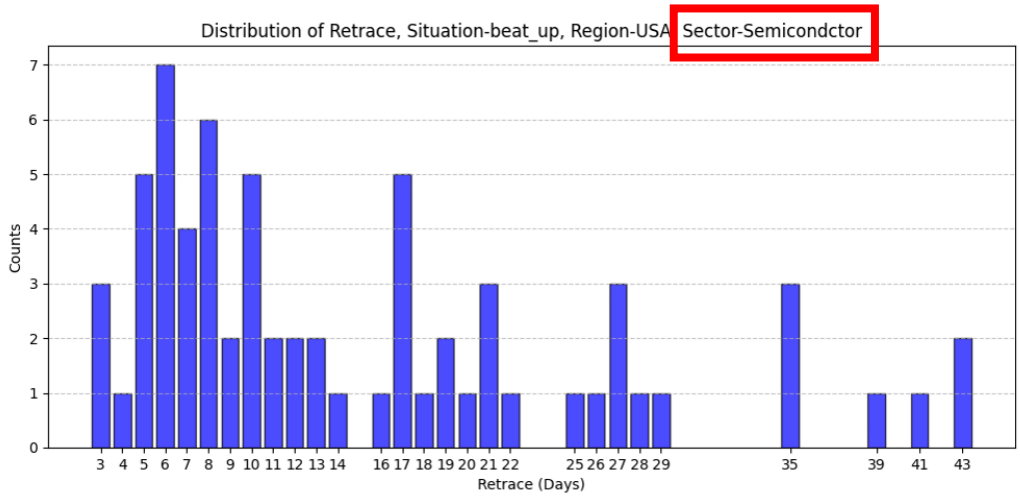
   ② In the first four trading days, three of them have a return ***lower*** than zero

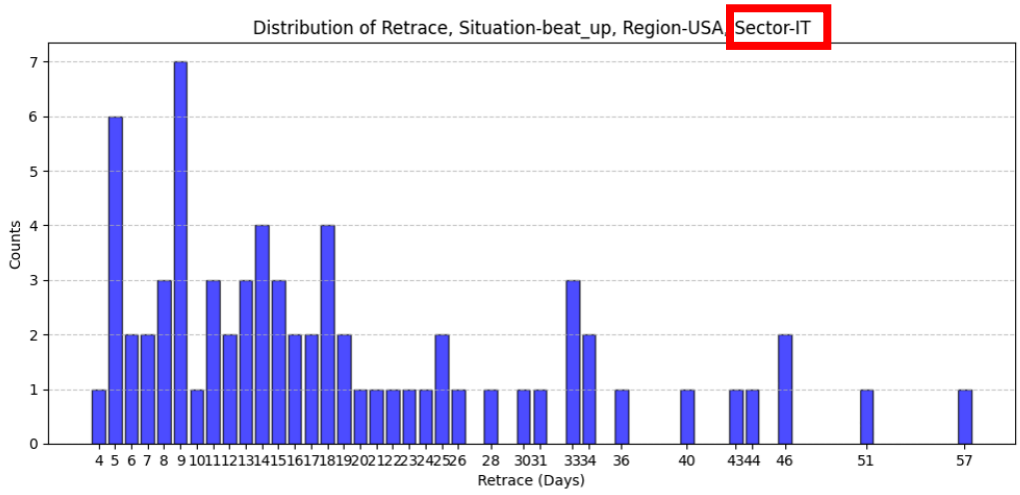
   (2) Retrace threshold: In my assumption, when day ***t*** retraces from the maximum/minimum stock price by a certain retrace threshold, then t is the retreat period.

4. Results

[Beat threshold = 5%, Miss threshold = 1%, Date Range: 2019-2025, Retrace threshold =5%]

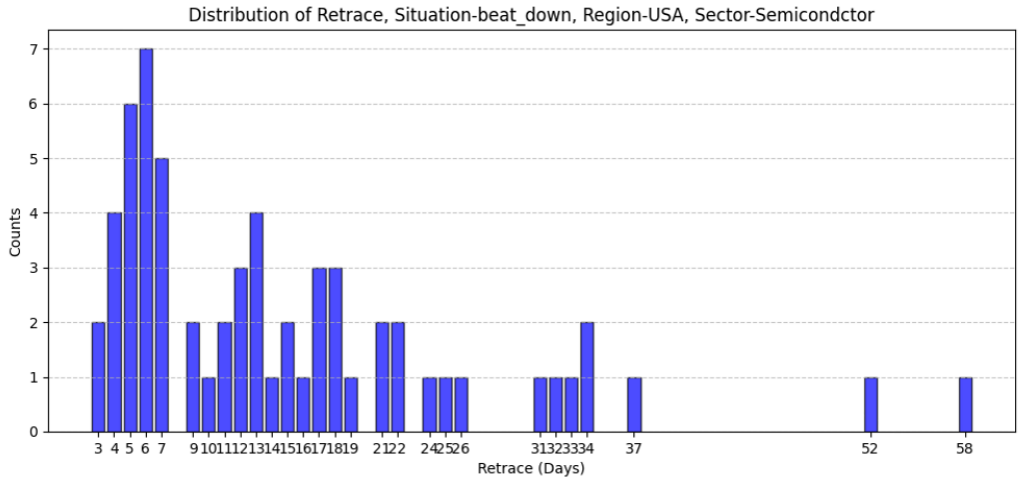
(1) Distribution of Retrace Period for Beat Up

