Research on Investor Sentiment in Chinese Special Securities Market

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Abstract: In the study of the behavior finance, investor sentiment got a significant status. Especially in China Securities Market, investor sentiment could not only be the indicator of predicting the future market, but also the measure of the market vitality. The key to measure the investor sentiment is how to select the measure indicators. The indicators are diversified into three kind of indicators in the previous study. There are subjective indicators, objective indicators, and the component indicators. If we use those indicators directly, it is not suitable for China Securities Market more or less. We considered the dual economic structure and the Characteristic national conditions in China, take the comprehensive price index of agriculture products, price index of large-scale assets, and the component index to build the Polytomized Comprehensive Index of Investor Sentiment in China Security Market, PCIIS which could measure the investor sentiment properly. Finally, we optimize the PCIIS.

1. Introduction

Adopt introduction or self-made methods to create a new teaching platform suitable for the development of modern education, build an information management platform that includes laboratory assets and equipment maintenance, curriculum system management, laboratory daily management, etc., and build a complete education information management system. At the same time, relying on the virtual experimental information management platform to establish a high-quality laboratory resource sharing system, integrate the existing experimental resources in the school, and promote the comprehensive sharing of experimental resources between colleges and departments.

In order to ensure the quality of teaching and experimentation in the laboratory, each laboratory manager requires both teaching and scientific research levels. It is necessary to focus on the construction of the core technical team to drive the overall improvement of the overall quality of the experimental technical team. It is necessary to select more key teachers to enrich the experimental teaching and experimental management team. According to job requirements and teachers' career planning, attract talents with different educational backgrounds, different abilities, and different technical characteristics to apply for different positions, and optimize the composition of the experimental teaching center. Establish a scientific and reasonable training plan for young teachers to ensure the long-term orderly construction and sustainable development of the laboratory.

Focusing on the established goal of students' comprehensive quality development and innovation ability improvement, a comprehensive and standardized evaluation system including experimental teaching resources, experimental teaching teams, information platforms, experimental teaching effects, and management guarantees should be formulated. The construction of teaching platform and information platform in experimental teaching resources are the basis for building a virtual laboratory. Organizational construction and standardized management are important guarantees for a good laboratory construction. In the process of evaluating the laboratory, it is necessary to take into account the comprehensiveness and focus on the key points, and not to make one size fits all.

Table 1 Summary of Research on Investor Sentiment Indicators

Indicator type	Indicator name	Features
Subjective evaluation index	Investor Wisdom Index	The index is compiled by Chartcraft Investment Services Company, and its data content is based on the proportion of short-term investment experts

system	UBS Investor Confidence Index	surveyed, reflecting the sentiment of mid-scale investors.
	UBS Investor Confidence Index	The index is compiled by UBS and is based on investors' views and confidence in future investment prospects and the future economy.
	China Stock Market Investor Confidence Index	The index is jointly compiled by the International Financial Research Center of Yale University and Peking University CCER, based on the subjective attitude of investors on the future investment prospects of certain investment products.
	"CCTV Watch Market" Index	The index is compiled by the CCTV Finance Channel, and is based on a personal sentiment index that reflects the sentiment of individual investors based on the bullish or bearish and bearish forecasts issued by securities companies and consulting agencies every day and before the opening of Monday.
	Good index	The index is compiled by "Stock Market Dynamics Analysis", based on weekly surveys of investors from different industries and different regions on the future long and short opinions, and mainly reflects the sentiment of institutional investors.
	Consumer Confidence Index	The index is compiled by the National Bureau of Statistics. It is an indicator that reflects the strength of consumer confidence. It quantifies and comprehensively reflects consumers' evaluation of the current economic situation and their subjective feelings about economic prospects, income levels, income expectations and consumer psychology.
Objective evaluation index system	Closed fund discount rate	When the trading price of a closed-end fund in the secondary market is lower than the actual net value, the discount rate can more directly reflect the trading sentiment of individual investors
	Number of IPOs	The number of new shares issued can also reflect investor sentiment, and the correlation is positive.
	IPO first day issuance premium rate	Researches by domestic and foreign scholars have found that the first day of IPO issuance premium has a greater relationship with investor sentiment.
	Volatility Index	The index is an implied volatility calculated using the B-S formula and the S&P 500 option index.
	Trading volume	The higher the investor sentiment, the larger the trading volume. This indicator measures investor sentiment more intuitively.
Composite evaluation index system	BW Index	Baker and Wurgler constructed a composite sentiment indicator index, based on the base discount, trading volume, IPO number, and first-day earnings, dividend earnings and the ratio of stocks and securities issued.

In summary, the research of domestic and foreign scholars has provided groundbreaking help to this research, especially the BW index established by Bakery and Wurgler using principal component analysis and optimization processing, and the predecessor of Harbin Institute of Technology Cao Yin [14] Although the relevant research on the localization of the BW index in the master's thesis did not achieve the desired effect, it still has great value. This article attempts to analyze my country's dual economic structure and characteristic national conditions, combined with previous studies, using the meat and poultry consumer price index to compound the agricultural product price index, and the real estate price index as the large asset price index, combined with the traditional investor sentiment index index , And excluding macroeconomic influencing factors and the characteristics of my country's stock market volatility during the New Year period, the Trinity constructs an investor sentiment index suitable for measuring China's securities market-the Comprehensive China Securities Market Investment Sentiment Index (PCIIS). This study is the first to consider my country's dual economic structure and characteristic national conditions, and has a relatively advanced and scientific nature.

