

# Empirical Analysis of Impact of Commercial Bank Property Right Reform on Monetary Policy Effect

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**Abstract:** This paper constructs the theoretical model of the effect of the property right change of commercial banks on the effect of monetary policy, and empirically tests the influence of the property right change of commercial banks on the monetary policy effect based on the sample data of China from January 2000 to November 2010. The study shows that the reform of the property right system of commercial banks will affect the price level by changing the speed of currency circulation, and the higher the market level of the property rights of commercial banks, the more beneficial to the improvement of the loose monetary policy. The higher the market level of the property rights of commercial banks, the more obvious the weakening effect of the tightening monetary policy effect. Obvious. Finally, this paper puts forward some policy suggestions to improve the pertinence and effectiveness of our monetary policy.

**Keywords:** Commercial Bank; Property right reform; Monetary policy effect

## 1. Introduction

At present, the financial system in China is still dominated by commercial banks, and the formulation and implementation of monetary policy by the people's Bank of China is largely dependent on commercial banks. However, with the profound changes in the property rights system of China's commercial banks in recent years, such as the reform of stock system, the introduction of strategic investors, public listing and trading, and the mergers and acquisitions between domestic and foreign banks, it is bound to have an important impact on the effect of the monetary policy adjustment of the central bank. Therefore, it is of practical significance to understand and grasp the monetary policy effect of the property right change in China's commercial banks, not only to improve the changes in the property rights system of commercial banks, but also to improve the pertinence and effectiveness of the adjustment of monetary policy.

Domestic and foreign scholars have made some useful discussions on whether the change of property rights of commercial banks will affect the effect of monetary policy of central banks. For example, Rosengren (2008) combined with the current international financial crisis, it is believed that, because of the capital supervision and high leverage, commercial banks will be reluctant to lend in the economic depression, and in the rapid economic growth, there will be excessive loans. This kind of credit Pro cyclical behavior of commercial banks is contrary to the intention of monetary policy adjustment, which seriously affects the effectiveness of monetary policy.

Therefore, he believes that, in view of the importance of commercial banks in the transmission of monetary policy, to improve the effectiveness of monetary policy, it is necessary to adjust the corresponding property rights structure of commercial banks. Domestic scholars (2004) divided the transmission mode of monetary policy into micro subject and economic variable, and analyzed the effectiveness of monetary policy in the special environment of economic transformation. The research results show that there are a variety of factors which are not conducive to the transmission of monetary policy in the economic and financial practice, among which the property rights system of the state-owned commercial banks is one of the main factors. In view of the lack of theoretical models and empirical tests on the effect of monetary policy on property rights reform of commercial banks in China, this paper makes a specialized study.

## 2. Theoretical Model

On the assumption that both the central bank and the commercial bank are "economic people", and the two questions exist on the assumption that there is information asymmetry, the game analysis of this paper can prove that if the central bank takes the currency supply in circulation as the intermediary target of monetary policy, the strategy selection of commercial banks can affect the speed of currency circulation (the game argument here) Omission). According to the traditional monetary quantity theory, there is a positive change relationship between the price level and the money supply in circulation, that is,  $MV=Py$  (1), of which, M is the money supply, the

speed of currency circulation, the P as the commodity price level, and the y as the total social output. The traditional monetary quantity theory holds that the speed of currency circulation is influenced by factors such as technology and system, and remains unchanged for a relatively long period. The total output level of the society is closely related to the level of productivity, and it is also maintained in a certain period. Therefore, the money supply in circulation shows a direct proportion to the price level. However, with the development of science and technology, the level of social output has been rising. More importantly, with the reform of the property rights system of commercial banks, in the game between commercial banks and monetary authorities, the strategy choice of commercial banks will affect the circulation speed of money from outside, at this time the speed of currency circulation is no longer a constant. This paper modifies the traditional monetary quantity model, and sets up the two factors that the currency circulation speed is determined by the market degree k of the property rights of commercial banks and the constant currency circulation speed determined by other factors, that is, the following function relations are as follows:  $V=kV'(2)$ , the formula (2) substituting (1), and then taking natural logarithms on both sides:  $\ln M + \ln k + \ln V' = \ln P + \ln Y$

Considering that there is a lag effect on the impact of the money supply and output level on the price level, the following test model of the effect of the property right of commercial banks on the effect of monetary policy is obtained by F4. Also, because V 'is the constant, so  $\Delta V' = 0$ , it is considered that the supply of currency and the level of output to the price level are taken into consideration. There is a lag effect, so according to formula (4), we get the following test model of the impact of property right reform on monetary policy in commercial banks:

$$\frac{\Delta M}{M} + \frac{\Delta K}{K} + \frac{\Delta V'}{V'} = \frac{\Delta P}{P} + \frac{\Delta Y}{Y}$$

$$\frac{\Delta P}{P} = -\frac{\Delta Y}{Y} + \frac{\Delta K}{K} + \frac{\Delta M}{M}$$

$$RCPI_t = a + bRBank_{t+ci} + \sum_{i=0}^L RM_{t-i+dj} + \sum_{i=0}^L RGDP_{t-j+e}$$

