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Analysis of the Impact of Financial Market Development on China's National Economy

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Abstract

Finance plays a nerve center role in the modern economic model, connecting various modern economic sectors and reflecting the development of various modern economic sectors. In the past 20 years, the international situation has been turbulent, and the international economic development and recovery have also been full of instability. The Fed-led global interest rate hike frenzy also adds more risks to the stability of the financial environment, at present, China is in a key node of economic structure from growth rate to quality change, economic development structure also reflects the imbalance characteristics of the transformation from entity to virtual economy, in which the flow of financial capital can adjust the structural focus of economic development, while reflecting the scope of benefits of economic development dividends, what role finance plays in China's national economic growth, will be based on statistical analysis for discussion and research.

Keywords

Finance; Economic Structure; Virtual Economy; Country Name Economy.

1. Introduction

The modern market economy is essentially a developed monetary credit economy, and its operation is manifested in the form of value flow oriented to real logistics money, and capital movement oriented to material resource movement. The healthy operation of the financial market can reflect whether the raising, financing and use of monetary funds are sufficient, and whether the allocation of effective social resources is reasonable, so as to promote the healthy development of the national economy. The three major factors that determine economic growth are mainly economic activity, knowledge growth and capital accumulation. In the past, China mainly adjusted China's economic development structure through fiscal policy, and after the convening of the 19th National Congress, China paid more attention to promoting economic development through the operation mechanism of the financial market itself, adjusting and optimizing the financing structure. As far as my country is concerned, the change of the economic system is clearly the source of economic monetization and financialization.

In recent years, with the gradual opening up of China's financial industry, the entry of foreign banks, and the reform of the domestic financial mechanism, the financial industry has developed rapidly and the market scale has continued to expand. Although entering 2020, due to the impact of the new crown epidemic, the market has declined; However, overall, it still performed well, and total assets maintained positive growth. According to the data, at the end of 2020, the total assets of China's financial institutions were 353.19 trillion yuan, a year-on-year increase of 10.7%, of which the total assets of banking institutions were 319.74 trillion

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yuan, a year-on-year increase of 10.1%; The total assets of securities institutions were 10.15 trillion yuan, a year-on-year increase of 25%; The total assets of insurance institutions were 23.3 trillion yuan, a year-on-year increase of 13.3%. It can be seen that China's financial market is constantly developing vigorously, which provides strong support for China's economic development.

But as the global inflation crisis rages, financial risks are also increasing. Data show that on June 26, the exchange rate of the yuan against the US dollar once fell below 7, the US dollar exchange rate rose by more than 0.8%, to 10:00 on June 27, the opening price of the US dollar against the RMB exchange rate reached 7.24, although it remained at a high level, but compared with the strong trend of the previous day, the overall downward trend.

In the future, the US dollar exchange rate may continue to stay at a high level for some time. There are two supporting factors, the first is that the hint of a continued Fed rate hike in July supported the strengthening of the dollar, and Fed Chairman Jerome Powell believes that there is still a possibility of discussing a 50 basis point or even 75 basis point rate hike at the July monetary policy meeting. "Fed Watch" predicts that the probability of the Fed raising interest rates by 25 basis points to the range of 5.25%-5.50% in July will reach 75%, and the effect of interest rate hikes will continue to a certain extent by September; Secondly, in order to cope with inflation, some countries have urgently hedged and sold rubles, yuan, etc., and hoarded a large number of dollars in the foreign exchange market, which will also have a transmission effect on the trend of the dollar.

Zhao Qingming, vice president of China Foreign Exchange Investment Research Institute, believes that "only if the internal and external conditions are reversed, the RMB against the US dollar exchange rate will stop falling and rebound", although the central bank said that the US dollar interest rate hike has come to an end, the foreign exchange market is expected to return to stability, but overall, if the economic weakness in the second quarter does not improve, the Fed continues to raise interest rates, then in the overall poor demand side, the RMB exchange rate will recover, and it will take some time for the trade market to rebalance.

2. Empirical Analysis

2.1. Variable Selection

2.1.1. GDP Per Capita

The ratio of absolute GDP to the average population for that year measures the value and contribution created per capita. This paper mainly studies the impact of the financial industry on China's national economy, so this indicator is selected as the explanatory variable.

2.1.2. Loans from Financial Institutions

Loan refers to a form of credit activity in which banks or other credit institutions provide funds to enterprises, individuals, etc. at a certain interest rate in accordance with the principle that funds must be returned. This indicator can clearly reflect the amount of loans obtained by various economic sectors from financial institutions in China, and reflect China's financial loans and capital flow capacity. Therefore, as an explanatory variable.