2. Research Design Description

my country's dual economic structure is an economic structure in which modern sectors dominated by industry in cities coexist with traditional agricultural sectors in rural areas. According to the modern financial development theory, the financial market is the core part of the modern economy, and the dual economic structure of a country must have a profound influence on the development of the financial market. In economic activities, the financial sector will be affected

multiple times by the interaction with the real economic sector. Starting from my country's dual economic structure and optimizing its own indicators, this paper finally selected 70 large and medium-sized cities' new housing price index (HPI), meat and poultry and its products consumer price index (PPP), and Shanghai A-share transaction volume (MT), the number of new accounts opened in Shanghai Stock Exchange A shares (NIA), as the core indicator of the construction of PCIIS, the above indicators cover the influencing factors of my country's traditional agricultural sector, the influencing factors of large assets, and the traditional investor sentiment measurement indicators. In the processing of indicator data, due to time and time, all data are monthly data and are analyzed in the form of ring comparison.

2.1 Index Selection

Through empirical fact analysis, the price index of the housing market has a great correlation with the trend of the stock market. Investors have limited funds. They will invest money in another market when one market is sluggish. In addition, the housing price index, as an indicator of large assets, contains a lot of monetary policy and fiscal policy information. Using it to form the internal components of the indicator can objectively reflect the comprehensive effects of the above policies [12].

2.2 Consumer Price Index (Ppp) of Meat and Poultry and Its Products

Meat and poultry are a very important category of agricultural products. We add PPP to the index construction because it can represent the overall real economy of the traditional agricultural sector in my country's dual economy.

2.3 A-Share Trading Volume on the Shanghai Stock Market (Mt)

As a traditional indicator of investor sentiment, transaction volume can reflect the basic investment sentiment level of the market, and the amount of transaction volume can reflect investor expectations in a statistical sense.

2.4 Number of Newly Opened a-Share Accounts in Shanghai Stock Market (Nia)

In a 2005 study by Shiller, it was found that the formation of a bull market in the stock market is positively correlated with the rapid increase in the number of people directly participating in the stock market. In particular, my country's securities market is still in the initial stage of development. Regardless of the system or specifications, it needs to be improved. The number of new accounts opened each month represents the degree of favor and enthusiasm of individual investors for the securities market. Therefore, we selected the new Shanghai A shares The number of accounts opened (NIA) can accurately reflect investor sentiment.

Many previous studies have neglected the lag and lead of indicators, and the difference in the nature of indicators has different lead or lag effects on the evaluation system. For this, we are very necessary. Determine the number of time adjustment periods for the relevant variables.

We perform a first-order lag on the selected variables, then standardize these 8 variables, and finally put them together for principal component analysis. The first is correlation analysis. We will select each variable system (including lag) with the strongest correlation in the stata calculation results as the source indicator of our sentiment index. The calculation results are shown in Table 3.1 below. Compare the correlation coefficients of each indicator For the size, we chose HPIt-1, PPP, MTt-1, and NIAt-1 as the final source indicators.

Table 2 Correlation Coefficient Table of Each Index

Valve	HPIt-1	PPPt-1	MTt-1	NIAt-1
Correlation coefficient	0.8478	0.3517	0.667	0.6697
Sample size	80	80	80	80
Valve	HPI	PPP	MT	NIA
Correlation coefficient	0.8438	0.4235	0.646	0.6732
Sample size	80	80	80	80

2.5 Data Source and Variable Control

The data used in this study comes from the wind information database, CSMAR (Cathay Pacific Economic and Financial Database), and the sample period is from December 2007 to December 2014.

In the process of previous research, Bakery and Wurgler mainly eliminated the impact of the macro economy when constructing the BW index. In this study, in addition to removing the macroeconomic impact, we also need to remove the national conditions with Chinese characteristics. For example, when the new year is approaching, funds will be quickly returned to circulation, resulting in a decrease in funds in the securities market; at the beginning of the new year , The stock market will conform to the wishes of the people, and generally will have better performance and other characteristic factors [13].

