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A Research on the Comprehensive System of Performance Evaluation of Rural Microfinance

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Abstract

At present the microfinance is still in a growing stage in China and the performance evaluation of microfinance is still in blank. According to the principals of Balanced Scorecard, this study designed the comprehensive evaluation system from four dimensions, which were finance dimension, customer dimension, internal process dimension, learning and growth dimension, and evaluated the performance of rural microfinance of 6 branches of HARBIN BANK. The effectiveness and practicability of the evaluation method were verified by the empirical results and suggestions were used to improve the performance of rural microfinance. This study make an innovation in the practical application of banking industry's rural microfinance performance evaluation in China.

Keywords*: Comprehensive evaluation system, performance evaluation, rural microfinance, balanced scorecard.*

1. Introduction

After the commercialization of Chinese microfinance in 2005, microfinance entered a high-speed development stage. The farmers are the main microfinance demanders. Although the loan these demanders need is small, the number of these demanders is very huge. Now, Microfinance is regarded as an opportunity to expand by small and medium-sized banks.

Microfinance becomes one of the most important businesses and the strategy center of many Chinese small and medium-sized banks. Effective performance evaluation can help banks to evaluate the current situation and provide useful information for future development. Therefore, it is an important research subject for many small and medium-sized banks. The demand of credit of farmers is becoming stronger and many banks treat the rural microfinance as a separate business unit.

The main evaluation methods used in foreign commercial banks are: CAMEL to evaluate India's public banks performance [1]; CAMEL to evaluate and rank the performance of Bank of Nigeria [2]; CAMEL to contrast the performance of Egypt Alexandria Bank, before and after privatization and found that the performance has obviously improved after privatization [3]; factor analysis method to evaluate 40 commercial banks' financial indicators and abstracted the common factors to develop the risk management system [4]; BSC to evaluate the bank's performance and determined the weights by using ANP model [5]; BSC to discuss the performance evaluation system for village bank [6]; DEA to evaluate the efficiency of branches of Czech [7]; DEA to evaluate the efficiency of Bangladesh online bank from 2001 to 2007 [8]; DEA and goal programming to evaluate the performance of a Greek bank [9]; two basic DEA models to analyze the efficiency of bank of Nepal from 2007 to 2011 and found that the efficiency has been improved generally [10]; evaluating the customer service performance of

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Mercantile Bank Limited [11]; using the evaluation system which included customer satisfaction, employees' review and indicators of operating evaluated bank's performance [12].

This study will conclude that BSC can build a comprehensive and effective performance evaluation system, which is used enterprise value maximization as the target and evaluates the performance from finance, customer, internal process and learning and growth dimension. What's more, it can be adjusted according to bank's own situation. PCA is widely used in performance evaluation, which dimension reduction technology to convert all indicators into several comprehensive indicators and make the evaluation more objective and comparable. Therefore, this study uses the principal of BSC to build the evaluation performance system of rural microfinance of Chinese small and medium-sized banks and uses PCA to analyze and rank the performance results.

2. Performance Evaluation System

2.1 Performance Evaluation System Based on BSC

According to the principal of BSC, this study builds the performance evaluation system from four dimensions which are finance, customer, internal process, learning and growth. In each of dimension, it designs indicators based on the characteristics of Chinese rural microfinance.

Financial indicators measure the financial results of microfinance. It is the core of the BSC and the start and end of the other dimensions. Four second class indicators which are security, development, profitability, efficiency, and 19 third class indicators are chosen.

Because of the fierce competition, customers are very important to the commercial banks and only the one who can meet customers' satisfaction can be the winner in the competition. 8 third class indicators are chosen from 3 second class indicators which are customer satisfaction, the coverage of microfinance and the improvement of customer.

Internal process reflects the efficiency of the internal operation. Efficient internal process can satisfy customers' investment expectations and use its own resources to create values. 6 third class indicators are chosen.

Human resource and leaning capacity are the source of the future development and innovation. Human resource is one of the most important strategic elements. According to the characteristics of microfinance, 7 indicators are chosen to evaluate the performance of learning and growth. 'Table 1' is the performance evaluation system.

