

## Research Article

# BSC-Based Performance Evaluation Model for Securities Industry and Its Application

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In the study on China's securities industry, the securities industry is divided into four types: investment in securities, securities brokerage, securities consulting, and securities underwriting and asset management. In this paper, a performance evaluation index system for the securities industry is established by using the balanced scorecard method. Based on the analytic hierarchy process, entropy weight method, and improved entropy weight method, we propose the traditional integrated weighting method and improved integrated weighting method, thus arriving at four different index weight systems. Finally, we work out the comprehensive scores of four types of securities companies under the four index weight systems, analyze the actual situation of China's securities industry by comparing the scores and rankings of securities companies under the four index weight systems, and then put forward specific suggestions.

## 1. Introduction

Securities industry is an industry that provides services related to securities investment. Its basic functions are to attract savings and make investments, help to raise new funds, establish and maintain an orderly securities market, and analyze economic and financial information. It is a small professional service sector in all countries, which consists of securities brokers, stock exchanges, and related commodity brokers [1]. As the subsidiaries of securities companies increase and the activities of securities companies become increasingly diversified, securities companies will face increasing risks in internal management. At the same time, there are various risks in the internal management of securities companies. Therefore, it is of great significance to evaluate the overall performance of the securities industry.

At present, Chinese securities companies have grown in both number and scale and shown uneven levels of internal management. In this context, the enterprise performance evaluation index system has been paid more and more attention [2]. Performance evaluation is to make qualitative and quantitative analysis on the operation and management

behaviors and activities of investment companies in a given period by establishing a set of evaluation criteria and practical indexes, so as to conduct a fair and complete evaluation [3, 4]. Evaluating the performance of securities companies can help securities companies to have a detailed and comprehensive understanding of the past and present situation, find ways for improvement, and promote the constant progress of business performance.

## 2. Research Status

*2.1. Research Status of Performance Evaluation in Securities Industry.* With the rise of China's economy, China's financial and securities market has ushered in a valuable opportunity of rapid development, which results in more and more attention attached to the research on performance evaluation in the securities industry.

Fang and Changwen (2004) summarized the main risks of the securities industry and pointed out that securities companies need to improve their ability of risk identification and evaluation in the operation of securities business. She believed that securities companies can no longer rely entirely

on traditional business, and it has become an inevitable choice for securities companies in China to seek business differentiation, characteristic management, and sustainable innovation [5]. Wang (2005) argued that as the market capacity declines, China's securities market has changed from a sellers' market to a buyers' market and has established an effective performance evaluation system suitable for securities investment funds [6]. Wang and Song (2012) believed that in China's securities industry, there is no significant correlation between market share, efficiency, and performance of securities companies, and efficiency is not correlated with market share [7]. Bo et al. (2021) argued that the securities industry needs to accurately identify, carefully evaluate, monitor in real time and actively deal with various risks, and conduct performance evaluation in accordance with the risk assessment principles such as setting clear objectives, clearly analyzing the risks for specific objectives, taking into account potential frauds, and identifying and evaluating factors that have a significant impact on the internal control system [8]. Fischer and Khoury (2007) proposed an increasingly popular method among portfolio managers, i.e., screening securities for portfolio selection on the basis of the moral ratings published by professional research institutions [9]. Do et al. (2022) introduced the performance evaluation mechanism in the study on the competition between target companies and peer companies and found that companies with poor performance during the transition period are faced by greater risks than those with better interim performance [10].

**2.2. Research Status of BSC Method.** BSC (balanced scorecard) method is not only an information-based management tool but also a performance evaluation method which has been used by many scholars to evaluate the performance of securities companies.