3. Third, the Construction of Sentiment Index

3.1 Preliminary Construction of Pciis

We first use Stata software to standardize the four variables HPIt-1, PPP, MTt-1, and NIAt-1, and then perform principal component analysis. The cumulative variance explanation rate of these four principal components is 88.13% (greater than 85%).), indicating that most of the information on sentiment indicators has been included. For the principal component coefficient, we use the ratio of the eigenvalue corresponding to each principal component to the sum of the total eigenvalues of the extracted principal components as the weight to calculate, and obtain the following model:

PCIIS* = 0.329*HPIt-1+0.276PPP+0.227MTt-1+0.167NIAt-1

Table 3 Basic Data Characteristics of Variables

	HPIt-1	PPP	MTt-1	NIAt-1
Min	-2.514590	-2.160900	-1.485500	-1.312751
Max	2.849869	2.607660	3.955484	6.224018
Avg	-8.75e-09	2.37e-08	-3.4e-08	1.125e-08
St.d	1.000000031	1.000000	1.000000	1.0000001

Table 4 Correlation Coefficient Table between Variables (1)

	HPIt-1	PPP	MTt-1	NIAt-1
HPIt-1	1.0000			
PPP	-0.0344	1.0000		
MTt-1	-0.0825	0.0518	1.0000	
NIAt-1	-0.0521	-0.1775	0.7673	1.0000

3.2 Improvement of Pciis

In the process of constructing indicators, we have not eliminated macroeconomic influencing factors. Therefore, the process of constructing PCIIS actually includes macroeconomic influencing factors, so there is a certain degree of relationship between it and real investor sentiment. deviation. We choose three variables as representatives of macroeconomic factors, consumer price CPI, industrial product ex-factory price index PPI and macroeconomic prosperity index MCBI. We regress the four variables selected above with the three macro variables, and recompose the obtained residual items into a new indicator component, and then perform principal component analysis.

Table 5 Correlation Coefficient Table between Variables (2)

	eHPIt-1	ePPP	eMTt-1	eNIAt-1
eHPIt-1	1.0000			
ePPP	-0.1944	1.0000		
eMTt-1	-0.0992	-0.0914	1.0000	
eNIAt-1	-0.0355	-0.2280	0.7768	1.0000

Then use the ratio of the eigenvalue corresponding to each principal component to the sum of the

total eigenvalues of the extracted principal components as the weight to obtain the principal component coefficient, and the results are as follows:

$$PCIIS = 0.363*eHPIt\text{-}1 + 0.282ePPP + 0.215eMTt\text{-}1 + 0.138eNIAt\text{-}1$$

We use the return rate of the Shanghai A-share index as a reference to test the investor sentiment index we constructed. First of all, the indicators and the overall return rate chart are as follows:
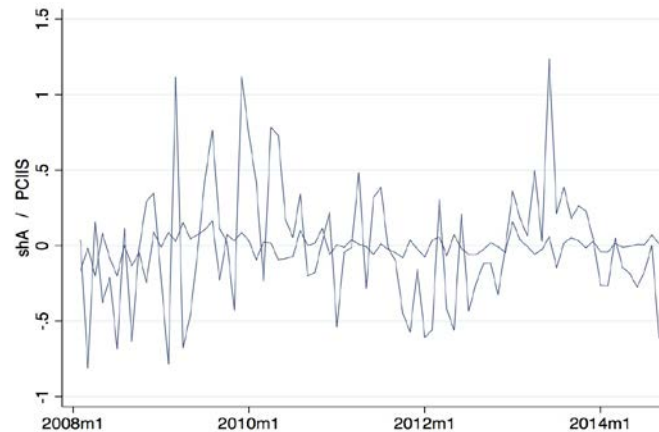

Fig.1 Indicators and the Broader Market Yield Curve

We further found that there is a co-integration relationship between them through the co-integration test, that is, the investor sentiment index we constructed is basically the same as the market return. Of course, the fluctuation of investor sentiment can also be seen through the graph.

3.3 Description and Analysis of Pciis

This study takes into account the traditional real economy sector-agricultural sector (agricultural products), the modern real economy sector-large assets (real estate), and the modern virtual economy sector (securities market) in the investor sentiment measurement indicators.

In the Chinese securities market, the direct cause of market trends and take-off can be attributed to the driving effect of funds. The flow of funds between the real economy and the virtual economy can fully reflect the changes in investor sentiment. This article focuses on considering these factors, which means that the research angle of this article is quite different from that of other scholars.

4. Conclusion

Based on a large amount of literature and previous studies, the research on investor sentiment is based on China's dual economic structure and national conditions with Chinese characteristics. It assumes that the total amount of funds is limited. The prosperity of the real economy and the virtual economy is controlled by external factors. There is a certain degree of negative correlation. Finally, the consumer price index (PPP) of meat and poultry and its products was chosen to represent the comprehensive price index of agricultural products, and the new residential price index (HPI) of 70 large and medium-sized cities represented the price index of large assets, combined with the number of new A-share accounts on the Shanghai Stock Market (NIA) and the traditional investor sentiment index represented by the Shanghai Stock Market's A-share transaction volume (MT) have constructed a trinity of investor sentiment indicators suitable for measuring China's securities market-the Comprehensive China Securities Market Investment Sentiment Index (PCIIS))

In the research process of this article, we considered the need to eliminate macroeconomic factors and national conditions with Chinese characteristics to ensure the accuracy and scientificity of the PCIIS constructed.

The successful construction of PCIIS is the successful localization of investor sentiment measurement, which has important reference significance for the prediction of investor sentiment in the future market by Chinese securities investors, and is also important for the investment choices and directions of Chinese securities investors. The reference significance also provides new ideas

for future scholars in this field.

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