2.1.3. Savings Deposits

Combined with the above theoretical analysis, it can be seen that Chinese residents have a strong desire to save, which on the one hand reflects the assumption of the function of money savings, and on the other hand, it also affects China's money supply. Therefore, this variable is chosen as the explanatory variable.

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2.1.4. Foreign Exchange Reserves

Foreign exchange reserves refer to foreign convertible currencies held by a country's monetary authority that can be used for external payments. Foreign exchange reserves support a country's foreign trade and international transactions. In the current era of economic globalization, opening up and foreign trade play an increasingly important role in a country's economic development, so foreign exchange reserves can be used as one of the explanatory variables.

2.1.5. Broad Money Supply (M2)

At this stage in China, it refers to M1 plus time deposits of organs, groups, troops, enterprises and institutions in banks, savings deposits of urban and rural residents and trust deposits. From the above theoretical analysis, it can be seen that the money supply on the one hand has assumed more functions in our financial system, and on the other hand, it can also reflect and affect the level of China's economic development. Therefore, as an explanatory variable.

2.2. Model Settings

In this paper, the quaternion one-time regression model is selected as the preliminary setting, and the equation is set as follows:

$$Y = \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \beta_4 X4 + \varepsilon$$

Y represents the per capita GDP of the interpreted variables, X1 represents various loans of financial institutions, X2 represents savings deposits, X3 represents China's foreign exchange reserves, and X4 represents China's money supply.

2.3. Data Collection

The data is mainly collected through the national macro data statistical support system, China's per capita GDP and related financial indicators from 1990 to 2020.

2.4. Model Estimation

A preliminary estimate of the model was made using the least squares method, and the results were as follows:

Dependent Variable: Y
Method: Least Squares
Date: 06/28/23 Time: 18:45
Sample: 1992 2022
Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2989.386	401.7488	7.440931	0.0000
X1	-0.001485	0.015586	-0.095308	0.9248
X2	0.012384	0.024326	0.509086	0.6150
X3	0.241930	0.099585	2.429386	0.0223
X4	0.025080	0.008556	2.931228	0.0070

R-squared	0.997134	Mean dependent var	24643.48
Adjusted R-squared	0.996693	S.D. dependent var	22620.42
S.E. of regression	1300.867	Akaike info criterion	17.32614
Sum squared resid	43998625	Schwarz criterion	17.55743
Log likelihood	-263.5552	Hannan-Quinn criter.	17.40153
F-statistic	2261.259	Durbin-Watson stat	0.932611
Prob(F-statistic)	0.000000		

Figure 1. Preliminary estimates

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As shown in the figure, according to the above parameter estimation results, the goodness-of-fit value of the model is 0.9971, indicating that the model fit is good. Then the significance of the explanatory variables of the model is tested: the accompanying probabilities of the X1 and X2 T statistical values of the explanatory variables of the model are far higher than the set significance level of 0.05, indicating that the influence of these two explanatory variables on the explanatory variable Y is not significant, and the t-test fails. When testing the significance of the model as a whole, the accompanying probability of the F statistic value is 0.0000, indicating that the model is significant as a whole and the F test passes. Overall, the model may have multicollinearity problems, so the model is tested and corrected in the next step.

2.5. Model Verification and Correction

2.5.1. Multicollinearity Testing and Correction

(1) Correlation test

	Y	X1	X2	X3	X4
Y	1	0.984968515...	0.994633712...	0.912829177...	0.995532058...
X1	0.984968515...	1	0.995660107...	0.837217646...	0.995516469...
X2	0.994633712...	0.995660107...	1	0.880387878...	0.998395715...
X3	0.912829177...	0.837217646...	0.880387878...	1	0.879970187...
X4	0.995532058...	0.995516469...	0.998395715...	0.879970187...	1

Figure 2. Correlation coefficient matrix

As shown in Figure 2, the correlation coefficient values of the four explanatory variables are greater than 0.8.It can be preliminarily judged that there is a multicollinearity problem between the explanatory variables, of which X4 has the highest correlation coefficient value, and X4 can be retained in subsequent corrections and other variables can be gradually introduced.

2.5.2. VIF Test

Variance Inflation Factors
Date: 06/28/23 Time: 18:47
Sample: 1992 2022
Included observations: 31

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	161402.1	2.956686	NA
X1	0.000243	1908.785	1053.521
X2	0.000592	1464.025	750.3993
X3	0.009917	77.64088	37.53229
X4	7.32E-05	1099.071	584.6540

Figure 3. VIF values

The variance inflation factor value test is the most commonly used method to judge the multicollinearity of the model, generally greater than 5 can determine that the model has a multicollinear problem, the VIF value of the model explanatory variable is much greater than 5, indicating that the model does have serious multicollinearity problems.

