An Empirical Study of Fama-French Three-Factor Model for The Chinese Automobile Market

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Abstract. Automobile transportation, as the focus of national development in recent years, is not only the vigorous development of new energy vehicles, but also the continuous improvement of oil-powered vehicles. In China's stock market, the automobile sector has always been the focus of investors' attention. This paper takes 10 representative automobile manufacturing and transport-related enterprises of Shanghai Stock Exchange and Shenzhen Stock Exchange as the key research objects. According to the Fama-French three-factor model, the selected stock0s are divided into four groups, namely, high circulating market value and high book value, high circulating market value and low book value, low circulating market value and low book value. Low circulating market value Low book market value. Then the relevant empirical test and regression analysis are carried out. The experimental results show that there are still uncertainties in China's auto market, but there are also opportunities, which need to be carefully screened and spiritually invested by investors.

Keywords: Fama-french three-factor model, automobile manufacturing industry, Chinese stock market.

1. Introduction

The scale of the automobile manufacturing industry occupies the forefront in China's A-share market, while the automobile manufacturing industry is a heavy industry, which has a direct relationship to the country's infrastructure construction and people's lives. By December 2023, the automobile vehicle plate also occupies a higher position, alongside key industries such as coal mining, chemical and pharmaceutical, photovoltaic equipment. At the same time, the automobile manufacturing industry is known as the "mother of industrial development", and its development has also led to the development of other industries, such as steel industry, chemical industry, electronics industry, machinery manufacturing, energy and petroleum industry, etc., which has played a vital role in the development of manufacturing industry, and has also had a profound impact on many aspects of the economy. The data are from the National Bureau of Statistics of China, the industrial sales value of industrial enterprises above the scale of China's automobile manufacturing industry exceeds 1 trillion yuan. With the end of the global epidemic and the continuous promotion of supply-side structural reform in China, the manufacturing industry will also win a huge development, with vast development prospects, the consumption level of the people will gradually rise, consumption habits will gradually optimize, and the development of the industry will become better and better. In this regard, more and more investors will focus on the automobile manufacturing industry, want to make profits in the new wave of development, but if you want to make excess returns in the automobile manufacturing industry or auto parts industry investment, it is necessary to conduct a reasonable analysis of the investment portfolio, so as to make a reasonable and perfect investment structure.

The study of capital market has always been the focus and difficulty in the field of finance, and the capital asset pricing model, as a classic method of the study of capital market, has produced many related theories. The capital asset pricing model, also known as CAPM model, was first proposed by William sharpe et al. However, due to the vague definition of market portfolio and the single measurement of risk, the capital asset model only considers market risk while ignoring non-systemic risk, and its explanatory power to some abnormal phenomena is not very good. In order to make the model better explain the factors affecting security yield, Eugene F. ama and Kennneth R. French revised the capital asset pricing model in 1992, adding the size factor (SMB) and the value factor

(HML) to the market factor (MKT). Each of these combinations of returns is intended to replace the returns associated with acquiring a given risk of a unit, while at the same time having the least end of its risk.To assess the real-world stability of this strategy, the authors conducted a regression analysis on the excess return of MKT, SMB, and HMI factors against the excess return of the portfolio. This was done when a particular portfolio or stock generated a mean excess gain that was not influenced by the market as a whole, dimension factor, or value factor. Thus, the three-factor framework developed by Fama-French can be expressed.

$$r_{p,t} = \alpha_p + \beta_{MKT,p} MKT_t + \beta_{SMB,p} SMB_t + \beta_{HML,p} HML_t + \varepsilon_{P,t} \quad (1)$$

In the formula,$r_{p,t}$represents the extra profit of a particular portfolio relative to the benchmark return over time t, $\alpha_p$refers to the average of The residual return, which is not attributable to the return on investment of the simulated portfolio consisting of MKT (market), SMB (small-minus-big component), and HML (high-minus-low component).In other words, α_p refers to the additional average excess return that a portfolio can earn after deducting the portion that can be explained by market factors (MKT), size factors (SMB), and value factors (HML). In addition, $MKT_t, SMB_t \; and \; HML_t$ respectively represent the excess returns achieved by the simulation combination of MKT, SMB and HML under time t. At the same time, $\beta_{MKT,p}, \beta_{SMB,p} \; and \; \beta_{HML,p}$ measure the sensitivity of the portfolio return to these market, size and value risk factors, or the degree to which the portfolio responds to changes in these factors. Finally, $\varepsilon_{P,t}$ represents the unique component of the portfolio's return during time t that cannot be explained by these three factors, which may be due to specific corporate behavior, market information, or other non-systemic risk factors [2].