In the study on enterprise development and transformation, Hu (2006) found that there are many unregulated structural factors in the process of transformation from planned economy to market economy, and BSC is an integrated performance evaluation method that takes into account enterprise development and management demands and can effectively solve the problem of enterprise performance evaluation, in particular, financial evaluation [11]. Li (2017) deemed that it is very feasible to design strategic performance management systems by using BSC [12]. Hao (2020) decomposed objectives into several subindexes from four dimensions and found the way to help managers and shareholders have a clear and comprehensive understanding of the real operating conditions and development and growth capabilities of companies [13]. Annick et al. (2004) studied the main differences between BSC and tables, explained them with ideological hypothesis, and concluded that a management tool is in accord with the local ideology of the country of origin [14]. Kaplan et al. (2007) found that subordinate managers' performance-related judgments will not be weakened by BSC format or structure and concluded that subordinate affinity has direct and indirect influence on bonus distribution [15]. Said et al. (2021) found through path analysis that the traditional causality in BSC method

can provide empirical support for hotel performance evaluation [16].

### 3. Construction of BSC-Based Performance Evaluation Index System for Securities Industry and Data Processing

**3.1. Construction of Basic Framework of BSC-Based Performance Evaluation Index System for Securities Industry.** Chinese securities companies are mainly engaged in securities brokerage, securities investment consulting, financial counseling related to securities trading and investment, securities underwriting and sponsorship, self-run securities, securities asset management, and other securities business. At present, securities companies generally choose one or more businesses. However, there are compulsory provisions on the operation of multiple businesses, or there are higher capital and qualification requirements for the operation of multiple businesses [17, 18]. Therefore, the practice of securities companies engaged in multiple businesses is to set up a corporate structure composed of multilayer organizations and departments which separately manage different businesses.

In order to better classify the securities industry, this paper classifies the main businesses of securities companies into four types: investment in securities, securities brokerage, securities consulting, and securities underwriting and asset management, specifically, investment in securities: underwriting and sponsoring securities issuance and serving as a financial consultant in M&A activities; securities brokerage: buying and selling stocks and securities on behalf of investors; securities consulting: institutions and their consultants who have obtained relevant certificates issued by regulatory authorities provide securities investors or customers with relevant information, analysis, prediction, or suggestions on securities investment; and securities underwriting and asset management: trustors hand over their assets to trustees, who provide underwriting and asset management services for trustors.

**3.2. BSC-Based Performance Evaluation Index System for Securities Industry.** In this paper, we construct the basic framework of the performance evaluation index system for the financial and securities industry based on the concept of BSC from four dimensions: business finance, customer service, internal management, and learning and growth [19]. One of most prominent characteristic of BSC is that it transforms the strategic mission of an enterprise into specific objectives to complete the strategic planning of the enterprise, which not only highlights the "balance" concept but also makes the performance evaluation index system for the securities industry more objective, just, and scientific, as shown in Table 1.

For the market survey, a rigorous survey plan was first created to guarantee the authenticity of collected data. Second, the research group conducted investigation and statistics on the business of the securities industry through a presurvey. Finally, based on the targets and objectives of performance evaluation of the securities industry, and adhering

TABLE 1: Index system for securities industry.

Criterion level	Index level	Index type
Operating financial evaluation	A1: growth rate of main business income	Basic income from main business/total income
	A2: growth rate of per capita profit	Total profit in a given period/total number of employees
	A3: growth rate of enterprise profit	Profit of the current year/profit of the previous year
	A4: average interest rate of customer accounts	Net interest income of customer account assets/total customer account assets
	A2: asset stock ratio of newly opened effective accounts	Asset stock of new customers/average number of customers of the business department
	A6: task completion rate of the target market	Actual book profit of the business department/target profit of the business department
	A7: asset stock ratio of regular customers	Asset stock of regular customers/total customer assets
	A8: commission retention rate	Average commission rate of the current period/average commission rate of the previous period
	B1: new customer acquisition rate	Number of new accounts/number of existing accounts
	B2: customer retention rate	Number of regular customers/total number of customers
Customer service evaluation	B3: customer satisfaction	Number of satisfied customers/total number of customers
	B4: market share	Sales of main business/total sales of similar business in the market
	B5: customer complaints	Number of customer complaints in a given period
	C1: cost control rate	Average cost of the current period/average cost of the previous period
	C2: recognition of the internal control system	Number of employees recognizing the internal control system/total number of employees
Internal management evaluation	C3: information product update rate	Number of newly developed products/days of production
	C4: business process rate	Processing time of main business/average business processing time
	C5: business error rate	Number of daily business errors/total number of daily business
	D1: completion rate of training hours	Actual training hours/planned training hours
	D2: proportion of staff training expenses	Staff training expenses/total office expenses
Learning and growth evaluation	D3: achievement rate of personal targets	Total personal targets achieved in the current period/total planned targets of the current period
	D4: employee satisfaction	Number of satisfied employees/total number of employees
	D5: employee turnover	Number of departing employees/total number of employees before departure