2.5.3. Stepwise Regression Correction

According to the previous results, the variable X4 is retained and other variables are gradually introduced, the least squares estimation of the model is made and the goodness-of-fit of each model is compared, and the final result is as follows:

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Dependent Variable: Y
Method: Least Squares
Date: 06/28/23 Time: 18:48
Sample: 1992 2022
Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3107.732	326.9831	9.504260	0.0000
X3	0.252416	0.033268	7.587324	0.0000
X4	0.028716	0.000724	39.65170	0.0000

R-squared	0.997082	Mean dependent var	24643.48
Adjusted R-squared	0.996874	S.D. dependent var	22620.42
S.E. of regression	1264.707	Akaike info criterion	17.21483
Sum squared resid	44785577	Schwarz criterion	17.35361
Log likelihood	-263.8299	Hannan-Quinn criter.	17.26007
F-statistic	4784.578	Durbin-Watson stat	0.854617
Prob(F-statistic)	0.000000		

Figure 4. Stepwise regression estimation results

The R-squared value of the model is 0.997082, which is corrected to be 0.996974, indicating that the model fits well. The model is then tested for significance. The adjoint probability of the t-statistic of the two explanatory variables X3 and X4 of the model is 0.0000, indicating that the foreign exchange reserves and broad money supply represented by X3 and X4 have a significant impact on China's per capita GDP, and the t-test is passed. The adjoint probability of the F statistic of the model is 0.0000, indicating that the model is significant as a whole and the F test passes. The DW value of the observed model is 0.854617, which is less than its minimum critical value, indicating that the model may have first-order autocorrelation problems, so subsequent autocorrelation correction of the model is required.

2.5.4. Autocorrelation Testing and Correction

(1) Partial correlation coefficient test

The DW value above determines that the model has a first-order positive autocorrelation problem, but since DW can only test the low-order autocorrelation and cannot judge the higher-order autocorrelation problem, the partial correlation coefficient is used to further judge the system correlation problem of the model, and the results are as follows:

Date: 06/28/23 Time: 18:49
Sample: 1992 2022
Included observations: 31

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.486	0.486	8.0587	0.005
		2	0.075	-0.21...	8.2559	0.016
		3	0.016	0.103	8.2654	0.041
		4	0.019	-0.02...	8.2788	0.082
		5	-0.05...	-0.07...	8.3882	0.136
		6	-0.03...	0.048	8.4431	0.207
		7	-0.03...	-0.05...	8.4868	0.292
		8	-0.19...	-0.21...	10.127	0.256
		9	-0.21...	-0.00...	12.319	0.196
		1...	0.022	0.175	12.343	0.263
		1...	0.160	0.051	13.655	0.253
		1...	-0.06...	-0.24...	13.862	0.310
		1...	-0.15...	-0.00...	15.143	0.299
		1...	-0.19...	-0.20...	17.443	0.233
		1...	-0.22...	-0.07...	20.781	0.144
		1...	-0.23...	-0.12...	24.422	0.081

Figure 5. Partial correlation coefficient test results

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As shown in the white noise plot, you can see that the length of the bar chart of the second column only exceeds the dashed line on the right, indicating that the model only has first-order positive autocorrelation.

(2) Generalized difference method correction

The model is modified by the generalized difference method, that is, the AR term is added and then the model is estimated, and the results are as follows:

Dependent Variable: Y
Method: ARMA Generalized Least Squares (BFGS)
Date: 06/28/23 Time: 18:50
Sample: 1992 2022
Included observations: 31
Convergence achieved after 9 iterations
Coefficient covariance computed using outer product of gradients
d.f. adjustment for standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3199.734	403.9150	7.921800	0.0000
X3	0.304013	0.049918	6.090279	0.0000
X4	0.027162	0.001167	23.28159	0.0000
AR(1)	1.109934	0.247055	4.492657	0.0001
AR(2)	-0.744938	0.242546	-3.071319	0.0049

R-squared	0.998470	Mean dependent var	24643.48
Adjusted R-squared	0.998235	S.D. dependent var	22620.42
S.E. of regression	950.3501	Akaike info criterion	16.76718
Sum squared resid	23482299	Schwarz criterion	16.99847
Log likelihood	-254.8913	Hannan-Quinn criter.	16.84258
F-statistic	4242.585	Durbin-Watson stat	1.680430
Prob(F-statistic)	0.000000		

