

Research on the application of CAPM and its expansion model in the valuation of Internet listed enterprises

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Abstract

At present, the continuous development and change of social market, at the same time, investors' expectations of the market are constantly changing, based on this all walks of life on the capital Asset pricing model (hereinafter referred to as CAPM) more and more questions, the academic community is also constantly improving the factors involved in CAPM. This article mainly wants to analyze the application of CAPM and its development model in Internet listed enterprises, compares and analyzes the difference between the advantages and disadvantages of different models in the determination of discount rate of Internet listed enterprises and the models, This paper attempts to analyze how to obtain more realistic data in the process of evaluating the value of Internet enterprises. This article will be discussed from the following five parts: the first part: through the analysis of a large number of domestic and foreign valuation methods of Internet listed enterprises and CAPM and its expansion model of the literature, in order to broaden the writing thinking, this chapter aims to clarify that with the continuous improvement and development of the social and economic market, The research progress and application degree of CAPM model and its expansion model under the present conditions. The second part: from the unique characteristics of Internet listed enterprises and the main value sources of Internet listed enterprises two large aspects of the discussion, at the same time, the current Internet listed enterprises commonly used valuation methods are introduced. The third part: firstly, the author summarizes the application scope of two models by summing up the difference between the presupposition and the parameters of the pricing model of CAPM and the cross-period capital assets (hereinafter referred to as I-CAPM), and then carries on the empirical test, which provides the theoretical basis for the case analysis below. Part IV: Research results and prospects. This paper mainly explains the research conclusions, and finally points out the limitations of this paper and puts forward the future development direction of the study. This article based on DCF valuation model to test the Internet enterprise listed shares under CAPM, it is concluded that the Bate coefficient can not effectively explain the change of stock yield of internet enterprises in China, and I-CAPM in the determination of discount rate is more explanatory power.

Keywords

CAPM;I-CAPM, valuation of Internet enterprises, discount rate.

1. Introduction

In recent years, the Internet industry has presented an explosive growth trend, which has penetrated into our daily life with the characteristics of diversification. The appearance of the Internet has completely changed our traditional way of life. Financial markets are also witnessing this dramatic change in the nature of valuation techniques -- estimates of expected future economic activity. Since the "Internet plus" was put forward in 2015, a large number of Internet and internet-related service enterprises have emerged along with the trend. If Internet enterprises want to continue to develop, they will have new requirements for investment and financing to varying degrees. This, to some extent, promotes the application of Internet technology and a large number of traditional enterprises to

combine. The mutual integration of the two has a certain impact on social and economic life, and the new thing produced by the integration is a new type of social form. Under the current general trend, the evaluation of enterprise value in the Internet industry has also become an important project in the valuation industry[1].

At the same time, in the process of Internet enterprise mergers and acquisitions appeared a puzzling phenomenon: some Internet companies because of the upfront costs a huge cost to develop new products or to gain a foothold in the market, leading to the enterprise in a long time has been in a state of loss, and even some Internet companies do not have any patents or it is possible to make the company profitable project plan, only simple idea, by the enterprise development prospects for the future in occupies a very high value of the shares in the stock market and in mergers and acquisitions have also been given very high valuations. Moreover, Internet enterprises have a large number of intangible assets that cannot be accurately reflected in the accounting. It is these asset structures that are different from traditional enterprises that bring great challenges to the valuation of Internet enterprises, bring some difficulties to the financial personnel and securities market workers of Internet enterprises, and present a new problem to be solved urgently for researchers and scholars in the academic circle.