TABLE 2: Survey data of BSC-based performance evaluation index system for securities industry.

Index level	Investment	Brokerage	Consulting	Management
Growth rate of main business income	0.1500	0.1200	0.2000	0.1100
Growth rate of per capita profit	0.2000	0.1800	0.1500	0.1200
Growth rate of enterprise profit	0.1800	0.2000	0.1400	0.1600
Average interest rate of customer accounts	0.1000	0.1200	0.0800	0.0600
Asset stock ratio of newly opened effective accounts	0.2000	0.3000	0.2500	0.3000
Task completion rate of the target market	1.1000	1.2000	1.1000	0.9000
Asset stock ratio of regular customers	0.7000	0.8000	0.6000	0.7000
Commission retention rate	1.1000	1.2000	0.9000	0.9500
New customer acquisition rate	0.1200	0.1800	0.1000	0.0900
Customer retention rate	0.9000	0.8500	0.7800	0.7500
Customer satisfaction	0.8900	0.8600	0.7900	0.8000
Market share	0.3000	0.8400	0.2000	0.1000
Customer complaints	0.0200	0.0500	0.0300	0.0400
Cost control rate	0.9500	0.9000	0.8800	0.7500
Recognition of the internal control system	0.8900	0.9000	0.8500	0.8300
Information product update rate	0.1500	0.1200	0.1000	0.0800
Business process rate	0.1200	1.3000	1.2000	1.1000
Business error rate	0.0300	0.0200	0.0400	0.0200
Completion rate of training hours	0.9000	0.9200	0.8900	0.8500
Proportion of staff training expenses	0.0800	0.1000	0.0900	0.0700
Achievement rate of personal targets	1.3000	1.2000	1.1000	1.0000
Employee satisfaction	0.9000	0.9200	0.8900	0.8500
Employee turnover	0.0300	0.0200	0.0400	0.0500

to the objective rules of market survey and the requirements of survey, the research group selected appropriate survey objects, formulated a perfect survey plan, and then took samples [20, 21]. In this paper, we construct the performance evaluation index system for the securities industry based on the concept of BSC, introduce BSC into the performance evaluation of the securities industry, and then comprehensively evaluate the performance of the securities industry through quantitative and qualitative analysis.

**3.3. Standard Processing of Survey Data on Performance of Securities Industry.** Nondimensionalization can effectively avoid the influence of data type and size on the final results. In order to better analyze the performance, we need to standardize the original data. In the process of standardization, the commission retention rate, customer complaint rate, business error, and employee turnover are all variables that the smaller, the better. As a result, they should be calculated with the index standardization formula that the smaller the value, the better. The rest are variables that the higher, the better. Hence, they should be calculated with the index standardization formula that the higher the value, the better. The final results of standardization are shown in Table 2.

**3.4. Standardization of Survey Data for Performance Evaluation of Securities Industry.** The article subjectively and objectively weighted the securities industry performance index system. The results are shown in Table 3.