2.2 Weight Calculation and Consistency Check

To determine indicator weight, this study issues questionnaires to experts. Experts establish the judgment matrix by comparing every level's indicator. After that, this study calculates the indicator weight according to the theory of AHP.

This study uses comparison rating scale method to establish the judgment matrix. This method uses the ratio of the degree of importance of two factors to show the relative materiality (expressed by number of 1-9). That is, the quantized relative weight a_{ij} is used to describe the relative importance of factor i and j to the upper level. a_{ij} is valued among 1-9, as shown in Table 2. If the importance of factor i to factor j is a_{ij}, then the importance if factor j to factor i is $1/a_{ij}$.

Table 1. Performance Evaluation System

First class indicator	Second class indicator	Third class indicator
Finance	Security	RAROC x_1
		The impairment loss x_2
		Asset quality x_3
		Non-performing loan ratio x_4
	Development	Profit growth rate x_5
		EVA x_6
		The percentage of microfinance revenue in total revenue x_7
		Importance of microfinance x_8
		Growth rate of loan x_9
		Loan concentration x_{10}
	Profitability	Return on total assets of microfinance x_{11}
		Return on equity of microfinance x_{12}
		Net interest rate x_{13}
		Net profit rate x_{14}
	Efficiency	Before tax profit per person x_{15}
		Cost to revenue x_{16}
		Net profit to cost x_{17}
		Amount of lending per person x_{18}
		Amount of lending per Sub-branch x_{19}
Customer	Satisfaction	Growth rate of customers x_{20}
		Percentage of the regular customers x_{21}
		Retention rate x_{22}
	Coverage	Share of the stock market x_{23}
		Share of the new market x_{24}
		Business success rate x_{25}
	Improvement	Customer income growth rate x_{26}
		Customer accession rate x_{27}
Internal process		Percentage of professionals x_{28}
		Growth rate of professionals x_{29}
		Customers to staff x_{30}
		Approval time x_{31}
		Efficiency of business process improvement x_{32}
		Corrective rate x_{33}
Learning and growth		Training investment rate x_{34}
		Average training hour x_{35}
		Knowledge level of staff x_{36}
		Staff turnover rate x_{37}
		Staff induction rate x_{38}
		The quantity of product and service innovation x_{39}
		Products utilization rate x_{40}

Table 2. The Meaning Of Judgment Scale

Scale	Meaning
1	Two elements compared with the equally importance
3	Compared to two elements, one element is slightly more important than another element
5	Compared to two elements, one element is obviously more important than another element
7	Compared to two elements, one element is strongly important than another element
9	Compared to two elements, one element is extremely more important than another element
2, 4, 6, 8	An intermediate value between the degree of importance

Single-level sorting is to determine the order of importance of the elements by comparing with related elements in hierarchy. If you take the weight vector $W = [w_1, w_2, ..., w_n]^T$, There are:

$$AW = \lambda W \tag{1}$$

λ is the largest positive eigenvalues of A, then W is the eigenvector of A corresponding to λ. Thus single-level sorting is translated into solving the largest features judgment matrix values λ max and its corresponding feature vector, and then come to the relative weight of this group of index weight. Getting the right weight for each element in each level, the goal should be to calculate the contribution to the total weight of each level of each element weight. A layer is known by calculation assuming that all the elements are $A_1, A_2, ..., A_m$ and the weights are $a_1, a_2, ..., a_m$, corresponding to the layer A and the next level $B_1, B_2, ..., B_n$, the hierarchical structure of the single-sort is $[b_1^j, b_2^j, ..., b_n^j]^T$. Here, when B_i and A_j have no relations, $b_i^j = 0$. Then, the resulting of total level sorting is $B_n = \sum_{j=1}^{m} a_j b_n^j$.