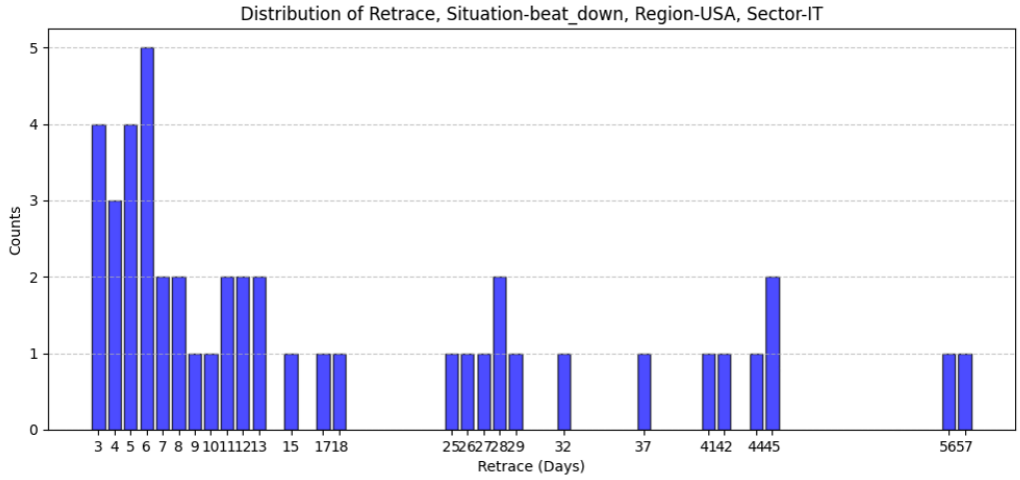




For beat up in semiconductor, the retrace period locates most between day5-10, while for IT it's between day5- 19. The number of data is not sufficient so the counts for different Retrace period is 1 or 2.

(2) Distribution of Retrace Period for Beat Down





For beat up in semiconductor, the retrace period locates most between day4-7, while for IT it's between day3- 6. The retrace period for beat down is usually shorter than beat up.

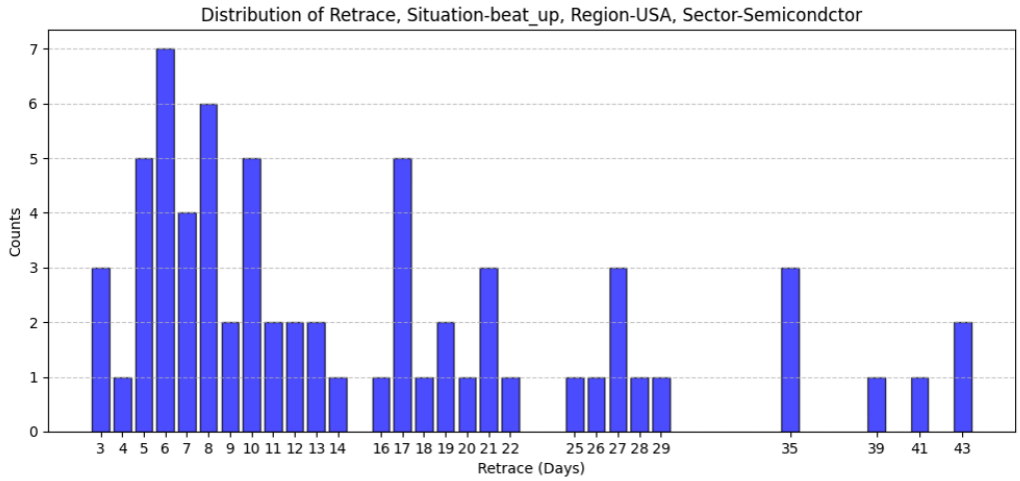
(3) Almost every beat up/down has a retrace

According to the analysis data, there are 130 beat up/down and only one of them has no retrace of 5% in 60 days.

