



An Empirical Study on the Impact of Internet Finance on Commercial Banks in China

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Abstract: The data of the balance of Yu Bao and the currency in circulation and the demand deposits in China Commercial Bank during the period from December 2015 to March 2018 were selected to study the interaction between Yuen Bao Scale and demand deposits in commercial banks in China. The relationship, through empirical analysis of the data for the past few years, shows that the scale of Yu'e Bao has a significant impact on the deposit business of commercial banks in China. The impact of internet finance on commercial banks was analyzed, and the development direction and countermeasures of China's commercial banks in the transition process were put forward.

Keywords: Internet finance; Yuqianbao; commercial bank; impact;

Preface

In recent years, with the continuous development of China's Internet finance, there are many companies involved in Internet finance: Tencent, Alibaba, Tencent and others. These enterprises quickly invaded the Internet finance field through their own existing advantages, Alipay balance treasure, P2P loans, WeChat change money and other financial products came into being. The development of China's Internet finance has, to a certain extent, formed a huge impact on the traditional business of China's commercial banks. According to relevant statistics, the size of the Internet-only financial market in 2017 has exceeded 14 trillion yuan, and is expected to exceed 18 trillion yuan by 2018. Since 2013, the scale of Internet finance has been increasing rapidly. In 2014, it was 223% higher than last year. In 2015, it was 293% higher than last year. Afterwards, although the upward trend has slowed, it still shows a steady upward trend every year.

1. Empirical analysis

The impact of internet finance on China's commercial banks is various. This paper takes the empirical analysis of the impact of internet finance on the deposits of commercial banks in China. Through the establishment of the currency in circulation (M_0), currency ($M_1 = M_0 (+)$ Current accounts in China's commercial banks) and Yu Pingbao's econometric model to analyze the impact of Yu'e Bao and China Commercial Bank's deposit business.

1.1 variable selection

This article selects the following variables as the research object: currency in circulation, current deposits of commercial banks, and the balance of Yubao.

Currency in circulation: The total amount of money that can be used in social and economic life in a



given period of time, including cash can be used as payment means of check, draft, wait.

Commercial banks have demand deposits: depositors can access and transfer bank deposits at any time without any prior notice. Current deposits account for the largest part of the money supply and are also an important source of funds for commercial banks.

Yu Bao: Yu Bao is a product launched by Alipay in cooperation with Tianhong Funds. The number of users with only eight months has exceeded 80 million, and its size has reached 1.6891 trillion yuan in March 2018.

1.2 Econometrics model of currency and balance treasure in circulation

The two sets of data in circulation currency and balance treasure are the time series from December 2015 to March 2018. The econometric model for establishing the linear regression model of one element is as follows:

$$Y = \beta_1 + \beta_2 X + \mu$$

Where Y represents currency in circulation (M_0), is the explanatory variable; X represents the balance treasure, is the explanatory variable; β_1 and β_2 is the parameter to be evaluated; μ is random noise.

Heteroskedasticity Test: White			
F-statistic	0.407779	Prob. F(2,7)	0.6800
Obs*R-squared	1.043506	Prob. Chi-Square(2)	0.5935
Scaled explained SS	0.536107	Prob. Chi-Square(2)	0.7649

Test Equation:			
Dependent Variable: RESID^2			
Method: Least Squares			
Date: 05/14/18 Time: 21:36			
Sample: 1 10			
Included observations: 10			

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10292750	17690794	-0.581814	0.5789
X	2629.772	3362.724	0.782036	0.4598
X^2	-0.117873	0.143780	-0.819816	0.4393

R-squared	0.104351	Mean dependent var	2608129.
Adjusted R-squared	-0.151549	S.D. dependent var	3483462.
S.E. of regression	3738113.	Akaike info criterion	33.34938
Sum squared resid	9.78E+13	Schwarz criterion	33.44016
Log likelihood	-163.7469	Hannan-Quinn criter.	33.24980
F-statistic	0.407779	Durbin-Watson stat	3.290952
Prob(F-statistic)	0.679960		

Figure 1: White inspection

Table 1: China's circulating currency and balance treasure from December 2015 to March 2018 (Unit: 100 million yuan)

Years	Yu'E Bao	Currency Afloat M.
2015.12	6,206.90	63216.58
2016.03	7,626.07	64651.21
2016.06	8,163.12	62818.89
2016.09	7,943.88	65068.62
2016.12	8,082.94	68303.87
2017.03	11,396.38	68605.05
2017.06	14,318.05	66977.68
2017.09	15,595.95	69748.54
2017.12	15,798.32	70645.60
2018.03	16,891.85	72692.62

Null hypothesis H_0 For X, Y is the same variance, and can be seen from Figure 1: White test, $p > \alpha$

Therefore, we should accept the original assumption that there is no heteroskedasticity between X and Y.

The regression analysis results are as follows:



Dependent Variable: Y
 Method: Least Squares
 Date: 05/14/18 Time: 21:50
 Sample: 1 10
 Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	59522.11	1748.100	34.04960	0.0000
X	0.691886	0.147489	4.691108	0.0016
R-squared	0.733391	Mean dependent var		67272.87
Adjusted R-squared	0.700065	S.D. dependent var		3296.901
S.E. of regression	1805.592	Akaike info criterion		18.01202
Sum squared resid	26081287	Schwarz criterion		18.07254
Log likelihood	-88.06010	Hannan-Quinn criter.		17.94563
F-statistic	22.00649	Durbin-Watson stat		1.677826
Prob(F-statistic)	0.001559			

Figure 2

$$Y = 59522.11 + 0.691886X$$

(1748.100) (0.147489)

Coefficient $R^2 = 0.733391$, adjusted coefficient of determination $\bar{R}^2 = 0.700065$,

$F = 22.00649$, indicating that the regression model explains the currency in circulation (M_0) 70.00%, see Figure 2.

