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-RESEARCH ARTICLE-

THE IMPACT OF ECONOMIC POLICE UNCERTAINTY, ECONOMIC AND TRADE ON CREDIT SUPPLY IN CHINA

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—Abstract—

In recent years, the global political and economic environment has become increasingly complex and ever-changing, with increasing uncertainties. Global politics and economy are on a path of continuous deepening and adjustment, and the uncertainty of the political and economic situation worldwide is constantly increasing. Since the reform and opening up, commercial banks have always played an important role in China's economic development. The changes in bank credit constantly affect the fluctuations of the Chinese economy, and credit management is also one of the important measures taken by the government to control the economy. The development of China's financial market has formed a financing structure represented by indirect financing, and bank credit accounts for a large proportion of China's credit. Most Chinese companies rely on banks for indirect financing. Therefore, exploring the influencing factors of bank credit has always been a focus of attention in both theoretical and practical fields. Looking back at the history of economic development both domestically and

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internationally, it can be found that external economic shocks have brought uncertainty to economic development, accompanied by changes in bank credit growth rates. The economic shocks represented by the subprime crisis and the current epidemic are particularly significant. This article uses theoretical and empirical methods to examine whether the uncertainty of China's economic policies will have an impact on the credit supply of commercial banks. This study draws inspiration from the research of Danisman et al. (2020) and uses the OLS model to study the impact of economic policy uncertainty, international trade, macroeconomic data, and bank characteristics on the supply of bank credit. The sample of this article includes data from 130 commercial banks in China from 1979 to 2020.

Keywords: Economic Policy Uncertainty, Bank Credit Supply, OLS.

INTRODUCTION

The continuous deepening of China's reform and opening up, the heightened uncertainty in the international economic environment has further intensified the ambiguity surrounding the Chinese economy. In current years, the attribute of "uncertainty" in the worldwide monetary state of affairs has grown to be increasingly conspicuous, with a variety of nations often imposing exchange safety measures and an ambitious wave of "anti-globalization" emerging. Faced with the uncertainties in the global monetary environment, China's financial insurance policies have begun to flexibly regulate in order to ensure the sustainable improvement of its economy. Since 2012, the Chinese economy has entered a "new normal," exhibiting a dual characteristic of "emergent + transitional" in recent years. The economic downward pressure is evident, prompting the government to continuously introduce and adjust economic policies to intervene and regulate the economy in response to various issues arising during economic operations. In the face of economic policy uncertainties, whether commercial banks need to make adjustments to their credit supply becomes a matter of concern at both the policy coordination and credit management levels.

Scholars have long been attentive to the theme of "uncertainty," and the effective measurement of it is pivotal in conducting relevant research. It was only when Baker, Bloom, & Davis (2016) developed the Economic Policy Uncertainty Index (EPU) based on the method of capturing keywords from news reports that scholars widely accepted and made the data publicly available. This further spurred scholars' interest in research related to economic policy uncertainty. The scholars' studies mainly encompass several aspects: firstly, at the macro level, economic policy uncertainty negatively impacts long-term economic growth by reducing research and capital investments (Bloom, Wright, & Barrero, 2016). It also lowers the employment rate (Xu & Wang, 2019) and intensifies output and price fluctuations (Xue-Jun, Yi, & Yi-Zhong, 2014). In China, it primarily exerts its influence on the macroeconomic environment through expected reactions, leading to currency depreciation and downward stock price volatility (Çolak, Durnev, & Qian, 2017). Secondly, it affects the behavior of microeconomic entities. Elevated economic policy uncertainty results in increased financing costs for enterprises (Gulen & Ion, 2016), a decrease in corporate capital investment (Bonaime, Gulen, & Ion, 2018; Rao & Xu, 2017), mergers and acquisitions (Bhattacharya et al., 2017), and innovation activities (Im, Park, & Zhao, 2017). During such times, companies prioritize cash holdings (Pastor & Veronesi, 2012). In addition, economic policy uncertainty delays household consumption and investment (Bordo, Duca, & Koch, 2016), especially when income uncertainty rises. The performance of commercial banks in economic policy uncertainty has drawn increasing attention from scholars. Current research literature focuses on commercial bank liquidity creation, credit scale, and risk assumption.

In phrases of credit score scale, Bordo, Duca, & Koch (2016) observed that coverage uncertainty drastically inhibits bank credit score growth. Duan (2017) and Song, Li, & Qian (2019), in a similar way, tested the terrible influence of coverage uncertainty on financial institution savings supply, with this influence exhibiting heterogeneity (Liu & Hou, 2020). However, there are additionally some contradictory lookup findings. Liu & Hou (2020) empirically analyzed records from listed banks in China and observed that financial coverage uncertainty inversely stimulates business banks to make bigger savings supply. Ge Xinyu et al. (2021) agree that greater financial coverage uncertainty reduces the willingness of microeconomic entities to interact in hazard investment, will increase financial institution savings, and, due to this fact, augments industrial banks' liquidity positions, thereby enabling the growth of credit.

Due to extraordinary perspectives, there are discrepancies in the lookup effects on the impact of financial coverage uncertainty on the deposit furnish scale of business banks. This paper, the usage of records from Chinese business banks as a sample, investigates the impact of financial coverage uncertainty on business financial institution savings supply. The major contributions lie in two aspects: firstly, current lookup predominantly focuses on exploring the effect of monetary coverage uncertainty on the credit score grant scale of business banks. This paper similarly examines the influence of monetary coverage uncertainty on the savings provided by business banks in phrases of business, credit, and period structures, investigating the effect of financial coverage uncertainty on the funding facet of industrial financial institution deposit supply; secondly, primarily based on the present lookup results, there are variations in the conclusions involving the have an impact on of financial coverage uncertainty on the savings furnish scale of industrial banks. This paper tries to assemble a mechanism to make clear its effect relationship, focusing on three aspects: deposit fund supply, deposit fund demand, and the diploma of financial coverage tightness, establishing an oblique mechanism for how financial coverage uncertainty influences the credit score to provide scale of business banks.

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THEORETICAL FRAMEWORK

Significance of Credit Management

Credit administration performs a pivotal and direct position in the Chinese economy, with far-reaching implications. Firstly, it is intricately linked to the steadiness and sustainable improvement of the Chinese economy. By guiding the flow of funds, credit management can regulate different industries and sectors, thereby promoting balanced economic growth. In a country with a colossal economic entity like China, credit management becomes a potent tool for government intervention, aiding in averting excessive investment and the emergence of economic bubbles.