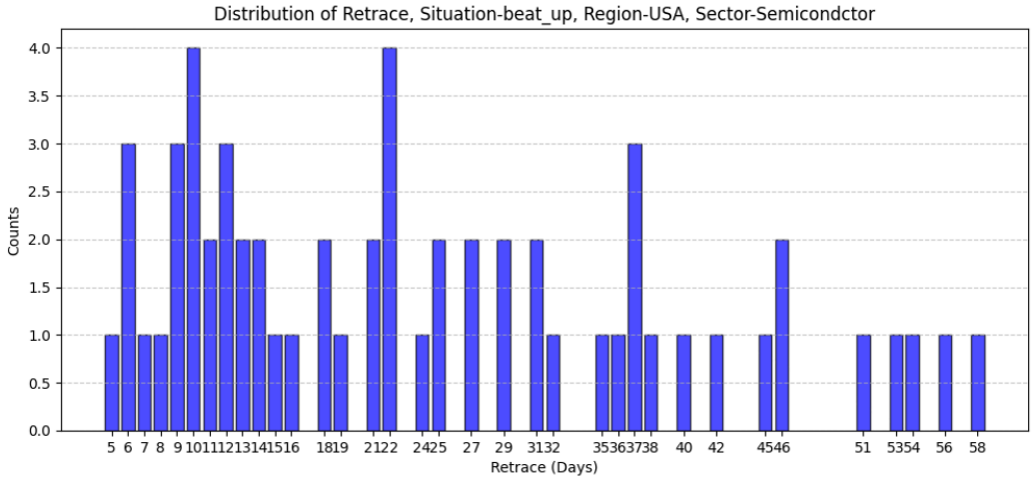
(4) The number of Miss is much less than Beat

There are 130 beat data and only 10 miss data. This happens in both semiconductors and IT. Therefore, the analysis of miss is hard to proceed.

(5) 5% retrace VS 10% retrace



(5% retrace)

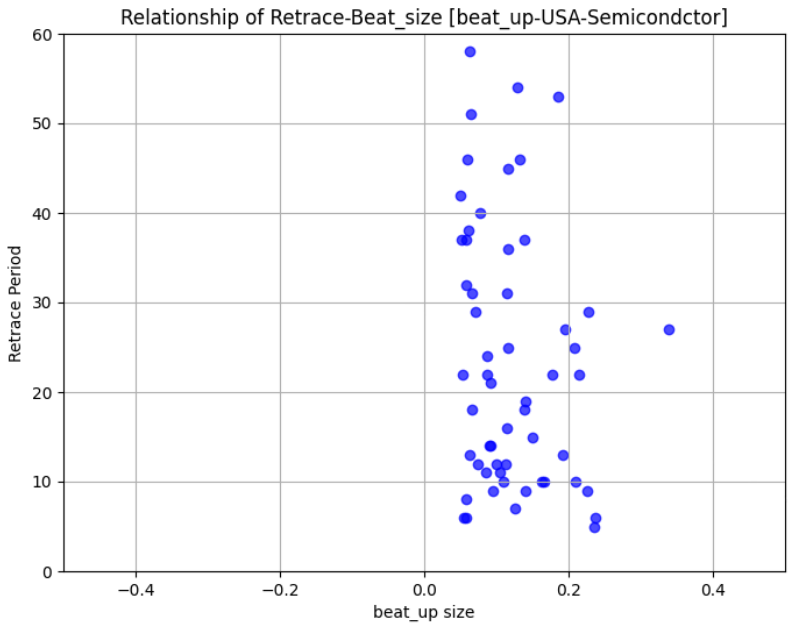


(10% retrace)

A 10% retrace is essentially a whole 4 days shift backward compared to a 5% retrace based on the figure.

(6) Relationship between beat size and retrace period

There's no significant relationship between beat size and retrace period according to statistical tests. The scatter figure is plotted below. I think categorizing further by the trend or stock sentiment before earnings might be useful for discovery patterns.



5. Next Step

I think a discussion is necessary for the next step:

1. How we define an up or down after earnings. (refer to chapter 3)
2. How do we define retrace. Retrace from the initial or maximum. (refer to chapter 3)

What I can do next:

1. Increase more equities to analyze and seek patterns from big data. (100+ equities for one sector)
2. Involve more stock indicators for analysis.
3. Using some Machine learning methods for ①retrace period predictions ② predict whether there's a up or a down after beat/miss③other topics if necessary