## 4. Index Weighting Method and Calculation Results of Performance Evaluation Index System for Securities Industry

### 4.1. Index Assignment Methods

**4.1.1. AHP.** The data acquisition of the analytic hierarchy process (AHP) should be started with professional training for performance evaluators, with a view to helping evaluators have a general understanding of different business models that are currently popular in the securities industry, master the relevant skills of performance evaluation, and get familiar with all links of performance evaluation. The training for performance evaluators mainly covers standard content of performance evaluation, calculation and scoring method of the evaluation index system, performance evaluation methods, and matters needing attention in performance evaluation. After training, performance evaluators are required to have a full grasp of performance evaluation methods and standards and be capable of solving the common problems in evaluation and sharing the experience of evaluation [22, 23].

When AHP is used for performance evaluation of the securities industry, the following requirements should be met: (i) performance evaluators are required to have a full understanding of the securities business to be evaluated; (ii) performance evaluators are required to have a good grasp of the basic principles and practices of evaluation;

TABLE 3: Standardization of survey data for BSC-based performance evaluation of securities industry.

Index level	Investment	Brokerage	Consulting	Management
Growth rate of main business income	0.1016	0.1200	0.2000	0.1100
Growth rate of per capita profit	0.1406	0.1800	0.1500	0.1200
Growth rate of enterprise profit	0.1250	0.2000	0.1400	0.1600
Average interest rate of customer accounts	0.0625	0.1200	0.0800	0.0600
Asset stock ratio of newly opened effective accounts	0.1406	0.3000	0.2500	0.3000
Task completion rate of the target market	0.8438	1.2000	1.1000	0.9000
Asset stock ratio of regular customers	0.5313	0.8000	0.6000	0.7000
Commission retention rate	0.8438	1.2000	0.9000	0.9500
New customer acquisition rate	0.0781	0.1800	0.1000	0.0900
Customer retention rate	0.6875	0.8500	0.7800	0.7500
Customer satisfaction	0.6797	0.8600	0.7900	0.8000
Market share	0.2188	0.8400	0.2000	0.1000
Customer complaints	1.0000	0.0500	0.0300	0.0400
Cost control rate	0.7266	0.9000	0.8800	0.7500
Recognition of the internal control system	0.6797	0.9000	0.8500	0.8300
Information product update rate	0.1016	0.1200	0.1000	0.0800
Business process rate	0.0781	1.3000	1.2000	1.1000
Business error rate	0.9922	0.0200	0.0400	0.0200
Completion rate of training hours	0.6875	0.9200	0.8900	0.8500
Proportion of staff training expenses	0.0469	0.1000	0.0900	0.0700
Achievement rate of personal targets	1.0000	1.2000	1.1000	1.0000
Employee satisfaction	0.6875	0.9200	0.8900	0.8500
Employee turnover	0.9922	0.0200	0.0400	0.0500

(iii) performance evaluators are required to maintain effective communication with related persons in the securities industry in the process of evaluation.

The specific steps got through AHP are as follows: determine the relationship between indexes, construct a judgment matrix, solve the maximum eigenvalue and eigenvector of matrix  $T$ , judge the consistency of matrix  $T$ , and determine the weight of the index system.

Based on the judgment matrix  $T$  passing the consistency test, and according to the following formula:

$$TA = \lambda_{\max} A, \quad (1)$$

the subjective weight vector based on AHP can be got:

$$A = \{a_1, a_2, \dots, a_n\}^T. \quad (2)$$

**4.1.2. Entropy Weight Method.** The entropy weight method produces the standardized matrix of evaluation data by standardizing market survey data. Based on the values corresponding to evaluation indexes in the standardized matrix, the entropy of the performance evaluation index system of the securities industry can be calculated, and the index weight can be finally solved with the entropy. As the entropy weight method solves the weight by analyzing market survey data, the weight obtained by this method is also called objective weight.