In recent years, many new methods for Internet enterprise valuation have been put forward in academic circles, such as user traffic valuation method based on metcalfe theory and EVA valuation model method. How to evaluate Internet enterprises more accurately has aroused the thinking of the academic circle. At the same time, both theoretical scholars and practical workers are actively looking for a model more suitable for China's "Internet +" economic state to calculate the valuation process, which is more in line with the actual discount rate. Each model is put forward, on the assumption conditions and the applicable scope, there are differences of CAPM and I - CAPM is no exception, the emphasis of the two models also differ, based on the CAPM and I - the advantages and disadvantages between the CAPM and differences arising in the process of using the theory and practice research, trying to its better and better combined with Internet company valuation model, to obtain a more reasonable discount rate, so as to get more reasonable enterprise value[2].

No matter in the development perspective of Internet enterprises or in the research of CAPM and i-capm, the United States and other European and American countries are superior to China. However, from the perspective of China, there are great differences between China and the United States and other countries in terms of government regulation or economic market environment. We have to admit that our country is still in the learning stage with European and American countries as development goals. This section reads and discusses academic literature at home and abroad from the perspectives of Internet enterprise valuation method and CAPM and its expansion model.

Markowitz (1952) published "portfolio selection", which was the beginning of quantitative research on financial investment; Sharp, Lintner and Mohsin (1966) proposed the famous CAPM on the basis of Markowitz's mean-variance theory. Sharpe (1964) tested for the first time the linear correlation between risk and return. Black, Jensen and Scholes (1972) used a new method to analyze, and their conclusions were similar to Sharpe's. Black, Jensen and Scholes also believed that there was a relationship between non-systematic risks and benefits. Fama-MacBeth (1973) also proposed two-stage regression method to test the relationship between yield and risk, and found that there was a positive correlation between them. Merton (1973) extended the model to multi-phase model for the first time and proposed i-cpam. Hogan and Warren (1974) proposed d-capm based on the lower risk. Rose (1977) proposed the arbitrage pricing model (APT), which believed that asset returns were determined by multiple common factors. Roll (1977) believes that the definition of "market" in CAPM model is not accurate, leading to the unverifiability of the model. Fama-French (1993) proposed the famous three-factor model, adding SMB and HML on the basis of CAPM model[3].

2. Literature review

2.1 Characteristics of Internet enterprises

2.1.1 Cost reduction

Internet enterprises generally use a large amount of physical funds for investment in the virtual network world. With the continuous development of enterprises, the fixed cost required will be lower and lower. When the enterprise develops to a certain point, its cost can be regarded as no cost, which is quite different from traditional enterprises. Since sharing and copying are the unique characteristics of the Internet, when the number of users of network products increases dramatically, the average cost curve of Internet enterprises will also show a decreasing trend along with the marginal variable cost, see Fig. 1.