Secondly, credit management is directly tied to the survival and development of enterprises. Commercial banks, through the issuance of credit, support the production and operations of enterprises, fostering innovation and technological progress. Sound credit management not only enhances the efficiency of capital utilization for enterprises but also lowers the financing costs they face, thereby strengthening their competitiveness. Therefore, credit management is not only a component of macroeconomic policies but also directly influences the micro-level operation of enterprises.

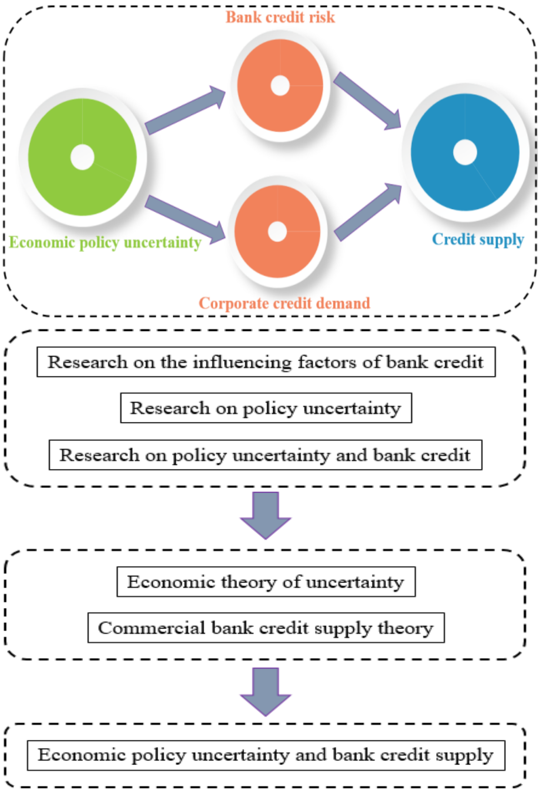

Figure 1: Influence Mechanism Diagram.

In credit management, the government plays a crucial role. By setting interest rates, adjusting loan-to-deposit ratios, and employing other means, the government directly intervenes in the credit market to achieve economic policy objectives. For instance, during periods of rapid economic growth, the government may adopt a tightening credit policy to guard against inflation risks. Conversely, during economic downturns, it may implement an accommodative credit policy to stimulate economic growth. Thus, credit management is directly related to the role and effectiveness of the government in macroeconomic regulation, as illustrated in Figure 1, depicting the mechanism of credit policy impact.

Financing Structure in China

China's financing structure is predominantly characterized by indirect financing, with banks playing a central role in the credit landscape. Firstly, indirect financing reflects the uniqueness and historical evolution of China's financial markets. Due to the longstanding inadequacy of the direct financing market, enterprises have relied more on financial institutions such as banks for financing, giving rise to a financing system centered around banks.

Secondly, the function of banks in China's credit score panorama goes past mere fund provision. In addition to enjoyable ordinary features of financial savings and lending, banks additionally play a regulatory and guiding position in the savings process. By adjusting activity prices and imposing loan-to-deposit ratios, banks can, without delay, affect the supply and demand relationship in the credit score market, thereby reaching macroeconomic coverage objectives. This guiding position of banks in savings displays the interplay between the authorities and the market in China's monetary system. Thus, China's savings administration and financing shape an interconnected and influential system. Credit administration without delay relates to the operation and improvement of the Chinese economy, and the special financing shape in China performs a quintessential function in this dynamic. The government, through deposit management, seeks to attain financial coverage objectives, while banks, as the core of the financing structure, play a big function below authorities' guidance. The stability and coordination of this device are vital for the sustained balance and wholesome improvement of the Chinese economy.

THEORETICAL ANALYSIS AND RESEARCH HYPOTHESES

Economic coverage uncertainty has various levels of effect on the conduct of organizations and households, with industrial banks, as microeconomic entities, immediately experiencing the repercussions of monetary coverage uncertainty. Functioning as a central organization remodeling financial savings into investments, industrial banks facilitate economic intermediation between residents and enterprises, enjoying an integral function in the implementation of central financial institutions

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economic policy. Therefore, they are, in a roundabout way, affected by means of the have an effect on of financial coverage uncertainty on enterprises, residents, and financial policy.

Mechanism of Direct Impact of Economic Policy Uncertainty on the Credit Supply Scale of Commercial Banks

Economic policy uncertainty significantly exerts a restraining effect on the macro economy (Wang, Li, & Xing, 2014). During economic downturns, the value of corporate equity, profitability, and overall operational capabilities decline, negatively affecting production and operations. This, in turn, reduces the repayment capacity and willingness of enterprises, leading commercial banks to anticipate an increase in the future credit default risk of enterprises. Consequently, they lower their credit supply scale. Viewing industrial, financial institution savings as a name alternative (Liu et al., 2017), when business banks pick to grant credit scores in the modern-day period, it implies exercising the option, forfeiting the proper to lengthen savings in the future. The price of a choice is, without delay, proportional to the volatility of the future fee of the underlying asset. Therefore, as economic policy uncertainty rises, the value of the option increases, prompting commercial banks to choose to wait, thereby reducing the current credit supply scale.

Frequent policy changes disrupt the transmission pathways of financial information, weaken the risk identification capabilities of commercial banks (Xu & Chen, 2012), and reduce the quality of information disclosure. As both information transmission and reception are impacted, commercial banks need help in assessing risks and investment opportunities. To compensate for the added cost of credit supply, commercial banks increase corresponding risk compensation. Higher loan pricing squeezes out a portion of loan demand, resulting in a decrease in the credit scale of commercial banks. Elevated economic policy uncertainty increases the passive risk assumption and bankruptcy risk of banks (Xu & Chen, 2012). The rise in non-performing loan ratios leads commercial banks to increase loan loss provisions (Melitz, 2003) passively. Excessive loan loss provisions indicate that commercial banks anticipate a high likelihood of loan defaults, increasing the cost of credit operations (Wang, Chen, & Huang, 2014), thereby reducing the profitability of banks and weakening the willingness to lend. Additionally, an excess of loan loss provisions lowers the capital adequacy ratio of banks (Chen & Wang, 2016), leading to a reduction in the credit scale of commercial banks (Meng & Shi, 2017).