The data used by the entropy weight method includes both social survey data and market survey data. For social survey, the first step is to determine the survey tasks according to the performance evaluation objectives of the securities industry, including selecting the survey indicators and options, as well as preliminary assumptions. The second is to design a questionnaire and a survey plan suitable for the securities industry according to the performance evaluation objectives, including designing survey indicators. The third is to design an overall social survey plan, demonstrate the feasibility of the survey plan, and screen, train, and mobilize investigators. The final is the implementation of social survey, which mainly includes data collection and collation, and later screening, return visit, and confirmation [24].

In this study, we determined the objective weight of index level and criterion level by the entropy weight method, including producing the original data matrix  $S = (s_{ij})_{n \times r}$ , standardizing the original matrix  $S = (s_{ij})_{n \times r}$ , and calculating the proportion  $p_{ij}$  of the evaluation value of the  $j^{\text{th}}$  type of business under the  $i^{\text{th}}$  index.

By calculating the entropy  $e_i$  of the  $i^{\text{th}}$  index:

$$e_i = -k \sum_{j=1}^s p_{ij} \ln p_{ij}, \text{ where } k = 1/\ln n.$$

We obtained the entropy weight  $b_i$  of the  $i^{\text{th}}$  index:

$$b_i = \frac{1 - e_i}{\sum_{i=1}^n (1 - e_i)} \left( 0 \leq b_i \leq 1, \sum_{i=1}^n b_i = 1 \right). \quad (3)$$



**4.1.3. Improved Entropy Weight Method.** There is a big flaw in the above formula when  $e_i \rightarrow 1$ , i.e., when  $e_i \rightarrow 1$ ,  $1 - e_i \rightarrow 0$ , and the denominator  $\sum_{i=1}^n (1 - e_i)$  is constant. At this time, a slight difference of  $e_i$  may lead to a great change of  $b_i$ . To solve this problem, we improve the traditional entropy weight method by introducing a common factor, so that when  $e_i \rightarrow 1$ , the limit of the numerator used to calculate the weight in the entropy weight method is not zero. This can avoid the above extreme case.

The formula of the improved entropy weight method is as follows:

$$\bar{b}_i = \frac{1 - e_i + (1/n)[\sum_{i=1}^n (1 - e)]}{\sum_{i=1}^n \{1 - e_i + (1/n)[\sum_{i=1}^n (1 - e)]\}}, \quad (4)$$

$$\left(0 \leq b_i \leq 1, \sum_{i=1}^n \bar{b}_i = 1\right). \quad (5)$$

As a result, the objective weight calculated by the entropy weight method is  $\bar{B} = \{\bar{b}_1, \bar{b}_2, \dots, \bar{b}_n\}^T$ .

**4.1.4. Improved Integrated Weighting Method.** The combination weight of the traditional integrated weighting method is usually calculated by the multiplier normalization method, as follows:

$$\omega_i = \frac{a_i b_i}{\sum_{i=1}^n a_i b_i} \left( \sum_{i=1}^n a_i b_i = 1, 0 \leq \omega_i \leq 1 \right), \quad (6)$$

where  $a_i$  is the index weight determined by AHP, and  $b_i$  is the index weight determined by the entropy weight method.

Similarly, the combination weight of the improved integrated weighting method is also calculated by the multiplier normalization method, as follows:

$$\bar{\omega}_i = \frac{a_i \bar{b}_i}{\sum_{i=1}^n a_i \bar{b}_i} \left( \sum_{i=1}^n a_i \bar{b}_i = 1, 0 \leq \bar{\omega}_i \leq 1 \right), \quad (7)$$

where  $a_i$  is the index weight determined by AHP, and  $b_i$  is the index weight determined by the entropy weight method.

## 4.2. Determination of Index Weight in Performance Evaluation of Securities Industry

**4.2.1. Calculation of Subjective and Objective Weights of Performance Evaluation of Securities Industry by AHP and Entropy Weight Method.** The article subjectively and objectively weighted the securities industry performance index system. The results are shown in Table 4.