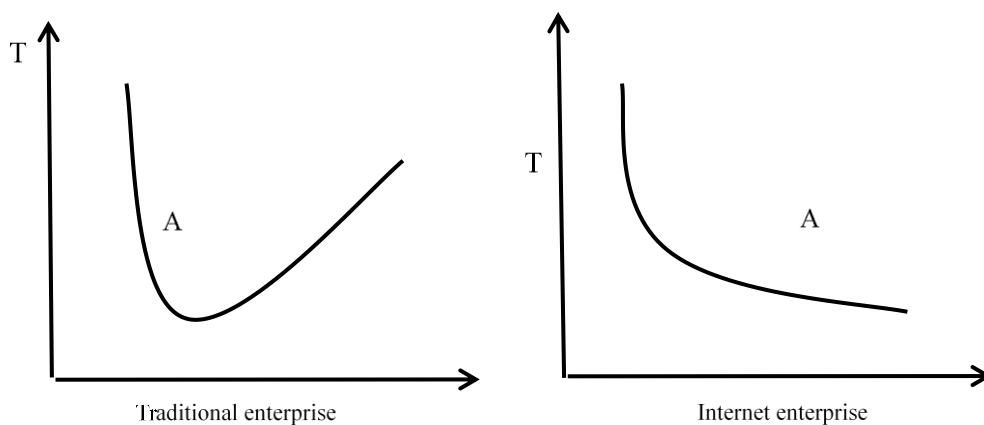


Fig. 1 average cost curve of traditional enterprises and Internet enterprises

2.1.2 Typical polarization

At home and abroad, the development of the Internet industry is extremely unbalanced and polarized. Early Internet companies began with a similar focus on expanding their customer base. With the development of the enterprise, when the user group reaches a certain critical point, the development speed of the enterprise will rise in a straight line. When enterprises gradually improve their comprehensive strength and reach the critical point of the number of users, they often have significant advantages in technology research and development, scientific research team and market size, etc. This theory is more obvious in Internet enterprises involving social communication and search engines. Prominent Internet enterprises have stable income, and have more funds for continuous improvement and development of enterprise products and promotion, in order to obtain more revenue sources. However, for Internet enterprises in the early stage of entrepreneurship, the ability and capital of their teams are often the factors restricting their breakthrough development. It is difficult for them to achieve long-term stable development in the Internet industry, and enterprises that fail to break through in the long term will face a series of problems such as financial difficulties. At present, there is a serious consensus of large Internet enterprises acquiring small and medium-sized Internet enterprises in the Internet industry in China. The formation of this consensus also increases the polarization in the Internet industry to some extent.

2.1.3 Single source of funds

Both traditional enterprises and Internet enterprises need financial support for their development. However, Internet enterprises do not have a wide range of channels to raise funds like traditional enterprises, but Internet enterprises cannot issue bonds, so they have a single source of funds. The ownership structure of Internet companies is relatively simple.

2.2 The profit source of Internet enterprises

2.2.1 Profits directly from user value

The Internet companies to focus on social communication more user groups to meet their needs, will be to your company's product innovation, constantly in the industry competition have produced such as virtual space is dressed up, the skin, and subscription information, and so on a series of priority to enjoy the member service, to produce customer top-up members or virtual currency purchase way so as to obtain benefits; Internet enterprises engaged in online broadcasting, take iQIYI player as an example, gain revenue by shortening advertising time, watching TV series in advance, developing and adding high-quality sound and picture effects, giving priority to watching hot movies and other high-quality online services. And be engaged in online game kind of Internet enterprise is to rely on the recharge of fictitious currency to obtain profit. Above, Internet enterprises engaged in social entertainment mainly increase their income sources by optimizing experience and broadening service functions[4].

It mainly gains revenue by providing network platform and adding personalized services such as platform decoration. E-commerce includes three categories: B2B, B2C and O2O. B2B model mainly relies on advertising fees and commissions to obtain revenue; The revenue sources of B2C and B2B modes are roughly similar, except that B2C mode is directly targeted at enterprises of a small scale. O2O model makes profits from the online sales and offline distribution of the products provided.

2.2.2 Profits derived indirectly from user value

Internet enterprises engaged in advertising generally have a large number of user base, but also have a high user penetration rate, through big data analysis to provide advertising services to demanders to obtain revenue. Like 58.com, it attracts more users to its platform through its user base and provides transactions or value-added services to make more profits. This type is based on the high-quality technical resources of Internet enterprises. Generally, Internet enterprises will purchase technical resources from large Internet enterprises when they need to use search technology, because it is more cost-effective to purchase technical resources from large Internet enterprises than to conduct research and development by themselves. From a foreign perspective, Bing is a typical Internet enterprise that sells search technology resources and makes profits from information processing.

2.3 Internet enterprise valuation method

2.3.1 P/E valuation model

P/E valuation model is also known as P/E valuation model, that is, the ratio between the price of each share and the earnings of each share, the calculation result is relative value. To a certain extent, the p/e ratio of the assessed enterprise has certain correlation with that of the same industry. Therefore, on the premise of knowing the p/e ratio of the peer enterprises, the estimated p/e ratio of the enterprise can be adjusted to estimate the enterprise value[5].

$$\text{Enterprise value (V)} = \text{P/E} * \text{R} * \text{N} \quad (1)$$

P/E represents the corrected P/E ratio of peer enterprises, R represents the earnings per share of the assessed enterprise, and N represents the total number of shares of the assessed enterprise.

