CHAPTER I

INTRODUCTION

1.1. Problem Identification

Prediction is an action to get information in advance. It is a common term in everyday life. As an example, probably the most popular taken action is weather forecast. Then, what is the objective of weather forecast? That is to get information about weather condition in advance. If the forecast result comes in the morning, the result tells the weather condition at afternoon, evening and night. The effect is anyone that get the information of forecast can avoid or prepare his/her activities from bad weather. And, the same conclusion applies to economics as well.

Human desire is infinity. A concept about cost and benefit illustrates that statement clearly. Human wants to maximize their benefit with minimum cost. Now imagine, the relationship between the concept of cost-benefit and prediction. An accurate prediction can deliver maximum benefit with minimum cost. Or, an accurate prediction can tell to avoid imminent loss. Or it can be said that an accurate prediction can tell when is the best moment to take an action for gaining maximum benefit. And this is what always happens in the stock world. Alias, predicting a profit in a company stock. Processed from sundry sources, there are 2 analysis to analyze a stock: fundamental and technical analysis.

First, fundamental analysis measures the real price of a stock by examining relative economic variables. The real price means the hidden price (value) of a company that a displayed price maybe can not tell. Relative economic variables are variables like country's economic condition (where the company is established) and company's management effectiveness. The objective of fundamental analysis is to make comparison between a result of fundamental analysis (the hidden price) and the displayed price. So, that a conclusion can be drawn whether a stock is undervalued or overvalued. Second analysis is technical analysis as known as charting. Charting measures the future stock price based on price history. True to its name, charting analyze a stock in chart. Processed from sundry sources, there are several sub-analysis in charting. They are support and resistance, trend, volume, moving average, Fibonacci retracement, cup and handle, bullish divergence and chart trading view. Between those 2, charting takes very opposite methodology from fundamental analysis. Charting take none company's fundamental variables into consideration. Still and all, the 2 analysis share one objective, gain an information about a stock price in advance to maximize benefit (profit) and minimize cost (loss).

Aside from fundamental and technical analysis, there are some alternative analysis. The examples like artificial intelligence (AI), machine learning (ML), deep learning, artificial neural networks (ANNs), and genetic algorithms (GA). The examples mentioned before rely heavily on a computer operation.

Fundamental analysis, charting and the alternative analysis share a resemblance. It is a difficult thing to do. And because of that difficulty, a new method was sought.

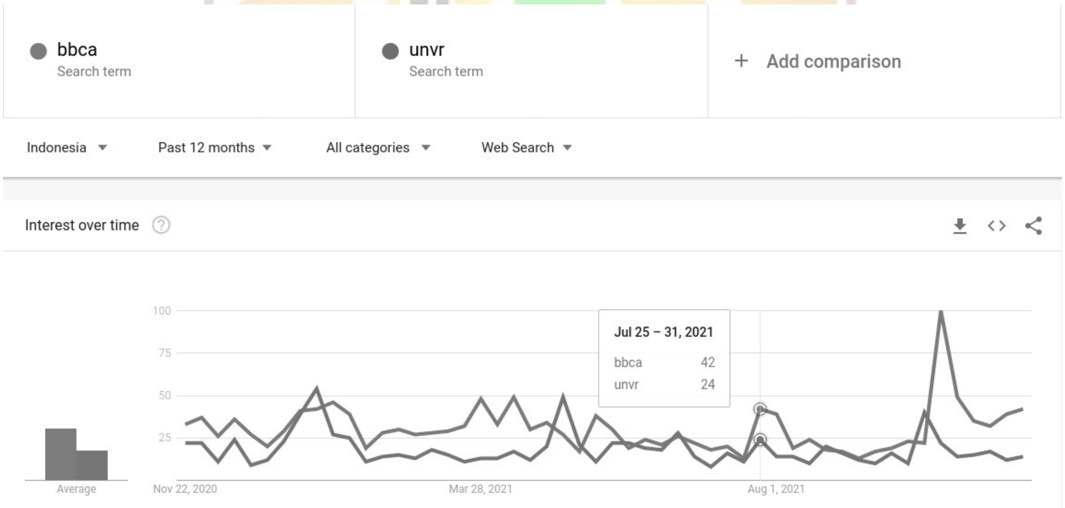

Figure 1: Comparison in Google Trend for 2 Search Terms

Source: Google Trends (2021)

A paper titled “In Search of Attention” offered new method (Da et al., 2011). In their paper, they proposed the utilize of a data to gain an information about stock (asset) price in advance. The data is google trend. Google trend is a data in graphical form of web browsing statistics that disclose search keyword popularity within a certain time. Google trend illustrated in figure 1. The trend itself could be construed as aggregate search frequency, mass attention level, size of popularity, interest overtime or keyword trend. Started from there, other research followed (Aouadi et al, 2013; Bank et al, 2011; Bijl et al, 2016; Dimpfl & Jank, 2016; Hu et al, 2018; Kim et al, 2019; Moussa et al, 2017; Padungsaksawasdi et al, 2019; Swamy & Dharani, 2018; Takeda & Wakao, 2014; Tantaopas et al, 2016; Vlaztakis & Markellos, 2012; Vozlyublennaia, 2014). This research picked one idea about those research. The idea is a google trend can predict a stock profit. The way it works is a surge in a google trend related to a company predicts an increase of stock profit. And vice versa, a drop in a google trend predicts a decrease of stock profit. Let’s draw an example. There is someone named Hephep. Hephep wants to invest in a stock. After Hephep has a customer fund account (rekening dana nasabah in Indonesia term), then he picked some candidates: company W, X, Y and Z. Which company is the right one to choose? Choose all, some or just one company to invest. Coincidentally, he has knowledge about google trend. After doing what needs to be done, Hephep has the results. Company X and Y are popular. Their google trends are stably at high position. Hephep deduced the stock prices of X and Y will increase. So, Hephep bought X and Y stocks. Unlike fundamental and technical analysis, utilize google trend is easy.

Based on the example, it is clear that a google trend is supposed to be able to predict a stock price. But if it is that easy, nobody suffer a stock loss. This research’s presumption is in line with random walk theory (Bachelier, 1900; Cootner, 1964; Fama, 1965; Kendall & Hill, 1953; Malkiel, 1973; Regnault, 1863). The theory claims that a stock price moves randomly and thus, it is unpredictable. If the presumption of this research and the results of previous research are contradictory, then who is right?

1.2. Problem Statements

There is only one problem statement. That is this research is built on the contradictory of random walk theory and google trend analysis that spelled out in the problem identification. The random walk theory claims that a stock price is unpredictable (Bachelier, 1900; Cootner, 1964; Fama, 1965; Kendall & Hill, 1953; Malkiel, 1973; Regnault, 1863). But, the google trend analysis claims that a stock price is predictable (Aouadi et al, 2013; Bank et al, 2011; Bijl et al, 2016; Da et al, 2011; Dimpfl & Jank, 2016; Hu et al, 2018; Kim et al, 2019; Moussa et al, 2017; Padungsaksawasdi et al, 2019; Swamy & Dharani, 2018; Takeda & Wakao, 2014; Tantaopas et al, 2016; Vlaztakis & Markellos, 2012; Vozlyublennaia, 2014). This is a matter of mutual claims that need to be verified in this research.

1.3. General Research Objectives

There is only one general research objective. Before done a data analysis, this research has identified a problem related to the stock and google trend. So, the general research objective is to verify that a google trend of company can not be used to predict a stock return of company. That is done by using different data from previous research or an alternative data. The alternative data is a data from Indonesia stock market.