Inverted AR Roots	.55+.66i	.55-.66i

Figure 6. Generalized difference estimation results

As shown in the figure, the modified R-squared value of the model is 0.998235, indicating that the model fits well. Then the t-test of the model shows that the adjoint probability of the t-statistic of the two explanatory variables is 0.0000, indicating that the influence of the two explanatory variables on Y is significant, and the adjoint probability of the t-statistic of the AR term is also less than 0.05, and the t-test passes. The accompanying probability of the value of the F statistic is 0.0000, indicating that the model is significant as a whole and the F test passes. The DW value of the model is 1.68043, and it can be seen that the model no longer has a first-order autocorrelation problem. The coefficient values of X3, foreign exchange reserves and X4 money supply are all positive, indicating that foreign exchange reserves and money supply have a positive effect on the per capita GDP of the interpreted variables, which is in line with the previous forecast, and the economic significance test is passed.

2.5.5. Heteroscedasticity Test and Correction

Finally, the white test is performed on the model, and the test results are as follows:

Heteroskedasticity Test: White

F-statistic	16.37701	Prob. F(16,14)	0.0000
Obs*R-squared	29.42772	Prob. Chi-Square(16)	0.0212
Scaled explained SS	20.16324	Prob. Chi-Square(16)	0.2130

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 06/28/23 Time: 18:50
Sample: 1992 2022
Included observations: 31
Collinear test regressors dropped from specification

Figure 7. Heteroscedasticity white test results

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As shown in the figure, the white test of the model nR2=20, and its accompanying probability P is equal to 0.2>0.05, indicating that the model accepts the null hypothesis and the model does not have heteroscedasticity.

2.6. Model Application

According to the above empirical data analysis, the following conclusions can be drawn: China's foreign exchange reserves have a positive impact on China's per capita gross national product, which is specifically reflected in the fact that for every $10 billion increase in foreign exchange reserves, China's per capita GDP increases by about 30 yuan per person; Money supply also has a significant positive effect on China's per capita GDP, which is specifically manifested in the increase of 100 billion yuan in money supply, China's per capita GDP increases by 27 yuan. From the perspective of specific economic performance, China will continue to implement a prudent monetary policy in 2020 to create a good monetary and financial environment for promoting the high-quality development of China's economy. In the future, China will open up the space for monetary easing, first of all, due to the Fed's interest rate hike in 2022, the shackles on domestic monetary policy are relatively limited, and the rise in US bond interest rates is more likely to be reflected in the flattening of the yield curve. Domestic monetary policy space can be released through a moderate depreciation of the RMB exchange rate. Secondly, China should actively participate in international trade, while maintaining a moderate scale of foreign exchange and enhancing capital confidence.

3. Countermeasures and Suggestions

3.1. Improve Monetary Policy Tools

Through the above empirical analysis, it can be obtained that the money supply has a significant positive effect on China's per capita GDP, so the money supply has a certain role in promoting the national economy, but the monetary policy also has a certain time lag, so we should improve the relevant monetary policy tools, through strengthening the open market operation business, improve the rediscount system and deposit reserve policy, enhance the flexibility and forward-looking of monetary policy.

3.2. Maintain an Appropriate Size of Foreign Exchange Reserves

According to the above analysis, the available foreign exchange reserves can play a positive role in China's national economy, from an economic theory point of view, foreign exchange reserves can improve the shortage of foreign exchange supply, increase a country's ability to pay abroad, improve comprehensive national strength, strengthen the confidence of all sectors of society in China's financial development, encourage a sustained large inflow of foreign capital, but also can help the state to use indirect control means, adjust the balance of payments, maintain the confidence and ability of the stability of the RMB exchange rate, so China must ensure a certain scale of foreign exchange reserves. At present, China has reached a fairly high level of opening up to the outside world, and foreign trade has become an important economic sector of China's economic development, so China should maintain an appropriate scale of foreign exchange reserves, promote internal and external balance and benign development of the economy. We should consider the actual economic factors of our country, make full use of the degree of foreign capital and international financing capacity, and rationally view China's reserve needs.

3.3. Improve the Service Mechanism of Financial Institutions and Strengthen Financing Services for Micro and Micro Enterprises.

According to the preliminary estimation results of the model, it can also be seen that the loans of China's financial institutions also have a certain positive effect on per capita GDP. Although China's capital market has begun to take shape, but the development of multi-level capital

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market is not mature, capital entry barriers are high, so it is difficult for small and medium-sized enterprises to achieve financing purposes through the capital market, and China's special services for micro-enterprises entrepreneurial financing sector is also less, so China can increase financial institutions specifically for micro-enterprises, while changing the concept of bank financial operation, increase financing services and loan support for small and medium-sized enterprises.

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