In order to test the consistency of judgment matrix, it is necessary to calculate the consistency index:

$$CI = \frac{\lambda_{\max} - n}{n - 1} \tag{2}$$

In this formula, n is the number of matrix dimensions, $\lambda_{\max}$ is the maximum characteristic root. The consistency ratio can be calculated as following:

$$CR = CI / RI \tag{3}$$

Table 3 shows average random consistency index RI.

Table 3. Average Random Consistency Index RI

n	1	2	3	4	5	6	7	8	9
RI	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45

In general, when CR <0.10, we consider the consistency of judgment matrix has satisfactory; Otherwise, when CR ≥ 0.10, they need to adjust the judgment matrix, until satisfied.

So the weight results are in following ‘Table 4’.

Table 4. Weight Of Indicators To The Top Level

First class indicator	Second class indicator	Third class indicator	Final weight
Finance	Development ability	X_1	0.091
		X_2	0.047
		X_3	0.032
		X_4	0.018
		X_5	0.014
	profitability	X_6	0.077
		X_7	0.067
		X_8	0.034
		X_9	0.024
	Efficiency	X_{10}	0.020

		X_{11}	0.019
		X_{12}	0.011
		X_{13}	0.009
		X_{14}	0.007
customer	Satisfaction	X_{15}	0.041
		X_{16}	0.068
		X_{17}	0.020
		X_{18}	0.016
	Coverage	X_{19}	0.038
		X_{20}	0.016
		X_{21}	0.010
	Improvement	X_{22}	0.014
		X_{23}	0.007
Internal process		X_{24}	0.055
		X_{25}	0.023
		X_{26}	0.029
		X_{27}	0.019
		X_{28}	0.074
		X_{29}	0.011
Learning and growth		X_{30}	0.025
		X_{31}	0.020
		X_{32}	0.015
		X_{33}	0.012
		X_{34}	0.008
		X_{35}	0.005
		X_{36}	0.005
Weight			1.000

2.3 Steps of Principal Components Analysis

Principal Components Analysis is a mathematical statistics method which uses dimension reduction to choose several important variables from multiple Variables by linear conversion. As a basic mathematical analysis method, PCA is widely used in performance evaluation.

Steps of PCA are follows:

1) Data standardization

Because some indicators have different dimensions or their orders of magnitude are different, it is difficult to proceed linear combination. Therefore, before PCA, initial indicators should be standardized and the equation is:

$$Z_{x_{ij}} = \frac{x_{ij} - \bar{x}_j}{\sqrt{\mathrm{var}(x_j)}} \quad \text{i=1,…, n; j=1,…p} \tag{4}$$

$\bar{x}_j$ is the mean value of variable j and $\sqrt{\mathrm{var}(x_j)}$ is standard deviation.

2) Derive principal components

Assuming the matrix after standardization is X, then p variables of $X = (X_1, X_2, ..., X_p)$ will be integrated into p new variables and these new variables can be obtained from the original variables. Linear function is:

$$\begin{cases} Y_1 = a_{11}X_1 + a_{12}X_2 + ...+ a_{1p}X_p \\ Y_2 = a_{21}X_1 + a_{22}X_2 + ...+ a_{2p}X_p \\ ... \\ Y_p = a_{p1}X_1 + a_{p2}X_2 + ...+ a_{pp}X_p \end{cases} \quad (5)$$

Let λ is the variance of each principal components, then y_i is variance proportion of principal component i.

3) Determine the number of principal components

In general, the number of principal components chosen should make the cumulative variance over 80%, which means that m principal components contains more than 80% information of original variables.

4) Estimate factor score function

In the factor model, every common factor can be presented as the linear combination of original variables.

$$F_j = b_{j1}X_1 + b_{j2}X_2 + ...+ b_{jp}X_p \quad \text{j=1,…, m} \quad (6)$$

This is called factor score function. This study uses it to calculate the score of each principal component on each observation record.

5) determine linear comprehensive evaluation function

$$F = \alpha_1 y_1 + \alpha_2 y_2 + ...+ \alpha_m y_m \quad (7)$$

F is the linear function of each principal component $y_1, y_2, \ldots, y_m$. This study uses this function to get their synthesis score and ranking. The coefficient is the proportion of variance of each principal component in total variance.