The biggest advantage of P/E valuation model in application is that it is subjective, and the real interest rate of stocks is used in the actual estimation process. At the same time, the P/E valuation model considers the impact of risk compensation and other factors on enterprise value, so that more realistic valuation results can be obtained. It is widely used in practical operation.

The P/E valuation model loses its valuation function when evaluating unprofitable enterprises, so the P/E valuation model is only applicable to evaluating profitable enterprises. At the same time, due to the relatively single p/e ratio, it is impossible to accurately evaluate enterprises with cyclical business characteristics scientifically, and there are errors in the evaluation results of enterprise value.

2.3.2 DCF valuation model

DCF valuation model is in the range of income method, the purpose is to determine the expected future return rate of enterprises through a certain discount rate. Therefore, how to determine the

discount rate more accurately is particularly important in the DCF valuation model. If the discount rate required for calculation can be measured more accurately, the result obtained through DCF will be closer to the intrinsic value of the enterprise. It is worth mentioning that, based on the above analysis of Internet characteristics, debt cost accounts for a relatively small proportion in the capital structure of Internet enterprises, so the opportunity cost of Internet enterprises is assessed instead of debt cost when DCF valuation model is applied.

$$V = \sum_t^{\infty} \frac{FCFF_t}{(1+WACC)^t} \quad (2)$$

This model takes the influence of time value of money into consideration, which can improve the accuracy of assessment results, prevent managers from being short-sighted, and make decisions from the perspective of continuous operation, which is conducive to the long-term development of enterprises and maximize their enterprise value[6].

Based on the fact that Internet enterprises will invest more funds in market development and product promotion, while the DCF valuation model attaches more importance to cash flow in calculation, there may be errors in some enterprises whose cash flow is not obvious when applied in the Internet industry. DCF valuation model has a big defect that cannot be optimized, that is, the selection condition of discount rate is harsh, and it can only be applied when the operating income is stable. From this point of view, due to the uncertainty of profitability of Internet enterprises, it is difficult for DCF valuation model to obtain relatively accurate valuation results in practical operations.

2.3.3 EVA valuation model

The rights and interests of the enterprise capital and debt capital factor is a unique advantage of economic increase in law, economic increment EVA method that enterprises in the relevant investment is related to the investment cost, initial investment cost is equal to the sum of the present value of the enterprise future performance, therefore, only when the after-tax operating profit is greater than the investment cost of capital to increase the corporate wealth.

$$EVA = \text{NORAT} - \text{WACC} * \text{TC} \quad (3)$$

EVA represents the increase in the economy, NORAT represents the after-tax operating net profit of the enterprise, WACC represents the total invested capital, and TC represents the weighted average cost of capital.

EVA valuation model of economic increment is to calculate the capital cost of enterprises according to the relevant weighted average method and fully consider the equity capital and debt capital of enterprises in the model, so the profitability of enterprises can be objectively predicted by this method.

This model can provide enterprises with the most accurate valuation and get results more in line with the market value. In the process of valuation, the enterprise managers can pay more attention to the long-term operating capacity of the enterprise, make more reasonable decisions, and more easily maximize the wealth of enterprise shareholders[7].

The result of the evaluation is an absolute number rather than a relative number, so the comparability of the results is relatively weak. The results obtained point to the business success of the enterprise, which cannot arouse the attention of enterprise managers to internal problems, and cannot play an effective role in improving the operation and management of the enterprise to some extent. There are also some defects in the use of traditional indicators, such as the analysis of net return on assets. Dupont analysis, which is often used in financial statement analysis, is generally adopted to find the key factors affecting the core of the problem in the decomposition of net return on assets.