Indirect Mechanism of the Impact of Economic Policy Uncertainty on the Credit Supply Scale of Commercial Banks

Economic coverage uncertainty circuitously alters the savings provided by industrial banks by way of influencing the behavioral choices of residents and enterprises. From

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the standpoint of deposit fund sources, monetary coverage uncertainty demonstrates a considerable superb relationship with resident financial savings (Van Beveren, 2012). On the one hand, according to the precautionary savings hypothesis, income uncertainty prompts residents to increase current savings. When economic policy uncertainty rises, it increases residents' income uncertainty in the short term, leading to an augmentation in current savings. On the other hand, following the risk aversion theory, residents' investment choices favor savings, resulting in an increase in the liquidity position of commercial banks and the expansion of their credit supply scale (Yin & Gan, 2011).

From the point of view of credit score fund demand, thinking about company funding as a name option, the non-stop increase in monetary coverage uncertainty raises the fee of the option. Consequently, the willingness of firms to make investments in the modern-day length decreases, leading to a decline in credit score demand. The rising monetary coverage uncertainty adversely impacts the volatility of company fairness values and profitability, growing the uncertainty of future money flows for agencies (Yang, 2015). Simultaneously, due to financing collateral constraints, enterprises face greater difficulty in obtaining external financing, and financing costs also rise (Olley & Pakes, 1992), further suppressing investment (Bonaime, Gulen, & Ion, 2018). The demand for credit funds by enterprises is thus inhibited. Additionally, driven by precautionary motives, enterprises tend to increase their cash levels (Levinsohn & Petrin, 2003). Therefore, as economic policy uncertainty rises, the credit scale of commercial banks decreases.

Economic policy uncertainty typically exhibits counter-cyclical characteristics. Consequently, the government intervenes through policy measures, impacting the credit supply scale of commercial banks. The increase in economic policy uncertainty leads to a slowdown in economic growth (McCallum, 2005). During such times, the central bank, aiming to stimulate real economic development, may opt for a loose monetary policy to inject liquidity into the market (Huang & Xian, 2012). A loose monetary policy makes the overall market liquidity more ample, reducing the probability of liquidity shortages and encouraging a risk-taking approach to pursue profits (Li, 2017). This stimulation prompts an expansion of the credit supply. The central bank may also directly increase the credit scale available for commercial banks by lowering reserve requirements and injecting liquidity into commercial banks, thereby supporting credit expansion for real economic development.

Adjustment Effect Analysis and Heterogeneity Analysis

The capital adequacy ratio represents the potential of business banks to stand up to risks, and the regulatory ability of industrial banks' danger preferences relies upon the bank's capital adequacy ratio (Mao & Sheng, 2013). The capital adequacy ratio additionally constrains the savings scale of business banks. When financial coverage uncertainty

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increases, banks with greater capital adequacy ratios are extra relied on and can increase without problems in capital. In an environment where replenishing capital is limited, banks with high capital adequacy ratios do not need to reduce risk assets to meet higher requirements. Therefore, the reduction in the scale of risk asset loans will be weakened by the capital adequacy ratio. However, with the increase in economic policy uncertainty, commercial banks' liquidity positions become more abundant, and their expansion of credit scale will also be constrained by the requirements of the capital adequacy ratio, limiting their pursuit of unlimited expansion. In the Chinese banking system, different types of commercial banks have different market positions, regional scopes, and significant differences in size, sources of funds, and asset business areas. Large state-owned banks have strong bargaining power in the banking system, a wide business scope, stronger risk diversification capabilities, and larger scales. They are less impacted by economic policy uncertainty.

RESEARCH DESIGN

Sample Selection and Model Specification

1. Sample Selection: The find out about makes use of unbalanced panel records from Chinese banks for the years 1979 to 2020. Data on industrial and financial institution mortgage scale and shape are mainly sourced from the Wind database, while macro-level information and different symptoms are acquired from the Wind and CSMAR databases. China's monetary coverage uncertainty index and the world financial coverage uncertainty index are sourced from public websites. Banks with extreme statistics are excluded, and an ultimate pattern of 108 industrial banks is selected.
2. Model Specification: To measure economic policy uncertainty at the national (regional) level, this study employs the Economic Policy Uncertainty (EPU) index compiled by Baker et al. Given that the EPU index is monthly data, this study uses the geometric mean method (Levinsohn & Petrin, 2003; McCallum, 2005; Olley & Pakes, 1992). The geometric mean of monthly data for 12 months within a year is taken as the annual variable. To maintain consistency in magnitude, the resulting annual EPU index is divided by 100. The specific calculation method is as follows:

$$EPU_t = \frac{\sqrt{EPU_m \times EPU_{m-1} \times \ldots \times EPU_{m-11}}}{100} \quad (1)$$

Where EPU_t represents the Annual Economic Policy Uncertainty Index. EPU_m represents Monthly Economic Policy Uncertainty Index within the year, with m ranging from 1 to 12.

Variable Definitions

The predominant quantitative definitions and calculation strategies are outlined in Table 1.

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Table 1: Main Variable Definitions and Calculation Techniques.

Variable Type	Variable Name	Symbol	Calculation Method
Explained variable	Loan supply growth	G Lnoans	First difference of the natural logarithm of total loans
	The proportion of personal loans	P loans	Personal Loan / (Personal Loan + Corporate Loan)
	Ratio of credit loans to medium and long-term loans	C loans	Credit loan / (Credit loan + Secured Loan)
	Medium - and long-term loans accounted for	Lloans	Medium and Long Term Loans / (Short term loans + Medium and long term Loans)
Core explanatory variable	China's Economic Policy Uncertainty Index	CEPU	Baker S R, etc. (Constructed monthly index， arithmetically averaging 12 monthly data, then dividing by 100)
Regulating variable	Capital adequacy ratio	CAR	Total capital/risk-weighted assets
Control variable	GDP growth rate	CDPrate	Annual GDP growth rate
	Net interest income ratio	NIAR	Net interest income/total assets
	Equity-to-assets ratio	EAR	Owner's equity/total assets
	Stock ratio	LDR	Total loans/total deposits

Control Variables

1. Enterprise Productivity Level: Enterprise productiveness is estimated the use of the technique proposed by using Levinsohn & Petrin (2003), thinking about funding and intermediate enter variables as adjustable factors.
2. Enterprise Size: Enterprise dimension is measured the use of the logarithm of whole assets.
3. Enterprise Age: Enterprise age is described as the distinction between the cutting-edge year and the year of establishment, and the logarithm of this fee is used.
4. Processing Trade Product Dummy Variable: A dummy variable for processing exchange merchandise is protected to manage the have an effect on of processing alternate on company export behavior.

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5. Market Size: The logarithm of the populace dimension of primary nations or areas from 2000 to 2006 is used to characterize the market size.

