

A Fuzzy Comprehensive Evaluation Method to Evaluate the Stock Selling

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Abstract: There is more than one stock selling in a local top of stock prices. When the local top of stock prices is found, it's stock selling maybe chosen. Discussions have been made in this article to define the local top of stock prices and set up the evaluation index system and membership functions based on fuzzy comprehensive evaluation method. Then stock selling is defined based on the local top. Through the interdisciplinary and diachronic analysis of some stocks in Shanghai Index, Shenzhen Index and some typical stocks, results have come to prove the validity of the method.

Keywords: stock selling, fuzzy comprehensive evaluation, stock, local top, evaluation index system, membership functions

1 Introduction

Can you sell stock at high price? If you know the stock selling you can. In the stock market, there is a famous saying: the person who is good at buying is the apprentice and who is good at selling is the master! In stock operations, the most difficult thing is how to successfully sell stocks at each local top. Because organizational investors is so likely to pull up prices from the bottom to make a trap that private investors are unable to judge rationally whether stock prices are at the local top in a good atmosphere. What's more, there are many private investors buy stocks which the organizational investors have just sold at this time, only to find that they are trapped. Then another round of price decline has started. So in the repeated price manipulate, many investors have to make pities on their losses due to the rapid price declines from the top. Even if private investors buy at a relatively low price, they couldn't realize the profit or even suffer great loss if they haven't grasped the opportunity to sell at the top price, let alone investors who buy at high prices. So this is where the person who is good at selling is the master comes. On the other hand, stock prices may be pulled up to consecutive record highs. The relatively high price will prevent private investors from buying in the event of being trapped by the falling price in the future. There is also the case that private investors have misunderstood that the relatively high price is the top, so they sell the stocks to cash their profits. But in fact, stock prices will be pulled up from one top to another top till there is no room for the price uptrend. In this case, how to effectively identify the local top of stock prices is of great significance to maximize returns on investments.

There are changes in price, volume, time and space when stock prices come to the local top and bottom. Based on HWSME and fuzzy comprehensive evaluation method, we could better identify the local top of stock

prices. Then stock selling maybe defined based on the local top.

2 Local Top of Stock Prices

The stock market is a market for a large number of participants, whose views on the market and the investment strategy are different, causing the power between stock buyers and sellers to move from imbalance to balance. When the power of stock buyers is larger than sellers, stock prices will go up; when the power of stock sellers is larger than buyers, stock prices will decline; when the power of the two parties is against with each other, then stock prices will be in correction. In this way, the balance is constantly broken and maintained in cycles. The stock market is thus full of temptations duo to ups and downs in prices.

Political, economic, military factors will cause price fluctuations in the stock market, but the malicious speculation of organizational investors will result in greater volatility in stock prices. In order to escape the top, organizational investors will take great pains to create illusions by pulling up stock prices so that they can sell off the stocks to followers to realize their profits. When organizational investors have successfully realized their profits, stock prices will decline drastically to local price bottom, which makes private investors disappointed very much.

The basic principle in stock operation is to "buy low and sell high". Therefore there is necessity to identify to give correct guidance in stock operation. Correct judgement of local top and bottom in stock prices is as follows: first, investors should not buy stocks at its local top prices in the event of being trapped; second , investors should sell stocks at its local top prices to realize the profits in the event of suffering losses due to the falling prices; Third, investors should make a clear judgement that the stock is not at its local top price and

quickly buy in to cover its profits; fourth, investors should make a clear judgement that the stock is not at its local top price and continue to hold it to cover its profits. So in this sense, to effectively identify the local top of stock prices is of great significance to maximize returns on investments.

2.1 Object Description

The local top price of the stock lies at the local top in K line, while wherever else the stock price is below the top. But to long-term and short-term investors, the top price is not the same. To short-term investors, the stock price which is pulled up and then decreases by 5% to 10% is regards as the local top. Short-term investors can still profit from it. To long-term investors, such local top is the only tiny wave in the long-term price fluctuations. Such wave is nothing and will not affect their investment strategies.

This article focuses on short-term stock trend pre-diction in order to define the local top price for short term investors. When the stock price rises by 5% for a number of days and then decreases into correction, it can be called the local top. Of course, such a definition has included the medium- and long-term trends.

Short-term investors should take every opportunity to sell stocks at the local top price and buy in at the local bottom price.

2.2. Design of Evaluation Index System

According to the characteristics of local top stock prices, the evaluation index system of the start of Local Top of Stock Prices based on HWSME can be made. To save space, the specific indicator will be elaborated in the membership functions.

Its weight can be calculated by weighted statistical method from formula (1).

$$a_i = \sum_{j=1}^s \omega_j x_j \quad (1)$$

Weight calculation. x_j is the weight value for experts for each one, and ω_j is the frequency for x_j .

2.3 Determining Evaluation Set

According to the actual situation and the psychological factors, the present authors found that, the results could be divided into 5 degrees from high to low respectively, (a, b, c, d, e): correspondingly regarded as: "obviously local top, the best obvious local top which is not obvious, regional local top, local top is not obvious, not local top."