In 2015, Eugene F. Fama and Kenneth R. French made further enhancements to their three-factor version and developed a 5-factor model by incorporating two additional elements, namely the earnings component and the cost of capital factor. Nevertheless, scholarly research and analysis have revealed that the three-factor model outperforms the model with five variables in China, while the five-factor model holds substantial influence in the Indian stock market.

In relation to China's stock market, Meng conducted a study on the predictive capability of the model consisting of three factors in the A-share market of the Shanghai Stock Exchange. The study revealed that the explanatory power of the two variables, apart from the BM ratio component, was rather strong. Thus, Zhao Shengmin et al. conducted a comparison between the three-factor model and the five-factor model, ultimately determining which three-factor model is more suited for China's A-share market. Li Sicong's study on the scale economy of the Chinese stock exchange, using the Fama-French five-factor method, found that the model's explanatory strength varies across different sectors. Notably, the model has the strongest explanatory power for the entrepreneurial sector. Nevertheless, Guo Zhuxi discovered that the predictive power of the five-factor model is relatively weak when examining A-share steel firms. Out of these factors, the recently introduced profit factor and investment factor do not provide a significant explanation for the regression and are unnecessary. In their study, Zhang Xinyu et al. discovered that the five-factor model had a significant degree of explanatory capability for the A-share market. However, they also observed that the investment element remains unnecessary or superfluous. Previous investigations have consistently shown that the three-factor model provides a more comprehensive explanation for China's A-share market. Hence, this study utilizes the Fama-French three-factor model to conduct an empirical examination of the stocks in the automotive manufacturing business within the A-share market.

2. Data collection

2.1. Data source

In this paper, 10 representative automobile industries in China's A-share market are taken as samples, and the sample interval is nearly 5 years of monthly data from January 2018 to December 2023. Empirical analysis all relevant data were obtained from tushare database. The one-year

Treasury bond interest rate for each month from January 2018 to December 2023 is taken as the risk-free interest rate for each month. The monthly return of each portfolio is the monthly average return weighted by the total market capitalization. In the process of grouping selected stocks, the formula for calculating the book-to-market ratio is as follows:

The book-to-market ratio is calculated by dividing the shareholders' equity by the total circulating market value of the company. Shareholders' equity is derived from the annual report of each publicly traded firm, whereas the circulating value of shares is obtained from the individual share prices at the conclusion of the year.

The 10 companies we selected are BYD, Dongfeng Motor, Foton Motor, GAC Group, Jianghuai Motor, SAIC Motor, Weichai Power, Yiqi Car, Great Wall Motor and Sinotruk. The main reasons for the selection of these types of cars are as follows: First, these car companies have a high market share in China's automobile market and are major participants in the automobile field. Among these 10 companies, SAIC is the largest automobile manufacturing group in China, while BYD is a global leader in the field of new energy vehicles, which is favored by many countries and regions. Secondly, their products are diversified and have strong brand strength, which can meet the different needs of different markets. Third, with strong innovation and research and development capabilities, BYD automobile has developed blade batteries, intelligent driving and other technologies, which are favored by many parties at home and abroad. Fourthly, these 10 enterprises have excellent financial performance and growth capacity, showing a good development trend in the past many years, with good profits and growth.

Fifth, these enterprises have industry representative and demonstration effect, and their development strategy well corresponds to the country, and they have the ability to see the big picture from the small. Here are some of the financial data for these businesses.

Table 1. Financial data.

