Analysis and Research on the Profit Contribution Model of Commercial Bank Customers Based on Credit Rating Model

Hui Zeng

College of Finance, Guangzhou Panyu Polytechnic, Guangzhou, Guangdong, 511483, China

Zenghui809@163.com

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Abstract: from the Beginning of the New Century, the Difference of Financial Products between Banks is Less, Because the Industry between Banks is Not Obvious. Because Customer Relationship Management and Customer Relationship Maintain the Position of Mutual Bank, the Transformation from Product Design to Central Relationship Becomes More and More Important. Therefore, the Key to the Survival of a Bank is to Provide Unique Services, But for Each Banking Institution, We Have Relatively Limited Human Resources and Other Resources, Which Makes It Impossible for Us to Provide the Same Services for Different Customers. Twenty Eight Law Tells Us That Nearly 80% of the Profits of Enterprises Come from 20% of Customer Resources, So We Need to Treat Each Customer's Profit Contribution in Different Ways, So That Commercial Banks Can Get the Maximum Profits and Make Full Use of the Limited Resources. Therefore, This Paper Summarizes the Relevant Theories of Customer Profit Contribution of Commercial Banks, Constructs a Credit Scoring System by Using Ahp, and Obtains a Suitable Credit Scoring Table. According to the Scoring Results, the Conclusion is Drawn.

1. Introduction

With the Continuous Development of the Global Economy, the Development of Banking Business Also Faces Many Challenges[1]. First, the Competition in the Financial Market is Increasingly Fierce, and the Product Differentiation of Different Financial Institutions is Becoming Smaller and Smaller. with the Continuous Shortening of Development, It is More and More Difficult for Banks to Gain Competitive Advantage in the Product Centered Competition. Secondly, with the Development of Society, the Demands of Bank Customers Are Changing Day by Day, and They Are More and More Personalized and Diversified. It is More and More Difficult for Financial Institutions to Meet the Needs of Customers with a Single Product and Service. Third, in the Era of Our Life, with the Rapid Development of Information Technology, Customers Can Obtain the Product and Service Quality of the Cross Bank Market through Various Channels. Information Communication between Customers is More and More Accessible, and Customers Have More and More Choices. Therefore, Mutual Fund Industry is in an Invincible Key Position in the Increasingly Fierce Competition of Commercial Banks, and It Must Have a Higher Priority in the Management of Other Customers' Benefit Contribution. We Know That through Our Own Database System, Banks Have Different Asset Data from Many Customers[2]. Based on These Data, Bank Decision-Makers Carry out Corresponding Data Mining, and Use the Data Mining Results to Transform It into Bank Data. Customer's Profit Contribution is an Effective Tool for Management. for the Above Reasons, Commercial Banks Should Make the Most of the Relevant Information Technology Based on Data Mining, and Make the Most of the Effective Bank's Customer's Profit Contribution Management. Independent Decision-Making Basis Based on Customer Relationship Management Should Be Further Improved. It Provides an Effective Basis for Bank Decision-Makers to Make Effective Decisions. in This Paper, the Combination of Theory and Empirical Analysis, Combined with Qualitative and Quantitative Analysis, Try to Explore Whether the Credit Scoring Method Has Practical Benefits for Bank Decision Makers.

2. Credit Scoring Method

In essence, the credit rating based on AHP is measured by the borrower's characteristic index as the explanatory variable. The credit scoring method will classify the customer's own qualification conditions by category, and the large classification will be the first level indicator. In this paper, the stability, repayment ability, repayment intention and loan purpose will be the first level indicator, and each detailed element under the first level indicator is 14 second level indicators. After the indicators are divided, they are given different weight proportion according to the importance of each indicator, and then the score of each indicator is obtained through a series of operations. Each customer's information is substituted into the score for scoring[3]. If the score is lower than the pass score, they are rejected directly. If the score is higher than a certain value, they are classified as high-quality customers. They can be lent directly, and the score is used to decide whether or not Disbursement and the amount of disbursement. The representative is Altman's Z-score Model. In 1977, Altman established the second generation model: zeta credit risk model (hereinafter referred to as zeta). Its main variables are seven, namely, asset return rate, income stability, interest multiple, debt ratio, current ratio, capitalization ratio, scale, etc. Zeta classification accuracy is relatively high.

3. Principle of Establishing Credit Scoring Model

3.1 Operability Principle

It means that the selected index system should not be too complicated, and the information of customers should be concise, easy to obtain and reliable. The contents of the index system should be as comprehensive and detailed as possible. In addition, comprehensibility should be considered when selecting indicators, and the significance and requirements of each indicator should be simple and clear.

3.2 Quantifiable Principle

It means that in the scoring model, the attributes of each indicator should be able to be quantified, and the impact on the risk level should be expressed in terms of quantity. Only by quantifying the scores can we make an objective evaluation of the borrower and eliminate the subjective errors caused by the use of expert scores[4]. However, the quantifiable index system does not mean that the credit scoring model is fully quantifiable. The professional ability and professional experience of credit experts are also important auxiliary parts of credit scoring.

3.3 Principle of Predictability

The index system of credit scoring model is to predict and avoid the default risk of borrowers in the future[5]. It is a comprehensive consideration of their ability and willingness to repay loans in the future, so as to prevent the future.

