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Research on consumer credit risk management based on Confucian cultural perspective

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ABSTRACT

In recent years, the national economy in China has achieved rapid and continuous growth, which lays a foundation for the improvement of people's living standards and results in the optimistic attitude of residents on their future life. Besides, the gradually improved consumption level has provided a solid base for the vigorous development of the consumer credit industry. Based on iResearch 2022，from the perspective of the scale of narrowly defined consumption credit balance, this indicator has risen from RMB 4.2 trillion in 2014 to RMB 17 trillion by the end of 2021, with a compound annual growth rate of 22.1%.

In the future, with the premise that the basic trend of consumption as the main driver of three growth drivers to promote GDP remains unchanged, the domestic consumption environment will be gradually enriched. The diversification of consumption scenes and the upgrading of consumer products will continue to stimulate household consumption, therefore, the narrowly defined consumption credit balance in China will continue to maintain the increasing trend. Based on iResearch 2022，it is expected that in the next few years, the scale of China's narrowly defined consumption credit balance will grow at a compound annual growth rate of 7.9%, approaching RMB 25 trillion by 2026.

However, compared with developed countries such as Europe and the United States, China's financial foundation is much weaker, but it is precisely because China's financial market is not yet mature that this feature has given China the soil for the rapid development of financial technology, in recent years, the explosive growth of Internet finance and financial technology in China has accelerated the development of China's consumer credit market, and gradually shortened the gap between China and developed countries. Traditionally, China's overall credit behavior is relatively conservative, so China's financial industry, especially in the personal credit side, has always had an insurmountable bottleneck in development. But in reality, based on iResearch 2022，the United States grew from 22.1% in 1960 to 36.4% in 2021, an increase of 14.3% in 61 years. However, China has grown from 11.2% in 2014 to 29.8% in 2021, an increase of 18.6% in just seven years, which has approached the current level of the United States, and the gap between China and the United States in the process of inclusive finance has become smaller and smaller. At the same time, considering China's national conditions and the activity of private lending, the actual penetration rate of consumer credit in China is higher than

the current data level, and the actual gap between China and the United States is even smaller.

According to the traditional concept, Chinese society has been deeply influenced by traditional culture, especially Confucianism, which was born in the Spring and Autumn period, and has been developed since the Han Dynasty as the leading ideology of the state. Although foreign cultures have entered China in modern times, such as Marxism, traditional culture is still compatible with other ideas and cultures to a certain extent, and plays an influential role in some fields, including the economic field and the consumption field. The credit market is an inevitable requirement for economic development to a certain extent. How to grasp this behavior and maximize our own welfare, we can encourage and support reasonable borrowing behavior through research. Excessive borrowing should also be prevented in case it could not be sustained and thus undermine the welfare of individuals. This paper uses the double-discount model to understand the influence of Confucian culture on consumer credit demand, and empirically tests several hypotheses by collecting economic data from 31 provinces and cities in China from 2004 to 2021. By selecting the proxy variables of Confucian culture, the influence of cultural factors on consumer credit index and consumer credit penetration rate was empirically tested, and from the regression results, the influence of Confucius Temple as a proxy variable of Confucian culture on consumer credit was statistically significant, in addition, the cultural agency variables in other four aspects, including the proportion of state-owned economic components, marketization index, divorce rate, per capita car ownership and foreign culture, were also significantly affected on consumer credit.

In addition, in the context of such strong demand for consumer credit, how to manage the risk of financial enterprises that provide consumer credit products and services will become the key to their continued survival in this market. Traditional risk management methods have fallen out of date, and financial institutions need to use popular machine learning models for default risk management based on the characteristics of current business data. The results of this paper find that: first, through the consumer credit operation data of a financial institution, four types of machine learning methods are tested and compared, and it is found that the ensemble learning method is better than logistic regression, GBDT and neural network models; Second, it is found that unlike the traditional concept, financial institutions first adopt various risk control measures to minimize the credit default rate, secondly balance the default rate and yield, and finally select the appropriate default level and income level on the basis of the company's acceptance, so as to ensure the continuous and stable operation of the business. At the same time, this paper also carefully analyzes the important factors affecting default risk, compares

them with the factors influencing demand, and finds that the overlap between the two types of factors is small.