6) Result analysis and application

3. Results and Analysis of Evaluation System

This study's research object is HARBIN Bank. Microfinance is the most important business and the core strategy of HARBIN Bank. Microfinance loan accounts for 69.1% of total loan. Interest income from microfinance is 67.9% of total customer interest income. The purpose is to establish effective performance evaluation model to evaluate the performance of banks' microfinance by empirical analysis of HARBIN Bank and provide information to support future development and improvement.

3.1 Sample Selection and Preprocessing

The sample includes 6 branches of HARBIN Bank, which are Shuangyashan, Suihua, Dalian, Hegang, Jixi and Qitaihe. We choose their rural microfinance data of 2013. Because the original data cannot be directly used, this study standardizes original indicators and all indicators are converted into positive indicators.

1) Convert indicators into positive indicators

Positive indicators. Positive indicators like RAROC, EVA, the bigger the better. Therefore, they are no need to adjust.

Negative indicators. Negative indicators like non-performing loan ratio, the impairment loss and approval time, are contrary to the positive indicators. Therefore, these indicators must be converted into positive indicators.

Moderate indicators. Moderate indicators have a reasonable range. Too big or too small is not good. Loan concentration is a moderate indicator. Moderate indicator X_i and its best value is A_i.

2) Standardization

To eliminate the differences in magnitude of original indicators this study should standardize original indicators. This study uses SPSS17.0 to realize it.

3.2 Empirical Analysis

1) Eigenvalue, Percentage of Variance and Percentage of Cumulative Variance

After applying dimensionless method, this study gets standardized indicators. 'Table 5' is the total variance explained.

Table 5. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loading		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.585	37.398	37.398	14.585	37.398	37.398
2	7.569	19.409	56.806	7.569	19.409	56.806
3	6.427	16.48	73.286	6.427	16.48	73.286
4	5.285	13.55	86.836	5.285	13.55	86.836
5	5.134	13.164	100	5.134	13.164	100

According to the result in 'Table 5', the percentage of cumulative variance reaches to 86.836% which is greater than 80%, when there are 4 condition satisfied eigenvalues. It means that extracting the 4 components from 39 indicators can explain the performance of 6 branches efficiently and the target of dimension reduction is met.

2) Analysis of Component Matrix

Table 6 shows the linear relationship between 4 components and original indicators. The absolute value of factor loading stands for the relationship between one indicator and one component. The bigger the absolute value, the closer the relationship. It also means that this component can reflect this indicator.

Table 6 shows that Component 1 is closely related to Importance of microfinance, Customer income growth rate, Amount of lending per person, The percentage of microfinance revenue in total revenue, Share of the stock market, EVA, Percentage of the regular customers, RAROC, Net interest rate, The quantity of product and service innovation, Percentage of professionals. Most of these indicators stand for profitability and development. Therefore, Component 1 mainly evaluate the profitability and development.

Component 2 is related to Customer accession rate, Efficiency of business process improvement, Retention rate, Staff turnover rate, Training investment rate, Products utilization rate. Therefore, Component 2 can reflect the performance of customer dimension and growth and learning dimension.

Component 3 is related to Growth rate of professionals, Staff induction rate, Approval time. It indicates that Component 3 can evaluate the performance of internal process.

Table 6. Component Matrix

	C1	C2	C3	C4
Zscore (Importance of microfinance)	0.953	0.091	-0.022	0.062
Zscore (Customer income growth rate)	0.937	0.09	0.044	0.142
Zscore (Amount of lending per person)	-0.898	-0.277	-0.264	0.158
Zscore (The percentage of revenue in total revenue)	0.882	0.245	-0.257	-0.078
Zscore (Share of the stock market)	0.867	-0.291	-0.227	-0.302
Zscore (EVA)	0.842	-0.377	-0.251	0.257
Zscore (Percentage of the regular customers)	0.835	0.1	0.528	0.089