Regression model is only one variable, so the P values of the model as a whole and P value of X is equal to 0.0016, show confidence in more than 95% of the model, through the test of significance of the variables which are the currency in circulation (M_0) the linear effect is remarkable. Note that the newly increased currency is Shared with yu 'ebao in circulation.

1.3 Currency ($M_1 = M_0 +$ Current account in commercial banks) and Yu Qianbao's econometric model

currency($M_1 = M_0 (+)$ Current balance deposits in commercial banks) and Qian Yubao. The two sets of data are the time series from December 2015 to March 2018. The econometric model for establishing a linear regression model for one element is as follows:

$$Y_1 = \beta_1 + \beta_2 X_1 + \mu$$

among them Y_1 Express currency ($M_1 = M_0 +$ current demand deposits in commercial banks) is an explanatory variable; X_1 Represents Yu Bao, an explanatory variable; β_1 和 β_2 Is the parameter to be evaluated; μ Is random noise.



Heteroskedasticity Test: White

F-statistic	0.897949	Prob. F(2,7)	0.4496
Obs*R-squared	2.041744	Prob. Chi-Square(2)	0.3603
Scaled explained SS	1.173433	Prob. Chi-Square(2)	0.5562

Test Equation:
 Dependent Variable: RESID^2
 Method: Least Squares
 Date: 05/14/18 Time: 22:14
 Sample: 1 10
 Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.19E+09	2.62E+09	0.836440	0.4305
X1	-282411.2	498070.0	-0.567011	0.5884
X1^2	9.677105	21.29592	0.454411	0.6633

R-squared	0.204174	Mean dependent var	3.87E+08
Adjusted R-squared	-0.023204	S.D. dependent var	5.47E+08
S.E. of regression	5.54E+08	Akaike info criterion	43.34536
Sum squared resid	2.15E+18	Schwarz criterion	43.43614
Log likelihood	-213.7268	Hannan-Quinn criter.	43.24578
F-statistic	0.897949	Durbin-Watson stat	2.531736
Prob(F-statistic)	0.449638		

Table 1: December 2015 - March 2018
 Currency and Yu Treasure (Unit: 100 million yuan)

Years	Yu' E Bao	currency M1
2015. 12	6, 206. 90	400953. 44
2016. 03	7, 626. 07	411581. 31
2016. 06	8, 163. 12	443643. 70
2016. 09	7, 943. 88	454340. 25
2016. 12	8, 082. 94	486557. 24
2017. 03	11, 396. 38	488770. 09
2017. 06	14, 318. 05	510228. 17
2017. 09	15, 595. 95	517863. 04
2017. 12	15, 798. 32	543790. 15
2018. 03	16, 891. 85	523540. 07

Figure 3: White inspection

Null hypothesis H_1 for X_1, Y_1 There is a homoskedasticity between them, and as can be seen from

Figure 3: White test, $p > \alpha$ Therefore, we should accept the original assumption that X_1, Y_1 There is no heteroskedasticity

The regression analysis results are as follows:

Dependent Variable: Y1				
Method: Least Squares				
Date: 05/14/18 Time: 22:14				
Sample: 1 10				
Included observations: 10				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	357311.0	21306.93	16.76971	0.0000
X1	10.78486	1.797687	5.999298	0.0003
R-squared	0.818147	Mean dependent var	478126.7	
Adjusted R-squared	0.795415	S.D. dependent var	48656.13	
S.E. of regression	22007.67	Akaike info criterion	23.01303	
Sum squared resid	3.87E+09	Schwarz criterion	23.07354	
Log likelihood	-113.0651	Hannan-Quinn criter.	22.94664	
F-statistic	35.99157	Durbin-Watson stat	1.207657	
Prob(F-statistic)	0.000324			

Figure 4

$$Y_1 = 357311.0 + 10.78486X_1$$

$$(21306.93) \quad (1.797687)$$

Coefficient $R^2 = 0.818147$, adjusted coefficient of determination $\bar{R}^2 = 0.796515$,

$F = 35.99157$, indicating that the regression model explains the currency in circulation (M^0 79.65% of the figure, see Figure 4.



The regression model has only one variable, so the overall P value of the model and the P value of X are equal to 0.0003, which indicates that the confidence of the model is above 99%, that is, through the test of the significance of the variable, ie money ($M_1 = M_0 +$ The linear effect of demand deposits in commercial banks is significant. Explanatory currency ($M_1 = M_0 +$ Current demand deposits in commercial banks) The demand deposits in the mid-section are more absorbed by Yuebao.

This is also true. The information disclosed by the China Commercial Bank in recent years shows that the total bank deposits have declined by a small amount each year.

2. Countermeasures and Suggestions on the Transformation and Development of Commercial Banks in the Background of Internet Finance

In cooperation with internet finance companies, they cooperate with each other to jointly create an online financing platform, provide preferential financing services for SMEs, attract SMEs to come to commercial bank loans, and step up the construction of e-banking. Commercial banks should make full use of electronic channels. Quick advantages, further enhance customer experience, improve the innovative ability of electronic banking products, develop e-banking products suitable for market demand, and diversified service channels. Various commercial banks should make full use of technological development, especially Internet technology, to further expand services. Boundary, online and offline services must be carried out, making the service channels more diversified. Simplify manual operations, reduce labor costs and operating costs, and increase human-computer replacement rates.

3. References

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