The logarithm of the common nominal GDP of predominant nations or areas from 2000 to 2006 is used to measure per capita buying electricity in the product-destination market. These control variables are introduced to account for various factors that may influence enterprise export behavior, such as productivity, size, age, trade type, market size, and per capita purchasing power.

Baseline Regression

This could be explained by the fact that enterprises when deciding whether to enter international markets, compare the discounted value of expected profits with fixed costs. The uncertainty in the financial coverage of the vacation spot will increase the fees and dangers of Chinese merchandise coming into global markets. Therefore, enterprises weigh the trade-off between risks and potential returns. When the costs of entering the international market are sunk, waiting becomes more valuable for the enterprise until the uncertainty in economic policy is eliminated. Additionally, in the context of intense market competition, enterprises, whether entering new export relationships or maintaining existing ones, need to continuously upgrade the quality of their products to survive in the market. Thus, when financial coverage uncertainty is high, companies offering a giant range of low-quality merchandise find it hard to enter new markets or exit export markets.

The inclusion of special degrees of management variables in Table 2 ensures the robustness of the regression results. The advantageous and big coefficient of the agency productiveness variable suggests that high-productivity corporations achieve an aggressive benefit in the export market, thereby increasing the export fee of their products. The positive coefficients of enterprise size and enterprise age indicate that larger and longer-established enterprises are more capable of entering export markets. The significant negative coefficient of the processing trade product dummy variable implies that processing trade products have a lower export value compared to other non-processing trade products. The systematic version of the export cost of merchandise with modifications in the vacation spot market, i.e., the larger the market dimension and greater per capita earnings stage of the vacation spot market, the higher the export cost of the merchandise.

The lookup findings indicate, firstly, that the uncertainty in vacation spot monetary insurance policies diminishes the export cost of Chinese products. Employing appropriate instrumental variables for two-stage least squares estimation exhibits that the influence of vacation spot monetary coverage uncertainty on Chinese company exports, as examined through conventional techniques (OLS estimation), is conspicuously puffed up and underestimated. Secondly, following an analysis incorporating heterogeneous productivity among enterprises and other characteristics, enterprises with higher productivity elevate the

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value of their exported products. Thirdly, through evaluating the unfavorable consequences of vacation spot financial coverage uncertainty on Chinese company exports, it is discerned that beneath unfavorable stipulations in funding climate, social environment, governmental stability, administrative efficiency, and criminal order, uncertainty in vacation spot monetary insurance policies drastically decreases the export price of Chinese products. Fourthly, the bad effect of vacation spot financial coverage uncertainty on the export cost of merchandise from state-owned and non-public corporations is markedly larger than that on foreign-invested enterprises, with this damaging impact exhibiting regional disparities—specifically, the bad influence of vacation spot financial coverage uncertainty on organization exports in the Japanese area is extensively much less mentioned than in the central and western regions.

Table 2: Basic Regression Results.

Variable	**Interpreted Variable: Value**		
	01	**02**	**03**
PU	-0.0842*** (0.0119)	-0.0746*** (0.0116)	-0.0776*** (0.0116)
TFP		0.3400*** (0.0055)	0.3366*** (0.0055)
Size		0.1521*** (0.0061)	0.1437*** (0.0061)
Age		0.0270*** (0.0079)	0.029*** (0.0079)
Processing Trade		-1.1615*** （0.0108）	-1.1612*** (0.0108)
Population			1.2692 (0.4029)
Per Capita GDP			0.3825 (0.0248)
Constant term	9.6176*** (0.0118)	6.0064*** (0.0689)	-2.7257* (1.5386)
Time-fixed effect	control	control	control
Enterprise one product one destination fixed effect	control	control	control
Observation	2009 595	1984 854	1984 854
R^2	0.01	0.0582	0.0587

Note: ***, and * are significant at 1% and 10% levels, respectively; All standard errors are clustered at the product-destination level.

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THE IMPACT OF INTERNATIONAL TRADE ON CREDIT SUPPLY

Following the initiation of monetary reforms and opening-up policies, China's overseas exchange has passed through fast development. Particularly, after becoming a member of the World Trade Organization, China's alternate role has transformed, with a major acceleration in the increased charge of overseas trade. By the 12 months of 2010, the complete fee of overseas alternate reached $2.97 trillion, securing China's role as the world's main buying and selling nation. Consequently, overseas alternatives have constantly held a predominant position in China's market-oriented financial development.

Recent Years Witnessed a Rapid Growth Trend in China's Import and Export Trade

The fashion chart of China's annual import and export trade, as illustrated in Figure 1, displays a speedy improvement given China's accession to the World Trade Organization in 2001. Influenced by the 2008 economic crisis, China's overseas alternate skilled a sizeable downturn, with an extensive minimization in the complete quantity of import and export trade. It was once solely in the financial recovery in 2009 that China's import and export exchange resumed its upward trajectory. The 12 months of 2015 marked an awesome length in China's overseas exchange history, characterized by difficult surroundings and substantial downward pressure. According to information from the Ministry of Commerce, the complete cost of country-wide imports and exports in 2015 was 24.58 trillion Yuan, representing a year-on-year reduction of 7%, with exports falling with the aid of 1.8% and imports through 13.2%. Nevertheless, from a global perspective, China persisted in holding its fame as the world's biggest buying and selling nation.

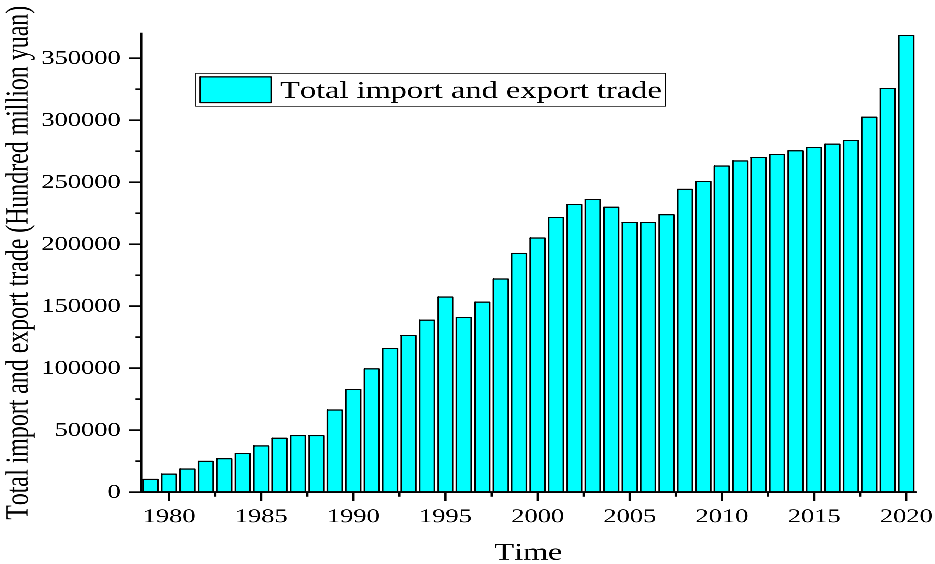

Figure 2: Trend Chart of Total Import and Export Trade From 1979 To 2020.
Data Source: Collated statistical data of National Bureau of Statistics.