Zscore (RAROC)	0.822	0.475	0.208	-0.227
Zscore (Net interest rate)	0.822	0.309	-0.432	0.066
Zscore (Quantity of product and service innovation)	0.805	-0.441	-0.272	0.272
Zscore(Percentage of professionals)	-0.803	0.059	0.505	0.251
Zscore(Net interest rate)	0.772	-0.083	0.354	0.507
Zscore(Amount of lending per Sub-branch)	-0.77	0.151	-0.344	-0.071
Zscore (Training investment rate)	0.762	-0.025	-0.462	-0.341
Zscore Customers to staff)	0.743	-0.343	-0.441	0.366
Zscore (Return on equity of microfinance)	0.74	-0.182	0.417	0.333
Zscore (Return on total assets of microfinance)	0.693	-0.196	0.526	0.338
Zscore (Asset quality)	0.679	-0.398	0.542	-0.167
Zscore (Non-performing loan ratio)	0.665	0.582	0.255	-0.171
Zscore (Growth rate of loan)	-0.618	-0.482	0.397	0.135
Zscore (Customer accession rate)	0.325	0.907	0.207	-0.098
Zscore (Efficiency of business process improvement)	-0.059	0.83	-0.272	0.465
Zscore (Retention rate)	-0.059	0.829	-0.28	0.462
Zscore (Staff turnover rate)	0.077	-0.821	0.281	-0.473
Zscore (Training investment rate)	-0.531	0.742	-0.045	-0.406
Zscore(Products utilization rate)	0.298	-0.682	-0.446	0.029
Zscore(Knowledge level of staff)	0.489	0.622	0.449	-0.34
Zscore(Share of the new market)	-0.003	0.609	0.224	-0.499
Zscore(Growth rate of professionals)	0.286	0.215	0.931	0.063
Zscore(Staff induction rate)	0.008	0.043	0.912	-0.035
Zscore(Approval time)	0.305	0.042	-0.912	0.084
Zscore(Loan concentration)	0.073	0.092	-0.143	-0.89
Zscore(Business success rate)	0.008	-0.417	0.277	0.863
Zscore(Net profit to cost)	-0.101	0.503	-0.331	0.788
Zscore(Profit growth rate)	-0.332	0.319	0.292	0.685
Zscore(The impairment loss)	0.414	0.199	-0.073	0.178
Zscore(Before tax profit per person)	-0.497	-0.118	0.011	0.261
Zscore(Growth rate of customers)	-0.575	-0.075	0.356	0.116
Zscore(Cost to revenue)	-0.04	0.646	-0.196	0.335

Component 4 is related to Loan concentration, Business success rate, Net profit to cost and Profit growth rate. Therefore, Component 4 reflects the performance of financial efficiency.

In conclusion, the above 4 components contain the finance, customer, internal process, learning and growth dimension. Because indicators have linear functional relationship and are independent, these 4 components can be used to evaluate the performance of rural microfinance.

3) Analysis of Component Score Coefficient Matrix

'Table 7' is the component score coefficient matrix. So the formula of each component should be got by multiplication of coefficient and corresponding indicator and add all together. This formula can be used to evaluate all samples.

According to the component score coefficient matrix, this study gets the expressions of the 4 components.