3. The empirical analysis

3.1 Theoretical analysis of CAPM and I-CAMP

Based on the above theoretical analysis, this paper chooses CAPM and I-CAMP to determine the enterprise return rate and discount rate under the DCF valuation model. This chapter mainly USES

the correlation of CAPM in Internet enterprise valuation and the i-capm expansion model of CAPM to empirically test the determination of discount rate of Internet enterprises.

CAPM was proposed by scholars William Sharp, John Lynch Gectreno and Jan Mossin on the basis of portfolio theory and capital market theory. The core of CAPM is to study the relationship between expected return rate and risk of assets in the securities market. Based on Markowitz's portfolio theory, CAPM reveals the relationship between the risk and return of assets in a diversified portfolio in a minimalist mathematical language. Although the hypothesis of CAPM seems to be very far-fetched now, and under the empirical research of a large number of scholars, the empirical test conclusion is often inconsistent with the model conclusion, and sometimes even the opposite conclusion is drawn, but it was a step development of economics when it was put forward at that time. CAPM has always occupied a place in the world financial economics and is an extremely important theory. The proposal of this model has laid a good foundation for more advanced models[8].

Under the basic framework of single-factor CAPM, Robert Merton changed the assumption of single investment term and proposed the multi-factor I-CAMP model of inter-temporal investment based on consumption for the first time. I-CAMP is an alternative to CAPM, which for the first time includes risk-free rewards and market risk rewards as well as other factors that may affect the results of valuation. I-CAMP can be seen as a linear factor model, in which wealth is used as a state variable to predict future changes in income or income distribution. The differences between CAPM and i-capm are mainly reflected in the new influence factors included in the I-CAMP model formula, which recognize the fact that investors hedge insufficient consumption or changes in future investment opportunities.

3.1.1 Theoretical analysis of CAPM

Based on the premise hypothesis, the quantitative relationship between asset returns and risks is the research center of CAPM theory. The basic assumptions of the above model are not entirely consistent with current economic life, but the adoption of this model helps investors to make an effective and brief rough evaluation of assets. Therefore, CAPM is irreplaceable in the field of valuation theory.

Since all the assets in the market are bound to fall on SML, efficient portfolios also fall on SML. Among them, beta plays a decisive role. The portfolio of all effective assets in the market is the portfolio referred to in this paper, so the average systemic risk of the market portfolio can be calculated. In other words, when beta = 1, the risk level of the security is equal to that of the market.

$$K_{sml} = \frac{\overline{R}_m - r_f}{\beta_{im}} = \frac{\overline{R}_m - r_f}{1} = \overline{R}_m - r_f \quad (4)$$

Because the return to risk ratio of any asset in the market is the same as the ratio of the whole market.

$$\frac{\overline{R}_i - r_f}{\beta_{im}} = \overline{R}_m - r_f \quad (5)$$

The calculation formula of CAPM can be obtained by sorting out the above formulas.

$$\overline{R}_i = r_f + \beta_{im} \times (\overline{R}_m - r_f) \quad (6)$$

Once CAPM model is put forward, it has been widely used and popularized by the research circle and the securities theory circle. CAPM solves the difficulty in calculating the non-dispersible risk of single asset. CAPM can be used for the asset evaluation of single asset or the valuation of asset portfolio. However, this model also has great defects, and it takes relatively few factors into consideration. The most important one is to analyze the sensitivity of stock returns and the returns of market portfolio changes. CAPM proves in mathematical logic that the variance of stock returns in a portfolio of sufficient size is used to measure investment risks, and the impact of non-systematic risks

on the returns of a single stock will be greater. Unlike non-systemic risks, the systemic risks of bonds can be reduced or eliminated through diversification.