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In 2016, even though China's complete import and export fees declined in contrast to 2015, there used to be a subsequent improvement. Despite exchange tensions with the United States in 2018, China's import and export change persisted to grow, with a year-on-year extend of 9.69%, such as a 7.1% boom in exports and a 12.9% increase in imports.

The Proportion of China's Import and Export Trade to Gross Domestic Product (GDP) is Substantially High

Figure 3 illustrates a line layout depicting the share of China's complete import and export change to the Gross Domestic Product (GDP). It is discernible from the plan that the ratio of China's complete import and export change to the GDP demonstrates an upward trend. From 2004 to 2007, this ratio rose sixty percent, and even though there has been a mild decline in recent years, it continues to surpass 30%.

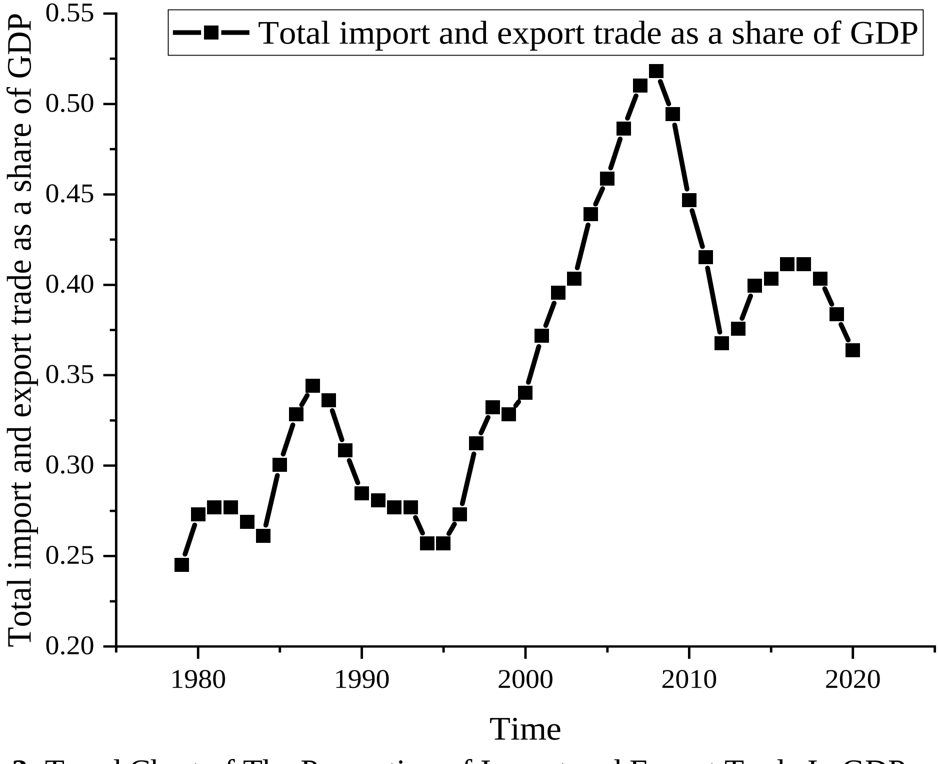

Figure 3: Trend Chart of The Proportion of Import and Export Trade In GDP.
Data Source: Collated statistical data of National Bureau of Statistics.

It is evident from this that China's rapid economic development in recent years plays an indispensable role in foreign trade. However, it also reflects a high degree of dependency on foreign trade, making the country highly susceptible to external influences.

Import and export totals exhibit a predominantly upward trend, resulting in a substantial trade surplus.

Figure 4 presents a line graph depicting China's import trade, export trade, and trade balance from 1990 to 2018. It is apparent from the graph that, in tandem with economic development, China's import and export trade demonstrates a fundamental upward trajectory.

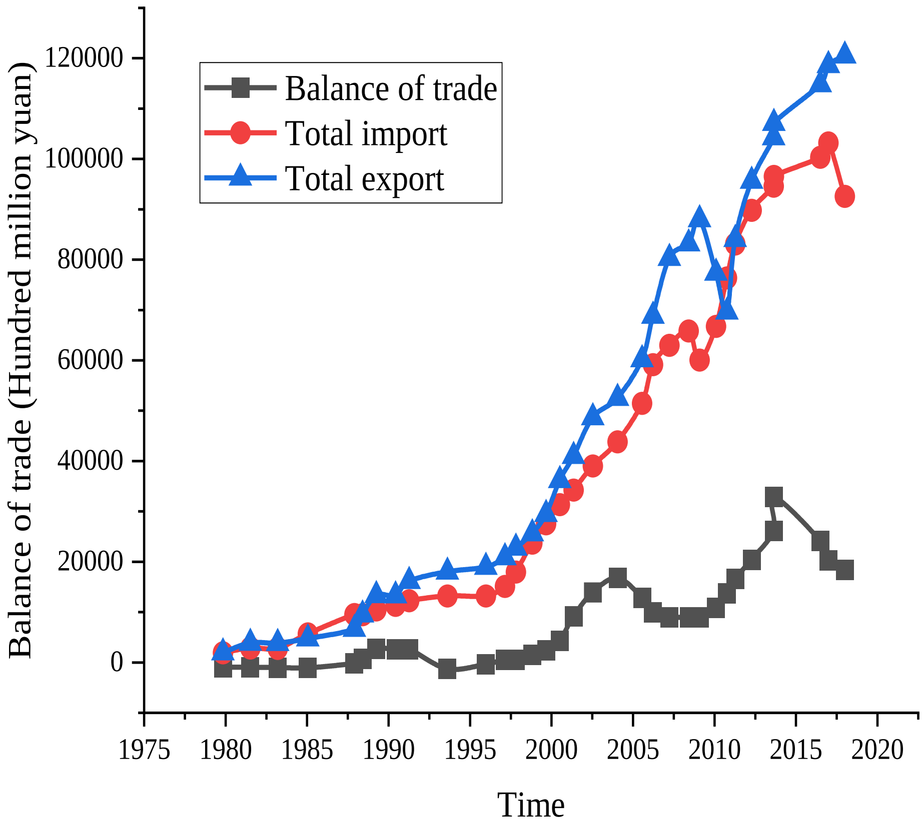

Figure 4: Total Import, Total Export and Import-Export Balance.
Data Source: Collated statistical data of National Bureau of Statistics.