Table 7. Component Score Coefficient Matrix

	C1	C2	C3	C4
Zscore(RAROC)	0.056	0.063	0.032	-0.043
Zscore(The impairment loss)	0.028	0.026	-0.011	0.034
Zscore(Asset quality)	0.047	-0.053	0.084	-0.032
Zscore(Non-performing loan ratio)	0.046	0.077	0.04	-0.032
Zscore(Profit growth rate	-0.023	0.042	0.045	0.13
Zscore(EVA)	0.058	-0.05	-0.039	0.049
Zscore(Growth rate of loan)	-0.042	-0.064	0.062	0.025
Zscore(The percentage in total revenue)	0.06	0.032	-0.04	-0.015
Zscore(Importance of microfinance)	0.065	0.012	-0.003	0.012
Zscore(Loan concentration)	0.005	0.012	-0.022	-0.168
Zscore(Return on total assets of microfinance)	0.048	-0.026	0.082	0.064
Zscore(Return on equity of microfinance)	0.051	-0.024	0.065	0.063
Zscore(Net interest rate)	0.053	-0.011	0.055	0.096
Zscore(Net profit rate)	0.056	0.041	-0.067	0.012
Zscore(Before tax profit per person)	-0.034	-0.016	0.002	0.049
Zscore(Cost to revenue)	-0.003	0.085	-0.03	0.063
Zscore(Net profit to cost)	-0.007	0.066	-0.051	0.149
Zscore(Amount of lending per person)	-0.062	-0.037	-0.041	0.03
Zscore(Amount of lending per Sub-branch)	-0.053	0.02	-0.053	-0.013
Zscore(Growth rate of customers)	-0.039	-0.01	0.055	0.022
Zscore(Percentage of the regular customers)	0.057	0.013	0.082	0.017
Zscore(Retention rate)	-0.004	0.11	-0.044	0.087
Zscore(Share of the stock market)	0.059	-0.038	-0.035	-0.057
Zscore(Share of the new market)	0	0.08	0.035	-0.094
Zscore(Business success rate)	0.001	-0.055	0.043	0.163
Zscore(Customer income growth rate)	0.064	0.012	0.007	0.027
Zscore(Customer accession rate)	0.022	0.12	0.032	-0.019
Zscore(Percentage of professionals)	-0.055	0.008	0.079	0.048
Zscore(Growth rate of professionals)	0.02	0.028	0.145	0.012
Zscore(Customers to staff)	0.051	-0.045	-0.069	0.069
Zscore(Approval time)	0.021	0.006	-0.142	0.016
Zscore(Efficiency of process improvement)	-0.004	0.11	-0.042	0.088
Zscore(Corrective rate)	-0.036	0.098	-0.007	-0.077
Zscore(Training investment rate)	0.052	-0.003	-0.072	-0.065
Zscore(Average training hour)	0.034	0.082	0.07	-0.064
Zscore(Knowledge level of staff)	0.005	-0.108	0.044	-0.089
Zscore(Staff turnover rate)	0.001	0.006	0.142	-0.007
Zscore(Staff induction rate)	0.055	-0.058	-0.042	0.052
Zscore(The quantity of innovation)	0.02	-0.09	-0.069	0.005

4) The Factor Score of Five Components

To analyze the performance of 6 branches, the standardized indicators should be substituted into the expression (8) to (11) and the factor score of each component can be calculated. ‘Table 8’ is the score of five components of each branch.

$$f_1 = 0.056 \times Zscore\ （x_1）+ 0.028 \times Zscore\ （x_2）+ .....+ 0.02 \times Zscore\ （x_{41}） \quad (8)$$

$$f_2 = 0.063 \times Zscore\ (x_1) + 0.026 \times Zscore\ (x_2) + ... + (-0.09) \times Zscore\ (x_{41}) \quad (9)$$

$$f_3 = 0.032 \times Zscore\ (x_1) + (-0.011) \times Zscore\ (x_2) + ... + (-0.069) \times Zscore\ (x_{41}) \quad (10)$$

$$f_4 = -0.043 \times Zscore\ (x_1) + 0.034 \times Zscore\ (x_2) + ... + 0.005 \times Zscore\ (x_{41}) \quad (11)$$

To eliminate the influence of subjective factors, this study chooses objective weight method to calculate the comprehensive score. Table 5 shows that the weight of Component 1 is 37.398%, Component 2 is 19.409%, Component 3 is 16.48%, Component 4 is 13.55%.

Assuming that f1, f2, f3, f4 is the score of each component and F is the expression of the comprehensive score. The expression is:

$$F = 37.398\% \times f_1 + 19.409\% \times f_2 + 16.48\% \times f_3 + 13.55\% \times f_4 \quad (12)$$

The comprehensive score can be calculated by expression (12) and the ranking of the performance evaluation can be also obtained. 'Table 8' is the ranking of performance evaluation.