3.1.2 Theoretical analysis of I-CAPM

Companies that need financing require that the price of their shares be constant. With the company's business situation in a particular point in time, the investors according to their own economic strength and corporate earnings to determine at this moment whether companies should buy shares, and this decision and the company itself in a particular period of time not necessarily associated business condition, to the assets of the enterprise itself to be a reasonable configuration. The discount rate of enterprise asset value is difficult to measure mainly because it is difficult to predict investors' investment decisions. All investors can borrow and lend at the same rate indefinitely over the same period, and Merton points out that investors' decisions change as interest rates change over time.

Enterprises take continuous operation as the premise of operation, so enterprise managers generally pay more attention to the expected earnings in the future, and enterprises that want long-term development generally use a series of funds to adjust their capital structure and maintain the stability of enterprise cash flow. I-CAMP is consistent with the basic assumption of enterprise going concern, which is more practical and can measure the cost of equity more scientifically.

Under the premise of CAPM, the company is based on continuous operation and the production and operation have contradiction to some extent, which is also a major factor of error in the determination of discount rate[9].

On the basis of previous studies, the main question raised is how to determine reasonable impact variables to meet investors' demand for returns in a continuous period of time I-CAMP.

$$\mu_I - R_F = \beta_i^m (\mu_M - R_F) + \sum_{j=1}^m \beta_i^j (\mu_j - R_F) \tag{7}$$

μ_j Is the expected rate of return of factors outside j markets, β_i^j is the sensitivity of portfolio I to j factors. This paper chooses Fama-French three-factor formula to test the effectiveness of I-CAMP.

$$\bar{R}_i - R_{ft} = \beta_i [E(R_{mt} - R_{ft})] + siE(SMB_t) + hiE(HMI_t) \tag{8}$$

SMBt is time t of the market value of the simulated portfolio yield, HMI_t is the simulated portfolio return rate of the book-to-market ratio of time t.

FF three-factor model shows that in addition to market risks and non-systematic risks, scale factors and price-to-book ratio and other indicators may lead to greater results of risk exposure, which will have a certain impact on enterprise value.

By comparison, I-CAMP incorporates more influencing factors into the model and introduces more influencing factors into the eyes of investors, which is more conducive for managers to make better investment decisions for enterprises, and provides a new research perspective for researchers to solve the problem of scale premium[10].

3.2 Empirical test of CAPM in Internet enterprises

3.2.1 Sample selection

This paper selects the daily closing prices of 21 Internet stocks as sample data for empirical test. The data comes from the Wind database, where the daily closing price of each stock is the basis for calculating stock returns. In the 21 samples of choice, eight Internet companies listed in shenzhen, another 13 Internet companies listed in Shanghai, are shown in table 1 below, so the csi 300 refers to correctly reflect the sample stock system of risk, the csi 300 refers to as weighted average stock bonus in the empirical test is reasonable. The risk-free rate is measured by the legal deposit benchmark rate of Chinese financial institutions, which is 0.0119 percent, see Table 1.

Table 1 21 Internet Listed Stocks

Numble	Name	Code	Place
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1	Web host technology	300017	Shenzhen
2	flush	300033	Shenzhen
3	The network game	002174	Shenzhen
4	Halo new	300383	Shenzhen
5	orientalist	300379	Shenzhen
6	Ding jie software	300378	Shenzhen
7	The glacier network	300533	Shenzhen
8	Fortis in	300560	Shenzhen
9	xinhua	603888	Shanghai
10	Data port	603881	Shanghai
11	The tripod communication	603421	Shanghai
12	Super - communication	603322	Shanghai
13	Soul power network	603258	Shanghai
14	Software,	603232	Shanghai
15	Huge amounts of data	603138	Shanghai
16	General micro network	603039	Shanghai
17	Great wisdom	601519	Shanghai
18	Your wide network	600996	Shanghai
19	Radio and television networks	600831	Shanghai
20	Wave software	600756	Shanghai
21	Swim long game	600652	Shanghai

3.2.2 Research methods and procedures

In this section, OLS least square method is used for empirical test to analyze the selected sample data and establish linear regression equations of daily return rate and market return rate of single share.