Influenced by the global monetary crisis, the whole extent of imports and exports declined in 2009, marking the most difficult year for China's overseas alternate improvement on account of the establishment of the new century. However, the decline steadily diminished month after month, sooner or later turning into a boom with the aid of the end of the year. According to the file from the Ministry of Commerce, following the outbreak of the worldwide monetary crisis, the effect on China's exports, characterized by low expenses and excessive satisfaction with labor-intensive products, was once pretty reasonable due to their inherent resilience. Notably, equipment and digital products, as properly as high-tech products, skilled greater suggested effects.

Since the cease of 2009, China's overseas exchange has constantly exhibited a fashion of recovery, demonstrating large revitalization.

In 2015, despite the negative impact of China's exports on the backdrop of the global market downturn and profound recession in global trade, China's export situation remained superior to that of other economies on a global scale. However, influenced by the decline in China's domestic manufacturing and fixed asset investment, coupled with the drag from the low prices of global commodities, the decline in China's import volume in 2015 was more significant, further expanding the international trade surplus.

In 2018, the U.S. government unilaterally initiated economic and trade friction based on domestic laws, but the impact of trade friction was limited. Import and export trade showed an upward trend, and overall risks were controllable. This was mainly attributed to the growth in demand within the U.S. domestic market, which also expanded the import demand for Chinese goods, as the industrial chains of China and the U.S. are closely interconnected. However, the Sino-U.S. monetary and change friction disrupted the everyday improvement of the world financial and alternate scenario, exacerbated the international funding environment, and added vast uncertainty to the improvement of international alternate and investment.

MODEL SPECIFICATION AND VERIFICATION

Model Specification and Estimation

In light of the analysis as mentioned above of various factors influencing international trade, and guided by data availability, we choose to employ the actual utilization of foreign capital, GDP, and the exchange rate of the Chinese Yuan to represent the levels of foreign capital utilization, economic development, and the primary influencing factors on the external value of the Chinese Yuan for econometric analysis. Taking the total volume of import and export trade as the dependent variable, we specify the following economic model, with other major influencing factors serving as explanatory variables:

According to the results in the table, the estimated result of the model is written as:

$$y=30141.07+0.136555\,X_2-101.5036\,X_3+166.1518\,X_4$$

$$R^2=0.952549,\ F=168.7809,\ n=29$$

$$y=\beta_1+\beta_2x_2+\beta_3x_3+\beta_4x_4+\mu \qquad (2)$$

In the equation, y represents the complete quantity of import and export alternate (in billions of yuan), x_2 represents GDP (in billions of yuan), x_3 represents the exchange rate (in yuan), and x_4 represents the actual utilization of foreign capital (in billions of U.S. dollars). Relevant data for estimating the model parameters from the years 1990 to 2020 are collected and presented in Table 3.

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Table 3 Total Import and Export Trade, GDP, Exchange Rate, and Actually Utilized Foreign Capital From 1990 To 2020.

Year	Total Import and Export Trade (100 million Yuan)	Exchange Rate (US $= 100)	GDP (100 million Dollar)	Actual Utilization of Foreign Capital (US $100 Million)
1990	5560.1	478.32	18872.9	102.89
1991	7225.8	532.33	22005.60	115.54
1992	9119.6	551.46	27194.50	192.03
1993	11271.00	576.2	35673.2	389.6
1994	20381.90	861.87	48637.50	432.13
1995	23499.9	835.1	61339.9	481.33
1996	24133.80	831.42	71813.60	548.05
1997	26967.20	828.98	79715.00	644.08
1998	26849.68	827.91	85195.50	585.57
1999	2989623	827.83	90564.40	526.59
2000	39273.25	827.84	100280.1	593.56
2001	42183.62	827.7	110863.1	496.72
2002	51378.15	827.7	121717.4	550.11
2003	70483.45	82770	137422.00	561.4
2004	95539.09	827.68	161840.2	640.72
2005	116921.77	819.17	187318.90	638.05
2006	140974.74	797.18	219438.50	670.76
2007	166924.07	760.4	27009230	783.39
2008	179921.47	694.51	319244.6	952.53
2009	150648.06	683.1	348517.7	918.04
2010	201722.34	676.95	412119.3	1088.21
2011	236401.95	645.88	487940.20	1176.98
2012	244160.21	631.25	538580	1132.94
2013	258168.89	619.32	592963.2	1187.21
2014	264241.77	614.28	641280.6	1197.05
2015	245502.93	622.84	685992.9	1262.67
2016	243386.46	664.23	740060.8	1260.01
2017	278101.00	675.18	820754.3	1310.35
2018	305050	661.74	900309.5	1350
2019	311151	674.9748	918315.69	1377
2020	317374.02	688.474296	936682.0038	1404.54

The model's R^2=0.952549, indicating a high coefficient of determination. The F-test value is 168.7809, signifying statistical significance. However, under the condition of α=0.1, the coefficients of X_2, X_3, and X_4 are all statistically significant. Yet, the sign of

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the coefficient for X_3 is contrary to expectations, suggesting a potential presence of multi-collinearity. Calculating the correlation coefficients for each variable and deriving the coefficient matrix, as presented in Table 4:

Table 4: Linear Correlations Among Variables.

Variable	X_2	X_3	X_4
X_2	1	-0.344081	0.941173
X_3	-0.344081	1	-0.141095
X_4	0.941173	-0.141095	1

As shown in Table 5, the high determination coefficients of X2 and X4 confirm the existence of certain multi-collinearity. In order to further understand the properties of multi-collinearity, auxiliary regression is used, and the results are shown in Table 5:

Table 5: R^2 Value of Auxiliary Regression.

