Research on Financial Portfolio Analysis in the New Era

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Abstract: Financial investment is a unique form of investment. It must have an orderly and standardized institutional framework so that the innovation, development and improvement of the financial system can be the rules of conduct. This paper focuses on the unique investment mode of financial investment, and discusses the main characteristics of financial investment in detail, and then derives the prototype of financial investment theory. At the same time, it analyzes the function of financial investment from three aspects, and provides a powerful financial investment for the new era.

1. Introduction

Financial investment is an economic behavior in which an investment entity obtains income by purchasing various financial assets in the financial market. The financial assets involved here essentially refer to an economic contract, which represents the legal ownership of the future cash income created by the investor on the industrial assets, and is attached to the asset category of the industrial assets. The essence of financial investment is the separation of capital owners and capital users, which is the separation of asset ownership and asset management rights.

2. Main features of financial investment

2.1 Financial investment is an indirect investment method

The investment entity of indirect investment is not to open a factory to set up a store for production and operation, but to obtain expected income, and use a certain amount of funds to engage in securities trading such as stocks and bonds. The investment subject of financial investment (including the investment subject of stock investment) generally does not have direct possession and control over the target investment enterprise, and does not have the right to directly intervene in the specific application of the target investment enterprise.

2.2 Financial investment uses financial assets as its direct investment object

Under typical market economy conditions, the investment environment generally consists of three basic components: financial markets, financial assets (or financial instruments) and financial intermediaries. The financial assets in the financial market are highly diversified. These financial assets are both the assets of their holders and the basic means of providing convenient and convenient financial investment activities for their investors. Assets can also be called financial instruments. Although financial investment must ultimately be combined with industrial investment, and thus play a role in the creation of social real wealth, its combination with actual means of production is indirect, and the direct target of financial investment is financial assets.

2.3 Financial investment takes the financial market as the basic operating space

The direct investment of financial investment is financial instruments, and the reason why financial
instruments are attractive to their investment entities is largely due to their liquidity. The financial market, especially the securities market, is the basic place for the trading of financial instruments. The degree of development is directly related to the liquidity of financial instruments. It is this that leads us to believe that the development of financial markets has a decisive influence on financial investment activities.

3. Theoretical basis of technical analysis of investment

As the name implies, investment analysis is a professional analysis method, and it is also a theoretical system around stock price changes, stock intrinsic value, stock investment income forecast and risk control.

3.1 Investment analysis research stage

A long time ago, Mark Rubinstein, Berkeley, the most prestigious financial economist at the University of California, has studied the mainstay of investment analysis in the chronological order of various theoretical terms. It is divided into three stages.

(1) Before 1950----Early Investment Theory

The investment theory before 1950, the investment analysis theory at this stage is very scattered, and there is no complete theoretical system and unified conceptual system, especially like the splendid but unspoken academic state of China during the Spring and Autumn Period and the Warring States Period.

(2) Classical Investment Analysis Theory (1950~1980)

1950~1980 is the golden age of classical investment theory analysis. On the one hand, investment analysis has a relatively independent status, and it is also consistent with mainstream economic theory. During this period, some major theories have been produced, and some have even become the standard content of advanced investment textbooks. The American financial scientist Mark Weitz established the mean variance model in 1952. The mean variance model used variance for the first time as a measure of stock risk, so that stock risk can be quantified. In 1970, Fama proposed an efficient market hypothesis, which added to the classic investment analysis theory.

(3) Theory of investment analysis development since 1980

With the deepening of securities investment research, the classic system of investment theory was basically completed in 1980. After that, other scholars, researchers, and financial scientists did only work on some repairs and improvements of this system. For example, the analysis of the macro factors that affect the price of securities, how to determine the intrinsic value of stocks, or repair and improve some hedges and fund position transactions.

3.2 Theoretical basis of investment trading strategy

In the context of the big market, it is particularly important to master the corresponding trading strategies. The securities market is not a cash machine. Without the corresponding theory and skills as a support, it is difficult for investors to obtain higher profits in the stock market. Before entering the stock market, we must first put a firm mind, do not want to get some insider information to achieve revenue, insider information generally does not flow out, especially for a private equity team, it is almost impossible to obtain inside information. Secondly, don’t believe in the online qq group and the people who sell stock software. There is no lunch in the world without any work. There is no beauty in the sky. If investors want to share a piece of the stock market, they need to be down-to-earth and have the courage to do so. Instead of relying on others to make a profit, mastering the corresponding trading strategies is very necessary for us to improve our sense of position, improve trading skills and stock picking ability.

3.3 Practice analysis of investment analysis

In the real operation, the most commonly used methods of stock investment analysis for investors are basic analysis and technical analysis.
The basic analysis is to study the intrinsic value of the enterprise and the macroeconomic trends affecting the stock price, the development prospects of the industry, the business operation status, etc., focusing on the intrinsic value of the listed company itself. The basic analysis is a way to encourage investors to buy stocks and hold them for a long time, waiting for the company's intrinsic value to rise. This method is mainly used by some specialized research institutions.

Technical analysis, on the other hand, technical analysts believe that all factors that affect stock prices can be clearly reflected in the stock's k-line chart, by finding patterns and finding historical fluctuations to predict stock prices. Technical analysis believes that market behavior can accommodate all changes, stock price fluctuations can be effectively predicted, and the more famous theories are Dow theory, wave theory, k-line theory and so on. This method has a wide range of applications, and is mainly used by some professional traders and most ordinary investors.