$$R_i = R_f + \beta(R_m - R_f) + \mu_i \quad (9)$$

According to the fitting results of CAPM model, only five stocks have $\beta < 1$, and the remaining 16 stocks have $\beta > 1$. P values of Prob (f-statistic) and significance levels in the empirical output were both smaller than the significance level 0.05, so irrelevant null hypothesis H_0 was rejected. There was a significant linear relationship between table X and Y. $P(\beta) = 0$, so we can reject the null hypothesis; If the coefficient is significantly not 0, then X has a significant effect on Y, and there is a linear correlation between X and Y. It is assumed that the intercept term is significantly 0. According to the p-value statistical data of the intercept term, all p-values are above the significance level of 0.05, so the null hypothesis cannot be rejected, which indicates that the probability of the intercept term being 0 is greater than 0.05. The above empirical analysis results show that single stock $\beta \neq 0$, the coefficient of determination of linear regression equation is relatively poor, although there is a linear correlation between X and Y, but at this time the beta coefficient can not effectively explain the change in the return rate of Internet companies in China.

3.3 Empirical test of I-CAPM in Internet enterprises

3.3.1 Sample selection

This section empirically tests the monthly closing data of 300 stocks in Shanghai and shenzhen stock markets from January 2014 to December 2018 as samples, see Fig. 2.

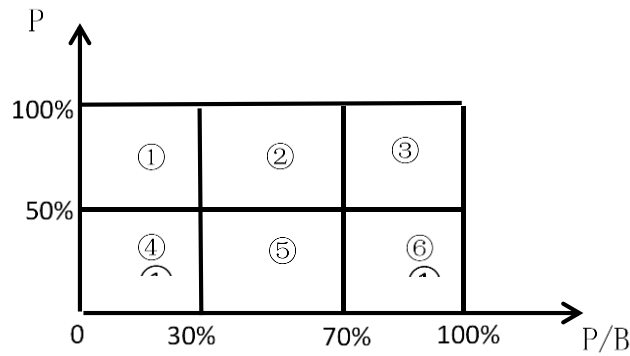


Fig. 2 Samples

The selected 300 stocks are re-divided into 25 groups, the return rate of 25 portfolios, see Fig. 3.

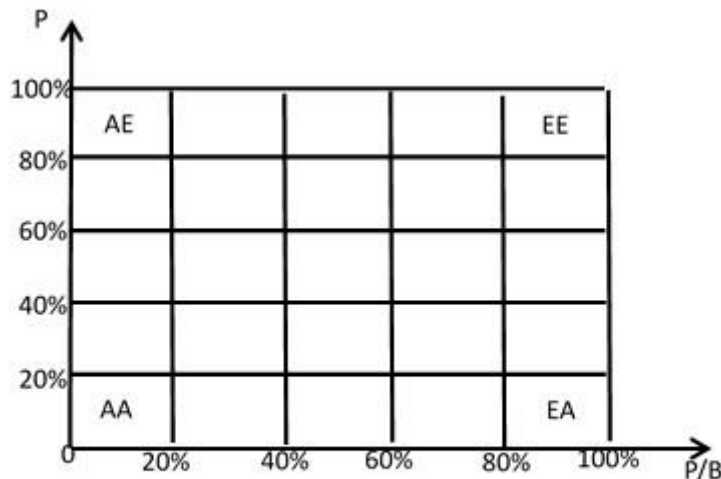


Fig. 3 Regrouping Samples

3.3.2 Research methods and procedures

The average yield of the nearly 10-year Treasury bond is taken as the risk-free yield rate of this empirical test. The market yield rate is calculated by logarithms of Shanghai composite index and shenzhen composite index respectively. The sample data used will be fitted to get the results: S is -0.229 and h is 0.179.

$$\bar{R}_p - R_f = \beta(\bar{R}_m - R_f) - 0.229E(SMB) + 0.179E(HML) \tag{10}$$

The average yield of the 10-year Treasury bonds issued is 3.499%, which is the risk-free yield as the empirical test. The market interest rate of Shanghai composite index and shenzhen composite index is 7.819%. The difference between the average return $SMB = -0.00039$ and the difference between the average return $HML = -0.00239$, and the $\beta = 1.35$ of the assessed enterprise are put into the i-capm model formula to calculate the final mean $R_p = 9.3\%$, that is, the discount rate of the enterprise is 9.3%.