The calculation results show that the entropy weight method and AHP differ greatly in criterion level weight. The main reason may lie in that AHP calculates the weight through experts' scoring, while the entropy weight method calculates the weight by analyzing market survey data. The reality may be that there is a gap between most ordinary

people's perception and experts' more ideal planning in terms of business finance, customer services, internal management, and learning and growth [25].

Despite the difference between the subjective weight obtained by AHP and the objective weight obtained by the entropy weight method, the weight order of business finance, customer services, internal management, and learning and growth has no change. This shows that in the current performance evaluation of the securities industry, attention should be first paid to business finance, then followed by customer services, internal management, and learning and growth in sequence.

**4.2.2. Weights of Traditional Integrated Weighting Method and Improved Integrated Weighting Method in Performance Evaluation of Securities Industry.** Based on the traditional integrated weighting method and improved integrated weighting method, we subjectively and objectively weighted the index level. The results as shown in Table 5.

The above weighting results of index level show that the growth rate of main business income, the growth rate of enterprise profits, and the recognition of internal control system are the three most important factors affecting the performance evaluation of banking.

## 5. Empirical Analysis on Performance Evaluation of Securities Industry Based on Improved Integrated Weighting Method

**5.1. Feasibility of Introducing BSC into Performance Evaluation Index System of Securities Industry.** BSC is a strategic management tool and management method system based on organizational development strategy. After nearly 20 years of development, it has set off a revolution of management system and performance evaluation in enterprise management.

First of all, the connotations of the two are similar. BSC decomposes the organizational mission and strategic vision into specific objectives. It can achieve performance management and evaluation by assessing each specific objective and help enterprises understand the factors that affect the performance of organizational strategic management by analyzing the causality among the four dimensions and the role and position of each dimension. The performance evaluation of securities industry is also carried out around the goal of investment funds, in which the strategic goal is decomposed into specific departments and projects. This is fully consistent with the inherent requirements of BSC.

Second, the two have similarities in technique. After nearly 20 years of development, BSC is mature in both theory and technique. Developing quantifiable performance assessment indexes according to corporate mission and organizational strategy can facilitate all-round and accurate performance appraisal and evaluation. Therefore, it is technically feasible to introduce BSC into the performance evaluation index system of the securities industry, which will help to alleviate the heavy reliance on economic performance indicators, and be of great practical significance and

TABLE 4: Weights of performance evaluation of securities industry.

Index level	AHP	Entropy weight method	Improved entropy weight method
Growth rate of main business income	0.1378	0.0455	0.0435
Growth rate of per capita profit	0.0824	0.0450	0.0433
Growth rate of enterprise profit	0.1481	0.0449	0.0432
Average interest rate of customer accounts	0.0423	0.0458	0.0436
Asset stock ratio of newly opened effective accounts	0.0241	0.0453	0.0434
Task completion rate of the target market	0.0545	0.0447	0.0431
Asset stock ratio of regular customers	0.0292	0.0448	0.0432
Commission retention rate	0.0175	0.0447	0.0431
New customer acquisition rate	0.0214	0.0458	0.0437
Customer retention rate	0.0283	0.0446	0.0431
Customer satisfaction	0.0199	0.0447	0.0431
Market share	0.0333	0.0525	0.0468
Customer complaints	0.0075	0.0446	0.0431
Cost control rate	0.0531	0.0447	0.0431
Recognition of the internal control system	0.1227	0.0447	0.0431
Information product update rate	0.0313	0.0454	0.0435
Business process rate	0.0349	0.0498	0.0456
Business error rate	0.0170	0.0446	0.0431
Completion rate of training hours	0.0107	0.0447	0.0431
Proportion of staff training expenses	0.0113	0.0448	0.0432
Achievement rate of personal targets	0.0404	0.0447	0.0431
Employee satisfaction	0.0259	0.0447	0.0431
Employee turnover	0.0064	0.0446	0.0431

application value for realizing the multiple objectives of securities industry performance evaluation [26].