Company	Average market value	Equity attributable to shareholders	Book-to-market ratio
Saic Motor Corporation	250886826672.00	259436145463.00	1.03
Dongfeng Motor	11065217391.00	7716838871.00	0.70
FAW Car	13492733568.00	18124140068.00	1.34
SINOTRUK	15610065787.00	9820768891.00	0.63
FOTON	17819590958.00	13986621187.00	0.78
Anhui Jianghuai Automobile Co., Ltd.	18574042059.00	13549393214.00	0.73
Weichai Power	83384080193.00	55966210876.00	0.67
GAC Group	115898000000.00	88899777924.00	0.77
Great Wall Motor	202670000000.00	58318309611.00	0.29
BYD	344976000000.00	5612749862.00	0.02

2.2. Data grouping

Based on the average market value over a span of five years, the 10 chosen stocks were categorized into two groups: a group with high market value (B) and a group with low market value (S). Subsequently, the stocks were categorized into two groups based on their book-to-market ratio: a high book-to-market ratio group (H) and a low book-to-market ratio group (L), with each group comprising 50% of the stocks. The ultimate sample was partitioned into four 2x2 combinations, specifically, the small market price low book-to-market ratio group (S/L), the small market value high book-to-market ratio group (S/H), the big market value high book-to-market ratio group (B/H), and the big market worth low book-to-market ratio group (B/L). The mean monthly return percentage for each group is represented by the symbols: B/H, B/L, S/H, and S/L.

3. Method

3.1. Model principle interpretation

The three-factor framework developed by Fama and French was proposed by researchers Fama and French as a means to elucidate the rate of return on stocks in the capital market. The Capital Asset Pricing Model (CAPM) developed by Markowitz incorporates three factors: the market's aspect, the factor of scaling, and the worth factor. The market factor denotes the collective risk of the market, the size factor signifies the influence of the company's size, and the value factor corresponds to the company's book-to-market ratio. These three components work synergistically to elucidate the fluctuation in the return on investment rate.

The Fama-French three-factor model has been extensively researched and has significant empirical relevance in the Chinese market for securities investing. By doing statistical research on the returns of stock portfolios with varying sizes and values, it is possible to obtain a more precise measurement of the risks and returns associated with stocks [3]. This, in turn, enables the provision of more effective portfolio recommendations for investors.

3.2. Development trend

As investors get a better knowledge of the relationship between risk and return, the Fama-French three-factor model continues to be refined. Researchers aim to incorporate additional variables, such as momentum factor, profitability factor, and investment factor, in order to enhance various aspects of stock return. The 5-factor approach introduced by Fama and French in 2015 specifically enhances the inclusion of profitability and investment style. Furthermore, the model was originally constructed using data from the US market. However, additional study has revealed that this model is equally applicable to other countries or areas. This research examines the feasibility of implementing this approach in the Chinese market. In the future, as computer processing power improves and data analysis technology continues to advance, the model can be continuously enhanced through machine learning. Our strategy for the future of financial markets involves leveraging the robust combinatorial capabilities of the Fama-French three-factor model.

3.3. Analysis of advantages and disadvantages

The three-factor approach developed by Fama and French has garnered significant interest in the financial industry as an asset pricing model. The primary benefits of this are: The three-factor model, in comparison to the single component model, incorporates the market factor and size factor, providing a more thorough explanation for the fluctuations in stock return rates. Furthermore, the model exhibits strong explanatory and predictive capabilities, accurately capturing the correlation between market value and portfolio. Ultimately, the model has attained favorable outcomes in the empirical investigation and has been extensively employed in the study of securities across various marketplaces.

However, Fama-French three-factor model also has some shortcomings: First, the model does not consider the unique risks of the company when explaining the rate of return, ignoring the unique circumstances that may exist in individual companies; Secondly, the scale factor introduced by the model may have different effects in different market environments, so it is difficult to explain market phenomena solely by the model. Finally, the model also has some limitations on portfolio construction and transaction costs, which may lead to some difficulties and errors in practical operation. Therefore, when using Fama-French three-factor model, it is necessary to consider its advantages and disadvantages comprehensively and apply it flexibly according to the actual situation[4][5].

4. Analyze

Descriptive descriptive statistics were performed on the average monthly returns of the four portfolios constructed,B/ H,B/L,S/H, and S/L,The results are displayed in Table 2.