Through the above research, this paper puts forward the idea of optimizing risk control methods, and also puts forward suggestions for financial institutions to choose appropriate risk management models in the future. Based on the research and analysis of culture, it also puts forward policy suggestions for the future development of consumer credit industry in China.

Key words: Confucian culture; Consumer credit; Risk management; Machine Learning

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My interest in consumer finance research arose in 2015 when the company I worked for set up a consumer Fintech subsidiary, and my attention in this field can be traced back to 2010 when my employer's branch finance company was just granted a consumer finance license to carry out business based on the services and products within the group company.

First of all, I would like to thank my dissertation adviser Professor Tang Ke. Without his guidance, I would not have conducted the research of consumer Fintech. I was a complete stranger to Fintech before I enrolled in this program, although I already had a relatively good understanding of the business of consumer credit. It was because of Professor Tang's encouragement that I picked up the study and research in the field of machine learning. Secondly, I would like to thank Professor Fernandez, the director of the project, and Professor Horacio. If it were not for the guidance offered by these two professors in the project setup briefing meeting, my research might not involve the field of consumer culture. With an in-depth study of Chinese consumer culture, Confucian culture and other traditional Chinese culture systems, my vision has been further broadened. Thirdly, I would also like to thank all the instructors of the project team, such as Zhang Yingjun, Yang Gendi, Niu Liqun, Cui Jingying, etc. If it were not for their repeated encouragement, I might not have been able to persist my research and finish this paper. Finally, I would also like to thank my friends Mr. Zhang Zhiguang, Mr. Wu Wen and Ms. Song Yuqing. With their patience and help in our numerous communications, I have built a deeper understanding of the details of the business and the implementation of specific codes and a series of tedious and complex works.

Let me share one of Isaac Newton's quotes: If I have seen further than others, it is by standing upon the shoulders of giants. Although my current research has been done, I hope, in the future, that I can make a small contribution to the retake-off of China's consumer credit industry both in the areas of market practice and research. With the gradual standardization of the domestic market, I believe there is still a very large room for future development in this sector.