The empirical test selected in this section is directly based on the FF three-factor model without analyzing and discussing the determination of factor variables when I-CAMP is used again. Among the many influencing factors, most of them can be obtained only by professionals' special analysis

and measurement of national market and enterprises. Because i-capm is a multi-factor inter-period asset model, it involves many influencing factors and involves a large amount of work in correlation analysis, which may lead to inconsistent results of enterprise value.

4. Conclusion

This paper aims to discuss the applicability of CAPM and I-CAMP to the determination of discount rate in the valuation process of Internet enterprises. This paper summarizes the research results of scholars at home and abroad on Internet enterprise valuation, CAPM and I-CAMP. Relevant theories of CAPM have developed from single-factor model at the beginning to multi-factor model. In this paper, I-CAMP is mainly introduced. Meanwhile, through the analysis of the characteristics of Internet enterprises and the discussion of three commonly used valuation models of Internet enterprises, this paper provides theoretical basis for the empirical test of the part, and finally chooses the DCF valuation model theory for empirical test. By the empirical part, by choosing 21 of stocks listed on the Internet since its initial offering daily closing price as the coefficient of correlation of CAPM empirically the sample data, between January 2014 and December 2018 to 300 stocks on Shanghai and Shenzhen stock market monthly closing data as I-CAMP applicability in DCF model valuation model to determine the discount rate the empirical test of the sample data, analysis of empirical results basically have the following conclusion:

CAPM model yields on domestic enterprises listed on the Internet changes the explanation is not strong, through the above empirical analysis results can be seen that single shares, can be less run-off coefficient of linear regression equation to explain variables ($R_m - R_f$) and interpreted ($R_i - R_f$) although there is a linear correlation relationship between beta coefficient is not good at this time show that the linear relationship between the two, this shows that the beta and cannot effectively explain the stock yield change of Internet enterprises in our country, there are other factors affecting the Internet enterprise stock yield change.

I-CAMP is better than CAPM in determining the discount rate of China's Internet enterprises. The I-CAMP is stronger than the traditional model in explaining the yield of Internet enterprises. More accurate values can be obtained by using FF three-factor model to calculate the discount rate when evaluating enterprise value under the income method, so as to improve the accuracy of enterprise value assessment.

Acknowledgements

The possible innovations of this paper are as follows: firstly, this paper analyzes the differences between CAPM and I-CAMP from the model formula itself, and also analyzes the application degree, advantages and limitations of CAPM and I-CAMP in the valuation of Internet enterprises. Secondly, domestic and foreign researches are generally conducted on only one of the models, and most literatures modify parameters under one model. Similarly, researches on Internet enterprise valuation generally focus on EVA valuation method and Metcalfe's law method, and relatively few researches on the application of CAPM in Internet listed enterprises. This paper has some subjectivity. Moreover, in the empirical test, only two steps of one of the Internet enterprise valuation methods are selected for test, and all methods are not studied. At present, scholars at home and abroad mostly adopt Metcalfe principle to study the valuation of Internet listed enterprises. Although Metcalfe principle is more effective in evaluating Internet enterprises, traditional valuation methods also have certain advantages. How to apply the traditional valuation methods emerging Internet company this a series of problems for future research provides a new train of thought, but at the same time or separately for a more in-depth study of the limitation of model, to improve the capital asset pricing model and a series of development model in the process of using the accuracy.

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