3.4 Principle of Flexibility

The principle of flexibility is established to meet the needs of customers with different industries, scales and repayment methods. Each microfinance institution can consider its own business preference and product characteristics, and flexibly use the indicator system to prevent and control credit risk.

4. Establish Credit Scoring Model

Step 1: analyze the relationship between the factors in the system, compare the importance of each element in the same level with respect to a certain criterion in the previous level, and construct the judgment matrix of the comparison;

Step 2: the relative weight of the compared elements to the criterion is calculated by the judgment matrix, and the consistency of the judgment matrix is tested[6];

Step 3: calculate the total sorting weight of each level for the system, and sort; finally, get the

total sorting of each scheme for the total target, as shown in Table 1.

Table 1 1 / 1 ~ 9 / 1 Scale Method

Value implication	Quantization value
Equally important	1
Slightly important	3
More important	5
Strongly important	7
Extremely important	9
Intermediate value of two adjacent judgments	2,4,6,8

5. Banking

A financial supermarket has been formed among Chinese banks. Different banking services correspond to different products. Product differentiation between different financial institutions is decreasing, so is business differentiation. Most of the bank's data transmission is through the bank. Other commercial products will be divided into products of other banks. Then, it enters the information system by accounting method and stores it in the database. In order to comply with the bank's internal rules and regulations, three types of businesses, namely asset-based business, responsibility based business and intermediate standard business, are recorded according to the bank's accounting auxiliary classification.

5.1 Asset Business

As a special interest oriented enterprise, the bank's asset-based business is the main source of profit. The most common type of asset-based business is loan business. The bank uses the inherent assets of the business and the open deposits it receives as loans[7]. The source is to provide a certain amount of loans to enterprises, institutions or individuals, and collect these loans within a certain period of time according to regulations. At the same time, it is agreed to charge fixed or floating loan interest rate. At the same time, it can guarantee the continuation of asset-based business through a third party.

Table 2 Scoring Table

	A1	A2	A3	A4
	0.1998	0.5222	0.1998	0.0781
B1	0.0919			
B2		0.0475		
B3			0.0475	
B4				0.1125
B5				0.7306

5.2 Liability Business

Responsible enterprise is a kind of business that increases the bank's liabilities. This business is the most basic business of financial institutions[8]. The simplest responsibility is to increase the size of the bank's assets by absorbing public deposits to ensure the normal operation of the bank. In capital transaction and bank liability business, general deposits account for 80% of total liabilities.

5.3 Intermediary Business

Intermediary business is one of the most important tools for banks to exceed asset business and liability business. It has unique advantages, including social credit, customer base and network technology. As an intermediary, agent or client, in the process of handling consultation, collection, risk management, financial leasing and other matters for customers and providing financial services, specific business fees are charged.

6. Model Analysis of Account Profit Contribution

Banks and ordinary enterprises must consider the calculation of profit and cost when investigating the degree of profit contribution, and assess whether the income reaches the satisfaction degree when they invest in fixed cost[9]. But banks are special businesses. First, all banks use bank accounts as the basic evaluation unit. Each of us can open multiple accounts in the bank, including regular accounts and current accounts. These accounts correspond to customer numbers or customer ID numbers. The carrier of establishing the relationship between customers and banks is banking business.

Therefore, according to the above characteristics, we should make a hierarchical study on the contribution of account types to the interests of bank customers. When we study the profit contribution of customers in the next level, it will be automatically classified to the upper level and become a part of its structure. In the banking system, the minimum data unit is usually used as the research object of profit contribution. The same customer can have multiple accounts, and the cost and profit of each account can be calculated. After the risk cost is included, the customer benefit contribution at the customer level is calculated and further concentrated at the customer level. By aggregating the profit contribution of different accounts of the same customer, the customers of commercial banks can obtain the profit contribution. After customers open accounts in the bank, they can handle various businesses. Different businesses need different advantages and costs. Therefore, the profit contribution of the account is the sum of the profits generated by the business of all customers. I can choose simple deposit and loan, or choose the consumption income of intermediate business as the contribution of customer's interest to calculate the contribution of account to customer's interest.

$$P_{At} = P_{Dt} + P_{It} + P_{Mt}$$

Where: $P_{At} = t$ period account profit contribution $P_{Dt} = t$ period customer profit contribution based on deposit income P_{Lt} period customer profit contribution based on loan income

Banking is the source of bank profits. We can't just calculate that at the account level. These symbols can not fully represent the calculation model of the bank's customer benefit contribution. Therefore, we must use the three main banking businesses mentioned in the previous section. Reflect the formation process of customer's benefit contribution.

7. Conclusion

Combined with credit score analysis, determine the contribution of customers and whether customers are senior customers. But based on this, China's commercial bank system needs to establish a unified data mechanism. In order to formalize the data specifications of its own database system, the big data concentration installed in China is used. At the same time, we need to consider the integrity of customers and the value of potential customers. In this article, we don't mention that the loss of profits of banks is caused by default and overdue loans. For banks, these customers are not high-quality customers. When analyzing the risk cost of banks and potential customers, these customers do not have more business, but they may bring benefits to banks in some special groups, that is, they may not be quality customers.

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