TABLE OF CONTENTS

ABSTRACT ..... **I**

ACKNOWLEDGEMENT ..... **IV**

TABLE OF CONTENTS ..... **V**

LIST OF TABLES ..... **IX**

LIST OF FIGURES ..... **XI**

CHAPTER 1 INTRODUCTION **1**

1.1 RESEARCH BACKGROUND AND SIGNIFICANCE 1

1.1.1 Research Background 1

1.1.2 Research Significance 6

1.2 RESEARCH METHODOLOGY AND TECHNICAL ROUTE 8

1.2.1 Research Methodology 8

1.2.2 Technical Route 9

1.3 MAIN INNOVATIONS AND SHORTCOMINGS 11

1.3.1 Main Innovations 11

1.3.2 Shortcomings 12

CHAPTER 2 BASIC CONCEPTS AND THEORETICAL BASIS OF CONSUMER CREDIT 14

2.1 BASIC CONCEPTS 14

2.1.1 Connotation and Research Range 14

2.1.2 Characteristics of Consumer Credit 15

2.2 THEORETICAL BASIS 16

2.2.1 Deficient Effective Demand Theory 16

2.2.2 Liquidity Constraint Theory 18

2.2.3 Other Consumer Theoretical Hypotheses 19

CHAPTER 3 A REVIEW OF RESEARCH ON THE IMPACT OF CONFUCIAN CULTURE ON CONSUMER CREDIT DEMAND 22

3.1 AN OVERVIEW 22

3.2 CONNOTATION OF CONCEPTS RELATED TO CONFUCIAN CULTURE 22

3.2.1 Connotation of Culture 22

3.2.2 Connotation of Confucian Culture 25
3.2.3 Connotation of Consumer Culture 27
3.3 Relevant Research Review 30
3.3.1 Relationship between Confucian Culture and Consumer Culture 30
3.3.2 Relationship between Consumer Culture and Consumer Credit 32
CHAPTER 4 CONCEPTS AND LITERATURE REVIEW OF DEFAULT RISK 36
4.1 Related Concepts 36
4.1.1 Connotation and Characteristics of Default Risk 36
4.1.2 Causes and Influencing Factors of Default Risk 37
4.2 Literature Review 39
4.2.1 Overview of factors influencing default risk 40
4.2.2 Methods Based on Traditional Statistics 40
CHAPTER 5 BUILDING OF A MODEL OF THE INFLUENCE OF CONFUCIAN CULTURE ON CONSUMER CREDIT 50
5.1 Design Ideas of the Model 50
5.1.1 Design Ideas 50
5.1.2 Model Building 51
5.2 Analysis on the Influence of Confucian Culture on Consumer Credit and Proposal of Hypotheses 55
5.2.1 Analysis Based on the Doctrine of the Mean 56
5.2.2 Analysis Based on Collectivism 57
5.2.3 Analysis Based on the Idea of Harmony 59
5.2.4 Analysis Based on “Face Consumption” 60
5.2.5 Analysis Based on Foreign Culture Shock 61
CHAPTER 6 AN EMPIRICAL STUDY OF CONSUMER CREDIT DEMAND FROM THE PERSPECTIVE OF CONFUCIAN CULTURE 63
6.1 Samples and Data Sources 63
6.2 Research Design 64
6.2.1 Variable Definition 64
6.2.2 Descriptive Statistics 70

6.2.3 Model Setup 71
6.3 6.3 Empirical Analysis and Conclusion Interpretation 74
6.3.1 Empirical Analysis 74
6.3.2 Robustness Test 86
6.4 Summary 88
CHAPTER 7 DEVELOPMENT AND MANAGEMENT OF CONSUMER CREDIT BUSINESS OF TRUST COMPANIES 89
7.1 Overview of China's Consumer Credit Industry 89
7.1.1 Industrial Map of Consumer Finance 89
7.1.2 Core Process of Consumer Finance Business 90
7.1.3 Types and Functions of Trust Business 91
7.1.4 Drivers for the development of consumer credit by trust companies 93
7.2 Loan Business Modes of Consumer Finance Trust 94
7.2.1 Financial Aid Mode 96
7.2.2 Consumer ABS Mode 97
7.2.3 Differences and Connections 97
7.3 Risk Management Process of Consumer Finance 98
7.3.1 An Overview of Solutions 98
7.3.2 Introduction of Specific Solutions 99
CHAPTER 8 AN EMPIRICAL STUDY ON THE IMPACT OF CONSUMER CREDIT RISK FROM THE PERSPECTIVE OF CONFUCIAN CULTURE 103
8.1 Overview 103
8.2 Metrics and Data Processing 104
8.2.1 Indicator Concepts 104
8.2.2 Data Collection 106
8.2.3 Data wrangling 109
8.2.4 Descriptive Statistics 114
8.3 Default risk and consumer credit demand index test 119
8.4 Empirical Study on Influencing Factors of Default Risk 121
8.4.1 Research on behavioral influencing factors 122
8.4.2 Research on Influencing Factors of Confucian Culture 126

CHAPTER 9 EMPIRICAL RESEARCH ON CONSUMER CREDIT DEFAULT RISK ALGORITHMS 133

9.1 ALGORITHM EVALUATION 133
9.2 EVALUATION INDICATORS AND ALGORITHM CONSTRUCTION 135
9.2.1 Evaluation indicators 135
9.2.2 Model Building 138
9.2.3 Forecasting Process 142
9.3 COMPARATIVE STUDY OF DEFAULT RISK ALGORITHMS 143
9.3.1 Logistic Regression Model 143
9.3.2 GBDT Model 148
9.3.3 Double-Layer Feedforward Neural Network 154
9.3.4 Heterogeneous Ensemble Learning 158
9.3.5 Summary 163
9.4 OPTIMAL RISK LEVEL 163