In type (5), RCPI, t is the change rate of price level in phase t, RBank, t is the level of change of market level of property rights of commercial banks in t period, RM, t-i is the change rate of money supply in phase t-i, RGDP.t-j is the t-J phase of GDP, and it is a intercept term, and the 6 indicates the level of price level change of the commodity price level to the market level of the property right of Commercial Bank of the period. The change rate of RBank, t is sensitive; Ci indicates the change rate of price level of phase t RCPI, t to the change rate of money supply of phase t-i RM, one sensitivity, DJ indicates the RCPI of price level change rate in t period, and sensitivity-

ty of t. L and L are the most suitable lag orders. The empirical test is based on Akaike information criterion[1].

Based on the test model, parameter estimation based on empirical data is carried out, and the monetary policy effect of property right reform of commercial banks is analyzed after obtaining the estimated value of parameter B. If the B estimation results are more than 0 and significant, the higher the market level of the commercial banks' property rights, the greater the positive promotion of the money supply in the circulation. Therefore, under the conditions of monetary policy, the higher the market level of the property rights of commercial banks is, the more effective the monetary policy will be, and the monetary policy will weaken the effectiveness of monetary policy under the background of monetary policy. If there is no significant difference between the B estimation result and the 0, it indicates that the marketization level of commercial banks' property rights has little effect on monetary authorities' monetary policy adjustment. If the estimate of parameter 6 is less than 0 and significant, it indicates that the higher the marketization level of commercial banks' property rights, the lower the money supply in circulation. Therefore, when monetary authorities implement loose monetary policy, the higher the market level of the property rights of commercial banks, the more effective the monetary policy will be, and the effectiveness of monetary policy will be improved under the conditions of the monetary authorities' tightening monetary policy.

### 3. Empirical Test

#### 3.1. Variable selection and data sources

According to the main basis of the central bank to formulate and implement monetary policy, as well as the common indicators to test the effect of monetary policy adjustment, the availability of data is taken into account, and the consumer price index (CPI) is selected as a measure of price level in the study. CPI is a measure of the price of a fixed consumer basket, which is mainly reflected. Consumers can pay for changes in prices of goods and services, so they can be used to represent changes in prices of general commodities. Gross domestic product (GDP) covers consumption, private investment, government expenditure and net exports. It is a measure of the value of all the final products and services produced in the economy of a country or region. It can basically reflect the total output of an economy in a certain period of time as a result of the GDP level as a social output in this empirical test. Level index. The concrete forms of the property rights change of commercial banks are varied, and the final result of the property right change is the continuous improvement of the market level. Therefore, the market level of the property rights of commercial banks can reflect the progress of the property

right change of commercial banks to a certain extent. The market level of property rights of commercial banks (Bank) can be listed on the market. The growth rate of the total market value of commercial banks is measured. According to the liquidity, the money supply in circulation can be divided into 3 levels: MO (cash in circulation, narrow caliber), M1 (cash and current deposit in circulation) and M2 (wide range). In comparison, M1 is more suitable as a reference to the change of commodity price level; in fact, M1 is also the current monitoring of domestic monetary authorities. One of the main indicators. The CPI and GDP data are derived from the China National Bureau of Statistics (<http://www.stats.gov.cn/>, 2010 - 12 - 10); the total market value of the listed commercial banks is derived from the Wind information; the amount of money in the circulation is derived from the people's Bank of China (<http://www.pbc.gov.cn/>, 2010 - 12 - 10). Since China's economic development was affected by the financial crisis in Southeast Asia in 1997, it did not begin to get out of the shadow of deflation until the end of 2000. Since then, according to the economic development situation at home and abroad, the people's Bank of China has made frequent monetary policy adjustments to keep the economy stable and sustainable development. The November 2010 data are the latest data available for conducting empirical tests. Therefore, the empirical sample period is selected from January 2000 to November 2010, each month and quarterly data of C, Bank and M1, and each quarterly data of GDP. Based on the monthly data of CPI, Bank and M1, and the quarterly data of CPI, Bank, M1 and GDP, we test the monetary policy effect of property right reform of commercial banks.