Table 2. Average monthly weighted return.

group	mean	sd	max	min
B/H	0.012	0.0753	0.215	-0.156
B/L	0.00508	0.105	0.284	-0.305
S/H	0.007	0.0809	0.147	-0.196
S/L	0.00825	0.113	0.382	-0.289

From the data in Table 2, the following conclusions can be drawn. First, from January 2018 to December 2023, the monthly average price-weighted return rate of the four portfolios is positive, which is mainly guided by the national consumption trend with the economic recovery in the post-epidemic era, the reduction of systemic risks and the strong support and development of the automobile industry, especially the new energy automobile industry. At the same time, there is no national policy support for the surrounding industries of the automobile industry, such as steel, glass and battery industry, which further reduces the cost of raw materials and leaves a large margin for profit of relevant enterprises, resulting in the overall cost reduction, price reduction, consumption increase and profit space of the automobile industry. Second, from the perspective of standard deviation. B/L<S/L,B/ H<S/H indicates that companies with a large market value also have a small risk, Companies with a limited market value are inherently high-risk. Nevertheless, enterprises with limited value to the marketplace and high risk tend to experience significant swings in their return rates, despite the potential for huge returns. High-yield small-cap companies have less volatility and risk, but also lower returns. Furthermore, upon analyzing the monthly returns of the portfolio, it becomes evident that companies with a low book-to-market ratio (B/L) tend to exhibit greater average monthly returns. Conversely, companies with a large ratio of book value to market value (B/H) and (S/H) demonstrate lower returns. Specifically, large cap firms generally have higher yields (B/L and B/H) than small cap firms (S/L and S/H). Over the sample period examined, we find that the B/L portfolio not only has the highest average return, but also has a relatively low standard deviation, indicating less risk [6]. Therefore, for rational investors pursuing sound investment, B/L portfolio is more attractive. Although the small-cap portfolio S/L also offers attractive monthly average returns, we do not recommend it as an investment option given its volatility in the broader market environment.

The three-factor model developed by Fama and French is employed to do a least square regression examination on the average monthly returns of the four portfolios listed below. The results of the regression are presented in Table 3.

Table 3. The results of the regression.

group	α	Coefficient of correlation			F-test	Goodness of fit	
		MKT_t	SMB_t	HML_t	Value of F	R^2	adjusted R^2
B/H	0.003	0.150	-0.087	-0.073	0.536	0.023	-0.0203
B/L	-0.003	-0.108	-0.43	-0.978	28.26	0.559	0.539
S/H	-0.003	-0.108	0.57	0.022	7.924	0.262	0.229
S/L	0.003	0.150	0.913	-1.073	28.96	0.565	0.545

Table 4. The three factors of MKT_t, SMB_t and HML_t.

	MKT_t	SMB_t	HML_t
MKT_t	1		
SMB_t	-0.0338	1	
HML_t	0.0104	0.2304	1

From the data analysis in Table 3 and Table 4, the following conclusions can be drawn.

First, the overall model is significant, because from the perspective of F-test, the results of F-value are much larger than Test value, so the author believes that the model is significant

Secondly, from the perspective of model fitting, three of the adjusted fit degrees of the model are positive, indicating that the stock fitting degree of the automobile manufacturing industry is generally better, and the three factors MKT_t, SMB_t and HML_t are important factors for the fluctuation of the stock return rate of the automobile manufacturing industry.However, in the B/H portfolio, consisting of enterprises with high market value and high book value, the adjusted fit is negative. This typically suggests that the model does not accurately represent the data, and the chosen explanatory variables (market factor, dimensions aspect, as well as value element) may not be appropriate for explaining the fluctuations in portfolio returns. Here, the author believes that in such a mature market as China, the returns of B/H portfolio may already contain all available information, making it difficult for other traditional risk factors to capture these excess returns.

Third, after gathering a substantial amount of data consisting of 71 observations and employing established statistical techniques, we have determined that the coefficients of both the SMB and HML variables in the B/L portfolio are very significant at the one percent threshold of relevance. Consequently, we can confidently deny the null assumption that the pair of SMB and HML coefficients is equal to zero and assert that they have a substantial influence on the excess return of the stock portfolio. The SMB coefficient in the S/H investment is extremely important at the 1% level, suggesting that the portfolio consisting of firms with small valuations and high book-to-market proportion has a strong positive association with the size factor. The coefficients of the SMB (Small minus Big) and HML (High minus Low) elements in the S/L (Size/Leverage) portfolio are highly significant at the 1% significance level. However, their effects are in different directions, with a positive influence on SMB and a negative effect on HML. Therefore, it can be said with confidence that these factors are statistically significant in explaining excess stock portfolio returns and that these results are unlikely to be caused by sampling error. At the same time, the market factor regression coefficient β of two portfolios is positive, although the correlation coefficient is less than 1, However, it also demonstrates that established and sizable companies with significant market value and substantial book value, as well as new companies with limited marketplace worth and low book value, exhibit a favorable link with overall market performance.