Table 8. The Factor Score of Four Components

Branch	C1	C2	C3	C4
Shuangyashan	1.64279	-0.89988	-0.55484	0.55598
Suihua	-0.10459	-0.1227	1.87666	0.20751
Dalian	-1.50506	-1.09961	-0.6593	0.50752
Hegang	-0.12048	1.6948	-0.55432	0.94825
Jixi	0.10179	0.17952	0.40552	-0.39251
Qitaihe	-0.01445	0.24786	-0.51373	-1.82675

From the 'Table 9', Shuangyashan branch has the greatest comprehensive score, so its performance evaluation is best. The second to fifth is Hegang, Suihua, Jixi, Qitaihe. Dalian is the last.

Table 9. The Ranking of Performance Evaluation

Branch	C1	Ranking	C2	Ranking	C3	Ranking	C4	Ranking	score	Ranking
Shuangyashan	1.643	1	-0.899	5	-0.555	5	0.556	2	0.424	1
Suihua	-0.105	4	-0.123	4	1.877	1	0.208	4	0.275	3
Dalian	-1.505	6	-1.099	6	-0.659	6	0.508	3	-0.816	6
Hegang	-0.121	5	1.695	1	-0.554	4	0.948	1	0.321	2
Jixi	0.102	2	0.179	3	0.406	2	-0.393	5	0.087	4
Qitaihe	-0.015	3	0.248	2	-0.514	3	-1.827	6	-0.289	5

3.3 Analysis of Evaluation System

From the above, the performance evaluation result of Shuangyashan branch is the best and the Dalian branch is the worst. Shuangyashan's comprehensive score is obviously higher than any other branches because it ranks first in Component 1 and second in Component 4.

Component 1 is related to profitability and development. From the score and the ranking, we can find that Shuangyashan is much better than any other branches and Dalian is the worst. Dalian should take measures to improve profitability and development by investing in marketing, increasing the net interest rate, lowering the cost and so on.

Component 2 reflects the customer dimension and growth and learning dimension. Hegang performs well in this component, but Dalian and Shuangyashan are much worse than any other branches. They should try to develop new customers, improve the service quality, recruit more professionals, invest more money in training and design new microfinance products.

Component 3 reflects the performance of internal process. Suihua is the best, but Dalian and Shuangyashan's performances are the worst. Both of the two branches need to improve the internal efficiency and business process and reduce the approval time.

Component 4 reflects the financial efficiency. Hegang also has the best performance and Qitaihe is the worst. Qitaihe should improve the financial efficiency by reducing cost, improving the net profit and the business success rate.

Since the microfinance was introduced into China, the microfinance has experienced a fast growth stage and now it is still in a growing stage. At present, the history of a standard and success microfinance is not long and the success ratio is also not high. What's more, the performance evaluation of microfinance in China is still in blank. Therefore, this study which is based on the BSC comprehensive evaluation method fills the blank and is an innovation in the angle of practical application of microfinance performance evaluation in Chinese banking industry. The traditional Chinese commercial banks' performance evaluation systems focus on the financial aspect and overlook the non-financial performance. To tackle this problem, the BSC theory is applied in the rural microfinance performance evaluation, and the comprehensive evaluation system is developed from 4 dimensions which are finance, customer, internal process, learning and growth,. The new evaluation system is designed according to the features of microfinance and its performance which make the system more reasonable. The above empirical results verify the feasibility, effectiveness, and practicability of the method used in this study. This study makes an innovation in the practical application of banking industry's rural microfinance performance evaluation in China.

4. Summary

This study built the comprehensive performance evaluation systm of rural microfinance based on BSC for small and medium-sized commercial banks and used PCA to evaluate the comprehensive performance of rural microfinance of 6 branches of HARBIN Bank in 2013. Finally, it analyzed the empirical results from 4 components.

This study made suggestions, such as developing new customers, improving the efficiency of business process and increasing the investment in staff training, for the branches who performed worst in each component based on the analysis results.

The search method and conclusions can provide useful information to improve the comprehensive performance of rural microfinance for Chinese commercial banks and help other commercial banks to evaluate their microfinance performance.

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