**3.2. Based on the test of monthly data**

According to the test model, the change rate of the relevant variables is calculated in the empirical test, and the stationarity test is carried out. The test results show that the model meets the requirements of modeling. Parameter estimation results. The parameters in the model (5) are estimated based on the empirical data, and the results are shown in Table L. The P value of each parameter in Table 1 is less than 0.10, which indicates that at least a significant level of 90%, the parameter estimation results are significant, so the estimation results are reliable. From table 1, we can see that the estimated value of B before the growth rate of the total market value of the commercial banks is 0.107791. This indicates that the marketization of property rights and the price level of commercial banks are positively related. With the improvement of the property right system, the market level of the property rights of commercial banks in China has been improved gradually. The strategy selection under the conditions of flexible property rights of commercial banks will increase the speed of currency circulation to a certain extent, thus it has the effect of "helping to rise and fall" to the price level. In terms of the effect on the effect of monetary policy adjustment, when monetary authorities implement loose monetary policy, it is beneficial to improve the effectiveness of monetary policy adjustment, while the monetary policy will weaken the effectiveness of monetary policy when the monetary authorities adopt tight monetary policy. In addition, it is worthy of concern that the coefficient of pre - Futures supply growth rate in Table 1 is 42.35484, while the estimated results before the current growth rate of the current money supply are 38.54387. This shows that monetary policy wither has time lag, and the flexible property right arrangement of commercial banks will aggravate the uncertainty of monetary policy adjustment.

**Table 1. Parameter estimation results (monthly data)[2]**

Parameters	Parameter estimation	T statistics	P values
a	1.31439	1.983297	0.0498
b	0.107791	1.898823	0.0601
c0	-38.54387	-3.796627	0.0002
c1	42.35484	4.176011	0.0001

Note: R<sup>2</sup>=0.153633

**3.3. Based on the inspection of quarterly data**

In order to analyze the monetary policy effect of the property right change of commercial banks in an all-round way, after adding the variable GDP, the parameters in the model (5) are estimated according to the quarterly data. The results are shown in Table 2 (the stability test results based on the quarterly data on the related variables show that all the variables are the first order single whole sequence, here a little). Table 2 shows that the results of estimating the parameters according to the quarterly data are similar to the results based on the

monthly data, and the estimation results before the market level of the commercial banks' property rights are more than 0. It is further verified that, with the gradual improvement of the market level of property rights in China's commercial banks, when monetary authorities implement loose monetary policy, the behavior of commercial banks will improve the effect of monetary policy adjustment; when monetary authorities carry out a tight monetary policy. The behavior of commercial banks will weaken the effect of monetary policy adjustment.

Table 2. Parameter estimation results (quarterly data)[3]

Parameters	Parameter estimation	T statistics	P values
a	3.25475	1.130743	0.2689
b	0.031538	2.76398	0.0218
c0	0.114297	2.79513	0.0157
d1	-53.12189	-4.231804	0.0003
d2	42.39324	3.482555	0.0018

Note:  $R^2=0.548548$

The reform and opening up of China's financial system has promoted the increasing diversification, internationalization and activation of property rights of commercial banks, and thus has an important impact on the effect of monetary policy adjustment of the central bank. This paper constructs a theoretical model of the effect of the property right change of commercial banks on the effect of monetary policy, and based on the sample data of China from January 2000 to November 2010, this paper empirically studies the influence of the property right change of commercial banks on the monetary policy effect. The study shows that the reform of the property right system of commercial banks will affect the price level by changing the speed of currency circulation, and the higher the market level of the property rights of commercial banks, the more beneficial to the improvement of the loose monetary policy. The higher the market level of the property rights of commercial banks, the more obvious the weakening effect of the tightening monetary policy effect. Obvious. Therefore, the increasingly diversified and flexible property right system of commercial banks has put forward new requirements for monetary authorities in China to adjust monetary policy. The policy implications of this study are: (1) an strongly promotes financial regulation and promotes the compliance of commercial banks. In order to maximize their interests, commercial banks' strategic choice in the process of playing with monetary authorities may weaken the effect of monetary policy. If the central bank and the relevant regulatory agencies can improve the pu-

nishment probability and punishment of commercial banks' violations, it will improve the willingness of commercial banks to cooperate with the monetary authorities. (2) pay attention to the change of money circulation speed, and try hard to control the price level. The change of property rights of commercial banks will affect the speed of money circulation and further affect the price level. In order to achieve the goal of stabilizing the price of the monetary policy, the central bank must pay attention to the change in the speed of currency circulation caused by the property rights change of commercial banks and the change of the rate of controlling the circulation of money accurately. (3) pay attention to the behavior of commercial banks and effectively adjust the money supply. In the adjustment of monetary policy, the central bank needs to analyze and predict the possible strategic choice and behavior orientation of commercial banks, to smooth the transmission mechanism of monetary policy and to improve the effectiveness of monetary policy.

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