CHAPTER 10 CONCLUSIONS AND POLICY RECOMMENDATIONS 169

10.1 CONCLUSIONS 169
10.2 POLICY RECOMMENDATIONS 170

APPENDIX 1 DATA SORTING 174

APPENDIX 2 LOGISTIC REGRESSION-TRAINING SET 179

APPENDIX 2 LOGISTIC REGRESSION-TESTING SET 199

APPENDIX 3-SCORING CARD 203

APPENDIX 4-GBDT 207

APPENDIX 5-NEURAL NETWORK 217

APPENDIX 6-OPTIMAL CRITICAL POINT 228

BIBLIOGRAPHY 230

DECLARATION 246

RESUME 247

LIST OF TABLES

Table 6-1 Descriptive Statistics 71
Table 6-2 Table 6-2 Regression Results of Consumer Credit Index Against Temple 75
Table 6-3 Regression Results of Three Consumer Credit Indicators against the Proportion of State-owned Economic Components 77
Table 6-4 Regression Results of Three Indicators of Consumer Credit against Marketization Index 79
Table 6-5 Regression Results of Consumer Credit Indicators against The Idea Of "Harmony" 81
Table 6-6 Regression Results of the Consumer Credit Index against Face Concept 83
Table 6-7 Regression Results of Consumer Credit Indicators against Impact of Foreign Culture 85
Table 6-8 Regression Results of Consumer Credit Growth Rate against the Number of Historical Confucian Temples 87
Table 7-1 Main Modes of Consumer Finance Business of Trust Companies 95
Table 8-1 Sample Overview 107
Table 8-2 Sample Overview 108
Table 8-3Sample Overview 108
Table 8-4 Variable Binning Classification 110
Table 8-5 Results of Variable IV Calculation 111
Table 8-6 Calculation Results of VIF of Variables 113
Table 8-7 Statistics of numerical variables in 2018 115
Table 8-8 Statistics of categorical variables in 2018 116
Table 8-9 Statistics of numerical variables in 2019 117
Table 8-10 Statistics for categorical variables in 2019 118
Table 8-11 Statistics of numerical variables in 2020 118
Table 8-12 Statistics for categorical variables in 2020 119
Table 8-13 Regression of default rates to consumer credit indices 121
Table 8-14Regression results of default rate versus consumer credit penetration 121
Table 8-15 2018 logistic regression results 122
Table 8-16 Logistic regression results for 2019 123
Table 8-17 2020 logistic regression results 124
Table 8-18 Comparison of coefficients of logistic regression models from 2018 to 2020 125
Table 8-19 Regression results of consumer credit default rate on Confucius temple density 127
Table 8-20 Regression of consumer credit default rate to share of state-owned enterprises 128
Table 8-21 Regression of consumer credit default rate to market-oriented index 129
Table 8-22 Regression of consumer credit default rate to financial development 130
Table 8-23 Regression results of consumer credit default rate against the face sub-proxy variable 131

Table 8-24 Regression of consumer credit default rates to openness 132
Table 9-1 Results of the Predictive Power of Model Indicators 143
Table 9-2 Results of the Predictive Power of Model Indicators 145
Table 9-3 Results of the Predictive Power of Model Indicators 146
Table 9-4 Results of the Predictive Power of Model Indicators 148
Table 9-5 Results of the Predictive Power of Model Indicators 151
Table 9-6 Results of the Predictive Power of The Model Indicators 152
Table 9-7 Results of the Predictive Power of Model Indicators 153
Table 9-8 Results of the Predictive Power of Model Indicators 155
Table 9-9 Results of the Predictive Power of Model Indicators 156
Table 9-10 Results of the Predictive Power of Model Indicators 157
Table 9-11 The configuration effects of different weights 159
Table 9-12 Results of the predictive power of the model indicators 160
Table 9-13 Results of the predictive power of the model indicators 161
Table 9-14 Results of the Predictive Power of Model Indicators 162
Table 9-15 Comparison of Different Risk Prediction Methods 163
Table 9-16 Results of the Predictive Power of Model Indicators 165
Table 9-17 Results of the Predictive Power of Model Indicators 166
Table 9-18 Results of the Predictive Power of Model Indicators 167