3.3.1 Fundamental analysis
For beginners, fundamental information is inseparable. It is generally impossible to put aside the fundamental analysis and consider it. Because we all know that the fundamentals directly affect the stock price. No company's stock price has suffered from the black swan for the daily limit. For example, on April 30, 2015, on the last trading day of the May 1st holiday, the bulls and wives of the brokers were investigated for the disclosure of suspected illegal securities laws. Not only did it affect its acquisition of Xiangcai Securities' 100% equity restructuring plan, after its resumption of trading, the stock price fell from 33.48 yuan to 26 yuan.

The macroeconomics and the company's basic situation are the two main aspects of fundamentals. The state of macroeconomic operations can reflect the overall operating conditions of listed companies. These basic conditions include the company's financial status, profitability, market share, etc., generally in mobile phones. In the stock software, you can see all aspects of this company by pressing f10, so that we can make judgments on this company.

3.3.2 Technical analysis
As a newcomer to the stock market, experience is extremely scarce. In the face of rapid changes in the market, there is no confidence, and there is an urgent need for a tool that can directly tell the local authorities what to do. Moreover, it is impossible for a novice to study fundamental information such as financial reports and national industry policies of listed companies like a researcher of a brokerage company. This is an unimaginable knowledge hindrance for novices. Predictors often have certain personal feelings when choosing fundamental data to analyze price fluctuations. For example, if they have a good impression on an industry, they will consider too many favorable factors in the macro economy, and even put some unfavorable factors as a favorable factor. However, the technical analysis is very impressive, all the information will be fed back to the chart, whether it is a buy signal or a sell signal on the chart, this will not change with the investors' ideas.

4. Markowitz Model
Portfolio theory studies how to allocate an investor's available assets to a preset asset set while maximizing expected returns and minimizing investment risk. We use \( n \) to represent the number of available assets, \( \mu \) to represent the expected return vector of the asset, \( Q \) is a symmetric semi-definite matrix, and the element \( q \) in the \( Q_{ij} \) represents the variance of the returns of the assets \( i \) and \( j \). Normally, the vector \( \mu \) and the matrix \( Q \) are unknown, but can be estimated from historical data.

Assume that every asset is available and can be fully invested. Let vector \( x \in \mathbb{R}_n \) be the decision variable, and each element \( x_i \) in \( x \) is the investment share to asset \( i, i = 1, 2, \ldots, n \). Since the available capital can be used entirely for investment, and short selling is not allowed, the vector \( x \) satisfies the constraint \( e^T x = 1, x \geq 0 \). Where \( e \) is an all-one column vector, \( \mu^T x \) measures the expected return on investment, and \( x^T Q x \) measures the investment risk. The classic Markowitz portfolio model requires two goals to be considered simultaneously: maximization of returns and minimization of risk.

In the classic Markowitz portfolio model, this two-objective problem can be transformed into a
single-objective optimization problem that minimizes investment risk given the expected return. In general, this optimization problem can be described as a convex quadratic programming problem:

$$\min_{x \in \mathbb{R}^n} \sigma^2 = \frac{1}{2} x^T Q x,$$

$$\mu^T x = \beta,$$

s.t. $$e^T x = 1,$$

$$x \geq 0.$$  

This is a convex quadratic programming problem.
Given the value of the parameter $\beta$, $\beta$ is the expected return of the investment, and the problem has the only optimal solution:

$$x^* = \lambda Q^{-1} e + \gamma Q^{-1} \mu$$

Among them:

$$\lambda = \frac{c - \beta b}{\Delta}, \quad \gamma = \frac{b a - b}{\Delta}, \quad \alpha = e^T Q^{-1} e, \quad b = \mu^T Q^{-1} e, \quad c = \mu^T Q^{-1} \mu, \quad \Delta = ac - b^2.$$

5. Financial investment function

Financial investment has an inherent mechanism to promote its constant innovation and development.

First, financial investment has a mechanism of self-expansion of scale. The financing and financing functions of financial investment are directly proportional to the scale of financial investment. With the development of the economy, the need for financing is increasing. At the same time, with the improvement of people's living standards, they participate in financial investment. The number of social individuals is also increasing, which has promoted the continuous expansion of financial investment.

Second, financial investment has an inherent innovation drive. Financial investment is a decentralized, highly liquid investment. In order to meet the needs of various social participation in investment and the need for scale expansion, financial investment must continue to innovate. The basic form is the research and development of financial commodities. This is in fact the same as the production and operation of goods and services, to increase market share. Increasing efficiency requires continuous development of new products. Financial investment is also the same, to ensure the status of the financial market, to ensure that it can adapt to the needs of diversified financial investment, but also to continuously develop new products.

Finally, financial investment promotes the development of various professional institutions that serve it. With the development of financial investment, various professional institutions that serve financial investment have also developed, such as securities companies, investment banks, brokerage companies, notary agencies, asset appraisal institutions, etc., which also become media and improve financial investment. The professional functional system has become the basic driving force for the development of financial investment.

6. Conclusion

Investment has risks. While financial investment promotes the decentralization of investment power, it also diversifies investment risks. Since financial investment is a liquid investment, it creates a risk transfer mechanism while creating investment risks. Financial investment is an indirect investment method. It uses financial assets as the direct investment object. It is the economic behavior of the investment entity to obtain income through the purchase of various financial assets in the financial market. Financial investment takes the financial market as the basic operational space.
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