2.4 Determining Membership Function

First class index has "K line, form, volume, 30 minutes signals", etc. "K line" has three secondary indexes:

"shape, high and special K line". "30 minutes signals" has three secondary indexes: "MACD fall in green sea", "three dead cross and fall below line ma60". "Shape, high position and special K line" and "three death cross" also has three secondary indexes. According to the actual situation, we use the assigned subordinate function method. Specifically used as follows:

"Shape" has three level indicators: long entity, shadow followed big sun and long upper shadow. "The longer entity" refers to the local top K line, the entity usually takes for upper approximately large shape and rising ridge distribution is appropriate, membership functions as formula (2), (3), (4).

$$A(x) = 0, x \leq a_1 \quad (2)$$

$$A(x) = 1/2 + 1/2 * \sin\{(\pi/(a_3 - a_1)) * [x - (a_1 + a_3)/2]\}, a_1 < x \leq a_3 \quad (3)$$

$$A(x) = 1, x \geq a_3 \quad (4)$$

Among those results, $a_1 = (3/10) L$, $a_2 = (4/10) L$, $a_3 = (5/10) L$. L is the longest entity of screen: K line's length entity. "The current screen" refers to K line graph of the default screen shown FIG. the day when "Hua Tai securities online trading securities analysis system (professional version II V4.50) -- technical analysis". "shadow followed sun arises or large shadow" refers to the sun arises in line for local if top is usually followed by a line, which further confirmed shadow partial top, or it is in line for partial top shadow. "Shadow followed sun arises or large shadow" is divided two kinds of case: "shadow followed sun arises or large shadow" is binary in the membership functions, namely when it is in the type "shadow followed sun arises or large shadow", it functions for 1 membership; When there is no "shadow followed sun arises or large shadow", membership functions for 0. "big shadow" membership function also belongs to binary type, namely "shadow" for partial top, membership functions for 1, if no "big shadow" for partial top, membership functions for 0. "big shadow" and "shadow followed sun arises or large shadow" will not occur at the same time. "Long upper shadow line" refers to the fact that partial top K line usually have a long, wide upper shadow line, and it is for upper large type, and rising ridge distribution is more appropriate, as figure 1 shows, membership functions formula (2), (3), (4), among which $a_1 = (2/10) L$, $a_2 = 10) (3 / L$, $a_3 = (4/10) L$. L is K line length of the entity.

2.5 A Fuzzy Comprehensive Evaluation Method

Fuzzy comprehensive evaluation method is an effective way to make a comprehensive evaluation to problems which is affected by many factors method. Its math-ematical model can un-level model and, when there are many factors that will have impacts on the problem, secondary and tertiary level model or multi-level model

will be used to solve the problem. Here we use the method in the form of secondary level fuzzy comprehensive evaluation method.

3 Stock Selling

Local top of stock prices is a price range. In this range there is more than one point that the prices of stock are higher than the others. In the trading practice, we find that there are several obvious selling points, if you want to sell at the highest price, it should be sold at these points. After these selling the price dropped significantly. These points become the stock selling point.

3.1. 60 Moving Average Stock Selling

In the 5-minute cycle, the 60 moving average line is the lifeline of the stock price. After the 60 moving average turning point, the price usually starts dropped. If the price is below the 60 moving average line, at least short-term trends is necessary to shift down, usually the price at this time will be short-term bounce to the 60 moving average, and then continued to fall. When prices fall below 60 moving average line and then bounced back to the 60 moving average line, is a stock selling point.

3.2. 120 Moving Average Stock Selling

In the 5-minute cycle, when the 60 moving average had crossed with the 120 moving average line, the price usually starts dropped. So it is a stock selling. If the price is below the 120 moving average line, at least short-term trends is necessary to shift down, usually the price at this time will be short-term bounce to the 120 moving average, and then continued to fall. When prices fall below 120 moving average line and then bounced back to the 120 moving average line, it is a stock selling point.

3.3 KDJ Stock Selling

When you find the local top of stock prices, it is easy to find some stock selling based on KDJ. In the 5-minute cycle, if the J values at or more than 100, it appears the stock selling. Generally there are more than 4 KDJ stock selling in a local top of stock prices.

3.4 MACD Stock Selling

In the 5-minute cycle, when MACD fall in green sea, the price will fall rapidly, it appears the stock selling. Generally there are more than 4 KDJ stock selling in a local top of stock prices.

4 Case Analyses

This method is especially as the index system and evaluation of the effectiveness of the membership function test, we invite 30 junior students majoring in finance to do the test. They are specifically set into 10

groups, three classmates in one group to judge one stock or the whole market. This method is employed on the Shanghai index (1A0001), Shenzhen index (399001), stock: 600795, 000002, 600616, 60008, 600653, 600660, 000866, 000001, in 4 years (2005-2009), and get an accuracy of 92%.

There are 6 to 17 stocks selling in a Local top of stock prices. According to this definition of a selling point, you can easily sell the stock.

5. Conclusions

This article has defined the local top of stock prices, which has included the medium- and long-term trends. Therefore, near the heads which occurred three times in Chinese stock market history, namely, "5.30" (May 30, 2007), "10.16" (October 16, 2007) and "1.14" (January 14, 2008), all stocks reached their medium-and long-term local top prices. On April 22, 2008, Shanghai stock index declined from 6124.04 closed on October 16, 2007, to 2990.79, which began a new round of medium-term rebound, with almost all stocks reaching their local bottom prices near that day (trade suspension excepted).

This latest stock market trend further proves the method to define the local top and bottom price, which has helped to increase the returns on investment and proves to be a powerful analytical tool for stock investment.

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