The volatility change of excess return is stronger than the overall change of the market. The overall trend of the market is positive, at this time, the stock investment performance of enterprises with high market value and high book value and small market value and low book value is outstanding. This is because when the economy improves, people's consumption habits will tilt toward higher-end non-necessities and emerging products such as new energy vehicles, thus improving the performance of related industries, and these positive changes are also reflected in stock prices. However, it should be noted that the investment risk in this industry may exceed the average level of the whole market at this time.

Fourthly, in terms of the correlation coefficient of SMB, B/L and B/H are negative, while S/H and S/L are positive, indicating that the portfolio of large market value of B/L and B/H will improve the risk return rate. In general, there is a scale effect in the automobile manufacturing industry, but the size of small companies and the size effect of emerging companies are not modeled. On the one hand, this is because China's automobile manufacturing industry has entered the era of brand, quality and scale, paying more attention to the level of enterprise supply chain management. On the other hand, in the post-epidemic era, China has given great support to automobiles and related industries, especially new energy vehicles. Through preferential taxation and various financial policies, consumers' demand for automobiles has increased, and the competition among enterprises has become increasingly fierce. At the same time, the performance of enterprises targeting new energy vehicles and low-end vehicles has risen sharply. For example, BYD Auto is expected to make a profit of 29 to 31 billion yuan in 2023, up 74.46% to 86.49% year on year. In contrast, the development space of some traditional automobile enterprises has been compressed. For example, Great Wall

Motor will make a profit of 7.08 billion yuan in 2023, but the year-on-year decrease is 15.22%. The phenomenon of agglomeration in the domestic capital market makes it fall into a vicious circle. Both large and small companies are prone to financial distress. Only with the support of capital and the continuous innovation of the enterprise itself, it is possible to survive in such a fierce competition in the automobile industry [7].

Furthermore, the author examines the logistic regression coefficient associated with the book-to-currency proportion component. Based on the t test results, the B/L and S/L categories pass the examination at a 5% confidence level, while the other two groups do not pass the examination at a 1% trust level. This suggests that the book-to-market ratio factor can influence the fluctuation of stock return rates in the automobile manufacturing industry. At extremely strict levels of confidence, the proportion of book value to market value does not adequately account for the returns of B/H and S/H portfolios. Conversely, when examining S/H, the combination of stocks with a low market value exhibits a positive sign, indicating that both the stocks' excess return and the book-to-market ratio experience positive improvements. Conversely, portfolios with modest market capitalization and high book-to-value proportions (S/H) exhibit greater factor coefficients compared to portfolios with a substantial market capitalization and moderate book-to-value ratios (B/H). This implies that smaller companies have the potential to generate larger returns after accounting for risk. The companies included in these portfolios typically consist of growth stocks, which offer greater potential for stock price appreciation. As a result, they tend to attract investors who anticipate bigger returns. The primary cause of this phenomena is that companies with high book-to-value ratios are exposed to greater financial risks. As a result, investors demand higher compensation for taking on this increased risk, leading to an increase in the expected excess returns of these stocks. The regression coefficients of the other two portfolios (large market value exhibiting a low book-to-value proportion and tiny market value with minimal book-to-value proportion) exhibit a negative correlation, which becomes stronger as the book-to-value ratio decreases. This suggests that as the book-to-value ratio decreases, the resulting rate of exchange decreases at a faster rate, exacerbating the polarization phenomenon in the market.

Sixth, the analysis deeply explores the correlation between market factor (MKT), size factor (SMB), and book-to-market factor (HML). Through the correlation analysis of these key investment factors, the results reveal an important finding: the correlation coefficient between these factors is lower than 0.05, which clearly indicates that there is no significant multicollinearity problem among these factors in our analyzed data set. This result has important implications for investment analysis and portfolio management, as it illustrates that these factors can be regarded as mutually independent risk sources, which can effectively diversify specific risks and improve portfolio robustness when constructing diversified portfolios. In addition, this finding reinforces the usefulness of using these factors as analytical tools, because their low correlation ensures that different dimensions of the market are more accurately captured when assessing asset pricing and risk, thus providing more solid data support for investment decisions [8].