LIST OF FIGURES

Figure 1-1Technical Route of the Paper 9
Figure 6-1 Annual Consumer Credit Amount of Each Province and City (2004-2021, Unit: 100 Million Yuan) 63
Figure 6-2 Annual Growth of Consumer Credit Amount in Various Provinces or Cities (2004-2021, Unit: %) 64
Figure 6-3 Ranking of Accumulated Amount of Consumer Credit by Province and City (2004-2021, Unit: 100 Million Yuan) 64
Figure 7-1 Industrial Map of China's Consumer Finance 90
Figure 7-2 Core Business Process of Consumer Finance 91
Figure 7-3 Business Types of Trust Companies 92
Figure 7-4 Consumption Objects of Customers of Consumer Finance 94
Figure 7-5 Main Processes of Consumer Finance Business in Trust Companies 94
Figure 7-6 Loan Assistance Mode of Consumer Finance of Trust Companies 96
Figure 7-7 ABS Consumer Finance Mode of Trust Companies 97
Figure 7-8 Flow Chart of Risk Control and Management of Consumer Finance Business of Trust Companies 99
Figure 7-9 Schematic Diagram of Anti-Fraud Monitoring 100
Figure 7-10 User Image 101
Figure 7-11 Schematic Diagram of Risk Control Modeling 102
Figure 8-1 Binning Results of Variable (Woe not monotonic) 109
Figure 8-2 Binning Results of Variable (Woe Monotonic) 110
Figure 8-3 Correlation of Variables 112
Figure 8-4 Ranking of Importance of Variable (GBDT) 114
Figure 8-5 Trend of default rate by province and city from 2018 to 2020 120
Figure 9-1 Schematic of the CAP Curve 138
Figure 9-2 Schematic diagram of heterogeneous ensemble learning 142
Figure 9-3 Training Set (left), Testing Set (right) KS 144
Figure 9-4Training Set (left), Testing Set (right) ROC 144
Figure 9-5 Training Set (left), Testing Set (right) CAP 144
Figure 9-6 Training Set (left), Testing Set (right) KS 145
Figure 9-7 Training Set (left), Testing Set (right) ROC 145
Figure 9-8 Training Set (left), Testing Set (right) CAP 145
Figure 9-9 Training Set (left), Testing Set (right) KS 146
Figure 9-10 Training Set (left), Testing Set (right) ROC 146
Figure 9-11 Training Set (left), Testing Set (right) CAP 146

Figure 9-12 Score Distribution of Training Set (left) and Testing Set (right) 147
Figure 9-13 Score Distribution of Training Set (left) and Testing Set (right) 147
Figure 9-14 Score Distribution of Training Set (left) And Testing Set (right) 147
Figure 9-15 ROC Values 149
Figure 9-16 ROC Values 150
Figure 9-17 ROC Values 151
Figure 9-18 Training Set (left), Testing Set (right) KS 151
Figure 9-19 Training Set (left), Testing Set (right) ROC 152
Figure 9-20 Training Set (left), Testing Set (right) CAP 152
Figure 9-21 Training Set (left), Testing Set (right) KS 152
Figure 9-22 Training Set (left), Testing Set (right) ROC 153
Figure 9-23 Training Set (left), Testing Set (right) CAP 153
Figure 9-24 Training Set (left), Testing Set (right) KS 153
Figure 9-25 Training Set (left), Testing Set (right) ROC 154
Figure 9-26 Training Set (left), Testing Set (right) CAP 154
Figure 9-27 Training Set (left), Testing Set (right) KS 155
Figure 9-28 Training Set (left), Testing Set (right) ROC 155
Figure 9-29 Training Set (left), Testing Set (right) CAP 156
Figure 9-30 Training Set (left), Testing Set (right) KS 156
Figure 9-31 Training Set (left), Testing Set (right) ROC 156
Figure 9-32 Training Set (left), Testing Set (right) CAP 157
Figure 9-33 Training Set (left), Testing Set (right) KS 157
Figure 9-34 Training Set (left), Testing Set (right) ROC 157
Figure 9-35 Training Set (left), Testing Set (right) CAP 158
Figure 9-36 Training Set (left), Testing Set (right) KS 160
Figure 9-37 Training Set (left), Testing Set (right) ROC 160
Figure 9-38 Training Set (left), Testing Set (right) CAP 160
Figure 9-39 Training Set (left), Testing Set (right) KS 161
Figure 9-40 Training Set (left), Testing Set (right) ROC 161
Figure 9-41 Training Set (left), Testing Set (right) CAP 161
Figure 9-42 Training Set (left), Testing Set (right) KS 162
Figure 9-43 Training Set (left), Testing Set (right) ROC 162
Figure 9-44 Training Set (left), Testing Set (right) CAP 162
Figure 9-45 Confusion Matrix for Training Set (left) and Testing Set (right) 165
Figure 9-46 Confusion Matrices for Training Set (left) and Testing Set (right) 166
Figure 9-47 Confusion matrix for training set (left) and Testing set (right) 167