Finally, both of them reflect the overall strategic thinking. BSC decomposes strategic objectives into specific performance evaluation indicators, combines the specific indicators with various departments in the organization, and achieves multidimensional and comprehensive evaluation in the whole process. The strategic objectives of securities industry performance evaluation are also flexible, involving objectives of different natures such as economy, society, management, and ecology. The strategic idea of all-round development penetrates into all aspects of securities industry performance evaluation, so as to comprehensively evaluate the performance of the securities industry.

To sum up, it is theoretically and technically feasible to introduce the concept of BSC into the performance evaluation index system of the securities industry.

**5.2. Steps of Building Performance Evaluation Model for Securities Industry.** BSC-based securities industry performance evaluation can be implemented in the following steps.

First of all, set the objective of securities industry performance evaluation. In order to achieve this strategic objective, the securities industry should make efforts to improve the business level.

Second, define all levels of BSC and their corresponding indexes: (i) evaluate the objective, and revise the four levels of BSC in combination with the actual situation of the securities industry;

(ii) decompose the strategic objective of the securities industry according to the four levels of BSC, and then develop the corresponding indexes; (iii) construct the BSC framework for the performance evaluation of the securities industry.

Third, determine the specific evaluation methods. In this study, qualitative and quantitative methods are used to combine scientific methods with experts' experience and wisdom, with a view to getting real and effective evaluation results.

Finally, set up a good evaluation team. The team members can be third-party evaluation agencies or relevant managers in the securities industry. In particular, authoritative representatives should be invited to participate in the evaluation. Evaluators score the performance of the securities industry in each aspect and then get the final score of the securities industry.

**5.3. Results of Performance Evaluation of Securities Industry by Different Methods.** Based on the five weighting, the article evaluated the performance of four securities businesses: investment in securities, securities brokerage, securities consulting, and securities underwriting and asset management. The final results are shown in Table 6.

According to the performance evaluation results, securities brokerage, which mainly involves buying and selling stocks and securities on behalf of investors, features high technology, heavy workload, and high work intensity, which

TABLE 5: Weights of traditional integrated weighting method and improved integrated weighting method in performance evaluation of securities industry.

Index level	Entropy weight method	Improved entropy weight method
Growth rate of main business income	0.1379	0.1009
Growth rate of per capita profit	0.0820	0.0674
Growth rate of enterprise profit	0.1473	0.1070
Average interest rate of customer accounts	0.0425	0.0434
Asset stock ratio of newly opened effective accounts	0.0241	0.0323
Task completion rate of the target market	0.0541	0.0505
Asset stock ratio of regular customers	0.0290	0.0353
Commission retention rate	0.0174	0.0282
New customer acquisition rate	0.0215	0.0480
Customer retention rate	0.0281	0.0542
Customer satisfaction	0.0197	0.0463
Market share	0.0359	0.0613
Customer complaints	0.0074	0.0346
Cost control rate	0.0527	0.0305
Recognition of the internal control system	0.1217	0.0563
Information product update rate	0.0313	0.0225
Business process rate	0.0366	0.0244
Business error rate	0.0169	0.0171
Completion rate of training hours	0.0106	0.0232
Proportion of staff training expenses	0.0112	0.0236
Achievement rate of personal targets	0.0401	0.0404
Employee satisfaction	0.0257	0.0320
Employee turnover	0.0063	0.0207

TABLE 6: Results of performance evaluation of securities industry by different methods.

Index level	Investment	Brokerage	Consulting	Management
AHP	0.2994	0.3799	0.1524	0.1683
Traditional entropy weight method	0.5089	0.6082	0.5177	0.4841
Improved entropy weight method	0.4893	0.58	0.4954	0.4637
Traditional integrated weighting method	0.4817	0.5486	0.4847	0.4421
Improved integrated weighting method	0.4754	0.5458	0.4592	0.4236

TABLE 7: Rankings of performance evaluation results of securities industry by different methods.