Explained Variable	The Value of The Determinable Coefficient R^2	VIF
X_2	0.931355	14.5677
X_3	0.410841	1.6973
X_4	0.923687	13.1039

Due to the high coefficient of determination in the auxiliary regression (excluding X_3), empirical evidence suggests that when the variance inflation factor (VIF) exceeds 10, there is typically a significant multi-collinearity issue between the explanatory variables. In this case, the VIF for X_2 and X_4 surpasses 10, indicating a pronounced presence of severe multi-collinearity. To mitigate this issue, logarithmic transformations will be applied to each variable before estimating the following model:

$$ln\, y = \beta_1 + \beta_2\, ln\, x_2 + \beta_3\, ln\, x_3 + \beta_4\, ln\, x_4 + \varepsilon \quad (3)$$

The OLS method was used to estimate model parameters, and the regression results are shown in Table 6.

Table 6: Results of Least Square Regression.

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	-7.2168	2.157694	-3.34468	0.0026
Ln X_2	1.255649	0.123796	10.14289	0
Ln X_3	0.83697	0.323086	2.590552	0.0158
Ln X_4	-0.347804	0.221717	-1.56869	0.1293

The estimated result of the model is:

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$$ln\, y = 1.255649\, ln\, x_2 + 0.83697\, ln\, x_3 - 0.347804\, ln\, x_4 - 7.216804 \quad (4)$$

The model's R^2=0.976088, indicating a notably high coefficient of determination. The F-statistic is 340.1628, signifying statistical significance. Under the condition of α=0.1, with a critical t-value of 1.708 at a 0.05 significance level, all variable coefficients are statistically significant, except for the ln X_4 coefficient, which is both non-significant and exhibits a sign contrary to expectations. Consequently, the decision has been made to exclude the variable ln X_4. The outcomes of the subsequent regression evaluation are introduced in Table 7.

Table 7: Regression Results After Excluding Variables.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.938017	1.639632	-3.011661	0.0057
Ln X_2	1.068739	0.034525	30.95555	0
Ln X_3	0 490332	0.242232	2.024226	0.0533

The Model Estimation Results Are as Follows:

$$ln\, y = 1.068739\, ln\, x_2 + 0.490332\, ln\, x_3 - 4.938017 \quad (5)$$

The model's R^2= 0.973734, signifying a remarkably high coefficient of determination. The F-test = 481.9368, indicating statistical significance. Under the condition of α=0.1, with a critical t-value of 1.706 at a 0.05 significance level, all coefficients are statistically significant.

From the aforementioned models, it can be inferred that the selected independent variables exhibit a close relationship with the dependent variable, essentially fulfilling the research objectives. Holding other conditions constant, a 1% increase in GDP corresponds to a 1.07% increase in the total volume of imports and exports. Additionally, a 1% expansion in the change fee of the Chinese yuan leads to a 0.49% expansion in the whole extent of imports and exports. This indicates that China's production situation is robust, emphasizing the need to strengthen domestic production while actively engaging in international trade.

However, the upward jostle in the cost of the Chinese yuan suggests an amplification in the whole quantity of imports and exports, barring distinguishing whether or not they have an impact on extra giant on exports or imports. Despite China's role as the world's second-largest economy, the per capita gross home product (GDP) stays distinctly behind, and its reputation is growing. Therefore, China must prioritize the enhancement of per capita GDP, as it not only fosters domestic economic development but also stimulates the growth of import and export trade.

Regarding exchange rates, numerous factors influence them, and maintaining stability is crucial for China's international trade. Relevant authorities should adopt proactive strategies, such as institutional reforms and enhancing product competitiveness, to address the repercussions of exchange rate fluctuations. In recent years, China's overseas change has swiftly expanded, growing its dependence on overseas trade. Consequently, research on factors affecting import and export trade becomes crucial. However, quantifying international factors is challenging due to their complexity and variability among nations. Continuous exploration and experience accumulation are necessary to confront future economic challenges.

For China, the Premier highlighted in the authorities file all through the thirteenth National People's Congress that the US faces huge downward monetary pressure. Thus, mobilizing all positive factors to contribute to China's economic growth is imperative. A rigorous examination of factors influencing import and export trade is essential to counter the potential adverse effects of the complex and changing international landscape.

The analysis of credit supply in light of macroeconomic data and banking characteristics has been a sustained focus in the theoretical realm. Since the 2008 financial crisis, policymakers worldwide have heightened their attention to credit risks in financial markets (Mao & Sheng, 2013). Given that the leverage effect of credit growth can amplify financial frictions and prolong business cycles, a new regulatory framework—Basel III—emerged under the coordination of governments globally. The accord stipulates that commercial banks must set aside 0% to 2.5% of countercyclical excess capital. Notably, countercyclical excess capital is targeted at addressing the pro-cyclicality of commercial bank credit behavior. The pro-cyclicality refers to the phenomenon where credit behavior in financial markets fluctuates in tandem with macroeconomic fluctuations. During economic prosperity, credit expands, and during economic downturns, credit tightens, magnifying the amplitude of economic fluctuations, increasing systemic risks, and ultimately jeopardizing the safety and stability of financial markets. Therefore, from a risk prevention perspective, it is essential to research banking credit behavior, particularly its pro-cyclical nature.

Over the past decade in China, the proportion of financial market financing leverage has risen, and default risks have increased continuously, leading to the accumulation of numerous non-performing assets in the banking industry. In the short term, asset prices deviate from their intrinsic values, resulting in excessive losses caused by multi-layered asset mispricing. In the long term, abnormal fluctuations in asset prices and the divergence from economic development trends indicate a trend of imbalanced resource allocation. Once the financial system experiences instability, financial markets exhibit an inertial response to changes in asset prices. During economic upswings, the role of financial leverage is exaggerated, leading to economic inflation, while during economic

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downturns, it causes monetary tightening and continuously expanding risks, causing commercial banks to bear the risks caused by economic fluctuations excessively. Bank credit emphasizes the role of banks and bank credit in the real sector. The incomplete information among institutions and market failures in the credit market leads to a change in the nature of contracts. During economic prosperity, credit behavior continuously expands, exacerbating credit risks. During economic recessions, credit behavior tightens, intensifying economic downturns. In summary, commercial bank credit behavior exhibits varying degrees of cyclical variation with economic cycles.

Data Sources and Sample Selection

The industrial, financial institution information chosen for this study was sourced from the Wind database. Initially, the merging process of financial data and special data in the banking industry involved the removal of some missing data. Subsequently, outliers and non-continuous samples were excluded. In the end, this learns about chosen 381 business banks spanning 1979-2020, together with five primary business banks, 30 joint-stock banks, and 346 city and rural business banks, totaling 2049 banks for a given year.

Table 8: Descriptive Statistics of Variables.