5. Conclusion

The automobile industry has always been a key industry to reflect the industrial level of a country. Including the steel industry, which is used in automobile bodies, engines and other parts. The advancement of the vehicle sector has facilitated the expansion of the steel industry; Chemical industry which is used in the manufacturing of automobiles, such as paints, plastics, composites and rubber, which are used in automobile interiors, tires, etc. The electronic industry is crucial for the functioning of modern automobiles' navigation systems and intelligent systems, which include sensors and other essential components. The information technology industry encompasses a range of cutting-edge technologies, including vehicle and machine functionality, autonomous driving technology, and intelligent transportation technology. Machinery manufacturing industry, automobile production depends on large mechanical processing equipment such as forging machine, hydraulic

press, etc., which directly drives the development of the machinery industry; Energy and oil industry. In today's market, both new energy vehicles and gasoline vehicles need energy to maintain their work, which also promotes the development of energy and oil industry. Service industry, the automobile industry promotes the development of related businesses, including sales, maintenance and insurance; Logistics and transportation industry, automobile Automobile is an important tool for logistics and personnel transportation, and its development directly drives the expansion of transportation and logistics industry. In general, the development of the automobile industry has affected all aspects of a country's industry, therefore, it may be inferred that the impact of the automobile industry on the stock market should not be undervalued. In the aftermath of the epidemic, China has actively implemented supply-side structural reform and made significant efforts to build the real economy. This, in turn, has had a positive impact on the financial market, leading to its robust growth. Thus, this research choose the Fama-French three-factor model as the framework for elucidating the volatility of stock returns in the capital market. The model incorporates market factor (MKT), size factor (SMB), and value factor (HML) into the standard capital asset pricing model (CAPM). The market component indicates the aggregate risk of the market, the size factor signifies the impact of company size, and the value factor corresponds to the firm's book-to-market ratio. Initial examination of the influence of the automotive industry on a shares [9].

From the perspective of the special nature of the automobile manufacturing industry, different from the basic necessities in daily life, the trend of the macro economy has played a crucial role in the development of the automobile industry [10]. Since the reform and development, China has vigorously developed the automobile industry, and the number of domestic cars has been able to meet the basic needs of consumers, but there are also some problems in China's automobile industry. First, the depth of the dive is not deep enough, still many families cannot afford to pay high car costs, second, high quality, high quality car supply is seriously insufficient, people do not recognize, distrust. This requires enterprises to constantly innovate on the existing basis, deepen reform, and make positive changes in many aspects, while investors should also carefully screen, according to their own style and characteristics, select their own portfolio.

This paper focuses on 10 prominent automobile manufacturers in China's A-share market. The author categorizes these stocks into four groups based on their circulating market value and book value. These groups are B/H (high circulating market value and high book value), B/L (high circulating market value and low book value), S/H (low circulating market value and high book value), and S/L (low circulating market value and low book value). Empirical tests and regression analyses that are directly related to the topic are conducted. The author utilizes monthly data from January 2018 to December 2023, sourced exclusively from the tushare database, for the purpose of data collecting. The overall monthly returns of four established portfolios (large market value high book value proportion group B/H, big market value low book appreciate proportion group B/L, tiny market appreciate high book appreciate ratio group S/H, and small the marketplace value low book appreciate ratio group S/L) are subjected to descriptive statistical analysis. The three-factor model developed by Fama and French is then employed to perform a least squares regression investigation on the monthly average returns of these portfolios.

However, there are also shortcomings in this paper, such as too few selected enterprises, which may not be able to fully reflect the situation of the entire automobile manufacturing industry or the broader A-share market, and the dimension of research is five years, which may not be able to capture the long-term trend or cyclical fluctuations. The specificity of the second industry is not considered enough, and this paper focuses on the automobile manufacturing industry, but does not deeply explore the risk and return characteristics unique to this industry, such as the rapid development of new energy vehicles and the impact of policy changes, which may have an important impact on industry stock returns. In the future, there are several aspects that can be further optimized: the first is to expand the sample scope to improve the universality and accuracy of the article; the second is to compare the transnational market and explore the applicability of different countries; the third is to enter the research of segmented industries, such as new energy vehicles; the fourth is to improve the empirical

research and theoretical innovation. Explore the possibility of theoretical innovation and develop new asset pricing models or improve existing models. The combination of theory and empirics will contribute to a deeper understanding of the workings of financial markets.

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