Rankings	Investment	Brokerage	Consulting	Management
AHP	2	1	4	3
Traditional entropy weight method	3	1	2	4
Improved entropy weight method	3	1	2	4
Traditional integrated weighting method	3	1	2	4
Improved integrated weighting method	2	1	3	4

leads to a high rate of return. As a result, its scores are relatively high. Relatively speaking, securities underwriting and asset management features light workload and low work intensity, thus receiving low scores. Securities consulting and investment in securities present low technical content and moderate workload and work intensity, so their scores are in the middle level.

*5.4. Ranking of Performance Evaluation Results of Securities Industry by Different Methods.* Based on the results of performance evaluation of the four securities businesses by five weighting methods, the performance evaluation results of the four enterprises are ranked in Table 7 as follows.

By comparing the performance evaluation rankings of four business models of the securities industry, we find that



securities brokerage companies always rank first in the evaluation by five index weighting methods, which is consistent with the reality. Because of the large volume of business and high rate of return, securities brokerage certainly performs better than others. Except for AHP, the rest four index weighting methods put securities underwriting and asset management at the bottom, which is directly related to the specific tasks and difficulty of this business. The rankings of investment in securities and securities consulting vary greatly depending on the index weighting methods, which is mainly reflected in the great difference of performance evaluation results between AHP and the improved integrated weighting method. This is because AHP relies on experts' subjective weighting, while the improved integrated weighting method combines the improved entropy weight method with AHP by normalization [27]. From the integrated ranking, it can be seen that securities consulting performs better, probably because of the opportunity to get in touch with more customers, which is conducive to business development and expansion.

## 6. Conclusions and Suggestions

*6.1. The Performance Evaluation of the Securities Industry Should Combine Annual Evaluation with Daily Evaluation.* Securities industry is a special knowledge-intensive industry, so the staff quality and working environment have a very important impact on staff's value creation. The annual evaluation and daily evaluation of the securities industry are both very important [28]. Hence, securities companies should pay attention to human resources and performance evaluation and appoint special evaluators to be responsible for the daily performance management of the business department.

*6.2. The Performance Evaluation Plan of the Securities Industry Should Be Combined with the Development Strategy of the Company and the Development Planning of the Business Department.* The performance evaluation of the business department should combine short-term and long-term objectives. It should not only focus on the income and profit but also fully serve the transformation of the brokerage business. In addition, performance evaluation cannot simply be treated as the basis of salary payment. It should aim at improving the staff quality and delivering ongoing value for customers [29].

*6.3. The Combination of Performance Appraisal Target and Appraisal Result Feedback Promotes Employee Development.* In order to achieve the improvement objective of performance evaluation, the business department should build a progressive and positive corporate culture, establish an accountability system, pay attention to the feedback interview of performance evaluation results, attach great importance to staff development and training, increase the investment in training, publicize performance evaluation plans and results in time, and take a full account of the opinions of grass-roots staff.

*6.4. Establish an Open and Fair Formulation and Publicity System of Performance Evaluation Plans.* Companies should improve the formulation process of performance evaluation

plans and prepare plans such as employee performance pay assessment plan and annual bonus assessment plan in advance according to the principle of target and task assignment. The plans must be approved by the leading group and the heads of business lines and be announced before implementation. The bonus assessment and distribution plan for employees and the promotion and salary adjustment plan for outstanding employees should be based on the company system, performance-oriented, and implemented upon the approval from the assessment team of the business department.

*6.5. Establish a Performance Interview and Feedback System.* As an important part of performance evaluation and management, performance communication and feedback can give full play to the incentive, training, and guiding functions of performance. Company heads should play an active part in the interviews with grass-roots staff, keep abreast of the developments in the business department and staff, have a full understanding of staff's personality, working status, and past performance, as well as relevant business data and comparable standards, and conduct interviews and feedback with scientific data and rational analysis.

## Data Availability

The data used to support the findings of this study are included within the article.

## Conflicts of Interest

The authors declare there are no conflicts of interest regarding the publication of this paper.

## Authors' Contributions

All authors contributed to this paper equally.

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