Variable	Definition	Observed Value	Mean Value	Standard Deviation	Minimum Value	Maximum Value
Loan	Loan growth rate	2049	0.221	0.378	-0.303	12.58
GDP	GDP growth rate	2049	0.112	0.044	0.07	0.184
CPI	Consumer price index growth rate	2049	0.024	0.015	-0.007	0.059
Cover	Backup coverage	2049	346.2	1055	10.08	30329
CAR	Capital adequacy ratio	2049	14.41	11.6	0.07	446
ROE	Return on capital	2049	0.14	0.065	-0.358	0.484
Size	Natural logarithm of bank assets	2049	15.44	1.822	8.598	21.63

From Table 8, it is evident that the common mortgage boom charge of industrial banks in China is 0.221, with a minimal fee of -0.303 and a highest price of 12.58. The considerable range of variation, coupled with a high coefficient of variation of 1.71,

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surpassing the domestic gross domestic product (GDP) growth rate's coefficient of variation of 0.397, indicates a substantial degree of dispersion and significant volatility in the loan growth rate. Both the provision coverage ratio and capital adequacy ratio exhibit relatively high mean values, reflecting the ability of Chinese commercial banks to withstand risks to a certain extent. This suggests that the overall financial health of Chinese banks is robust.

The presence of both positive and negative values in the capital return rate indicates comprehensive coverage in the sample selection. The mean and range of the natural logarithm of bank assets are relatively consistent, indicating a relatively even distribution of bank sizes in China.

Table 9: Estimated Results of Credit Behavior and Business Cycle.

Variable	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
$Loan_{i, t-1}$	0.126^{***}		0.115^{***}.	0.052^{***}	0.400^{***}
	(6.33)		(5.61)	(3.79)	(30.6)
GDP_t	0.22	1.612^{***}	1.545^{***}	0.692^{*}	
	(0.95)	(4.61)	(4.25)	(1.98)	
CPI_t		-4.048^{***}	-5.456^{***}	-3.732^{***}	
		(-4.22)	(-5.01)	(-3.87)	
$Cover_{i,t}$		0.0000417^{***}	0.0000490^{**}	0.0000190	0.0000041
		(3.43)	(3.07)	(1.07)	(0.71)
$ROE_{i,t}$		-0.243	-0.111	-1.485^{***}	0.171
		(-152)	(-0.64)	(-5.74)	(1.26)
$Size_{i,t}$		-0.0109^{*}	-0.0072	-0.29^{***}	0.0117
		(-2.26)	(-1.41)	(-14.84)	(0.94)
GDP_{t-1}					0.579^{***}
					(3.62)
GDP_{t-2}					-0.356^{*}
					(-2.03)
GDP_{t-3}					0.196
					(1.95)
GDP_{t-4}					-0.021
					(-0.28)
GDP_{t-5}					0.162^{*}
					(2.07)
_cons	0.155^{***}	0.336^{***}	0.257^{**}	5.073^{***}	-0.185
	(6.20)	(4.21)	(3.04)	(15.13)	(-0.86)
N	1681	1897	1575	1575	772

In Table 9, Model (2) indicates that controlling for other variables, the economic cycle significantly influences credit behavior. In Model (3), a dynamic panel regression, due to the biased estimation coefficients of Ordinary Least Squares (OLS), this study, through Hausman tests, accepts the null hypothesis and employs random effects estimation. The results reveal that during economic upturns, the loan volume increases, while during economic downturns, the loan volume contracts. Economic cycles significantly impact changes in credit behavior. The Consumer Price Index (CPI) exhibits a significant negative correlation with credit behavior, indicating that an increase in prices and inflation leads to a decrease in loan volume, signaling credit contraction.

Model (4) results show a significant positive correlation between GDP growth rate and loan growth rate, affirming the existence of pro-cyclicality in Chinese commercial bank credit behavior. During economic prosperity, banks exhibit optimism about the financial market's prospects, aggressively expanding their market share and significantly increasing credit behavior. In Model (5), to further investigate the impact of macroeconomic cycles on credit behavior, the study lagged five periods. Results indicate that the previous period's economic fluctuations significantly influence current credit behavior in a positive direction.

Through empirical research on the pro-cyclicality of credit behavior and regulatory effects in Chinese commercial banks, it is found that there is a pro-cyclical effect between commercial bank credit behavior and macroeconomic fluctuations. In the subsample analysis, compared to urban and rural commercial banks, large banks and joint-stock banks in China exhibit more pronounced pro-cyclicality in credit behavior. Further analysis reveals that introducing the interaction term between capital adequacy ratio and economic cycles results in a significant negative correlation with loan growth rate, confirming the effectiveness of countercyclical regulation. Based on these findings, banks should prepare for capital size supplementation and possess risk resistance capabilities. For regulatory authorities, differentiated regulatory measures should be applied to different types of banks, and enhanced control over capital adequacy ratios during different economic cycles is necessary, with the establishment of reasonable capital adequacy ratio standards.

CONCLUSION

Credit, as one of the core agencies of industrial banks and a fundamental supply of profit, performs a fundamental position in supplying necessary funding for the boom and improvement of enterprises, in particular for small and medium-sized organizations in the early levels of development. Small and medium-sized organizations represent a strong force in China's financial development and an essential assist for the country's financial development. Therefore, amid heightened monetary coverage uncertainty, the center of attention on financial coverage uncertainty through the authorities and a range of sectors of society has increased. Studying the relationship between financial coverage uncertainty and the savings provided by business banks holds realistic significance.

Economic coverage uncertainty appreciably inhibits the credit score provided by industrial banks. In recent years, the authorities have intensified efforts to promote the improvement of direct financing. Given China's monetary transition and the effect of exterior uncertainties, there is a positive diploma of uncertainty in monetary policies. In this context, this study theoretically analyzed how people experiencing poverty have an effect on monetary coverage uncertainty on the deposit provide of business banks in Chapter Two and set up applicable hypotheses primarily based on the influencing mechanism. In Chapters Three and 4, they find out about developed fashions and perform empirical research, subject the empirical consequences to robustness tests, validate the reliability of the empirical results, and conclude that monetary coverage uncertainty notably inhibits the savings furnish of industrial banks. This conclusion is sturdy and reliable.

Analysis of the consequences from the OLS mannequin calculations suggests that, in contrast to state-owned industrial banks, the credit score provided by non-state-owned industrial banks is extra inclined to affect monetary coverage uncertainty. State-owned industrial banks, with large market sizes and purchaser assets in contrast to non-state-owned industrial banks, can flexibly interact in asset allocation and threat control. Therefore, confronted with the effect of monetary coverage uncertainty, the credit score provided by state-owned banks is more stable.

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