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Transformation of the Chinese Consumption: The Impact of the Exchange Rate Reform on China's Monetary Policy

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ABSTRACT This paper focuses on comparing the autonomy and effectiveness of China's monetary policy under two exchange rate regimes, which were respectively inplemented during period 1996-2005 and 2005-2014. The autonomy of China's monetary policy has been strengthened, and more effective to the aggregate output, since the new exchange rate regime was implemented, employing the method of Vector Error Correction Model (VECM). The reason is that the spending on real-estate has increased due to monetary policy, affects the cost of property in the interest rate channel since the new exchange rate regime occured. Apparently, the irrational large ratio of real-estate to Gross Domestic Product (GDP) is a potential problem to the economy. The China government should guide citizens to be rational investors on real-estate.

INTRODUCTION

Since 2005, the reformation of RMB managed floating exchange rate regime has been formed based on the market with fluctuations around the central parity within a certain range, which has been 2 percent since 2014 (Chen 2015). On the other hand, the effectiveness of monetary policy in developed countries, impact on inflation, unemployment, decreased gradually since the mid-1980s (Zhou and Tang 2015). It refers to whether the short-term monetary policy influences output and prices. China, a developing country, faces a different situation that the basic lending rate becomes effective and accompanied with the reformation of finance and economic (Lin and Yang 2015). With the Chinese government paying more attention to the market economy, the macro-control means adopted must change from direct intervention dominated mode to indirect monetary policy based mode. Thus, the effectiveness and autonomy of monetary policy become particularly important in China. If the monetary policy lost its autonomy and effectiveness, it would greatly reduce the effects of government macro-control. According to the authors, there is no research conducted in this area. This paper systematically compares the effectiveness and autonomy of monetary policy under two exchange rate regimes. Previous studies mainly focus on traditional pegged exchange rate regime. It is clear that the Chinese institutional arrangement before 2005 is different from that right now. The influences of currency supply and interest rate on output after the exchange rate reform will be examined in this paper.

Literature Review

The Effectiveness of Monetary Policy

Abbassi and Linzert (2011) pointed out that there are both a decline in the effectiveness of monetary policy, which is operated via the traditional interest rate channel, and decline of short-term rates on non-standard monetary policy measures by European Central Bank's (ECB's).

On the contrary, the effectiveness of monetary policy has been challenged at the same time. The effectiveness of monetary policy, especially the so-call "quantitative easing" monetary policy, is suspected by some scholars (Ohgaki et al. 2012; Nedozi et al. 2015). Zhang and Li (2012) suggested that the increase in money supply has a limited impact on the real output, but it leads the increase in price level at a same rate. Lin (2014), using Dynamic Stochastic General Equilibrium Model, found out each tool of monetary policy, aiming at different monetary policy tar-

gets in a different stage of market-oriented reform, has an individual effect.

Currently, the mainstream view in western countries prefers that the monetary policy is ineffective under a highly rational market assumption. Most tests for Chinese monetary policy's effectiveness were carried out before 2005 when the exchange rate was still pegged. There is lack of research on such topic after the implementation of new exchange rate regime as well as the expansionary monetary policy after financial crisis.

The Autonomy of Monetary Policy

The "impossible triangle", widely known as "trilemma", found by Krugman (1999), pointed out that free capital flows, exchange rate stability and interest rate stability can not be simultaneously achieved. Chow (2014) suggested that the trilemma restrained some Asian countries, by examining the monetary policy of some Asian economies before and after the financial crisis breaking out in 2008. Goh and McNown (2015) illustrated that Malaysia was into the "trilemma". Nevertheless, Volz (2010) argued "trilemma" has been overcome with other Asian economies. They found that an independent monetary policy, free capital flows and an exchange rate target can be maintained successfully simultaneously. This point will be taken in consideration in this paper, as well.

The second view is the expansion of Krugman's "impossible triangle". Forssback and Oxelheim (2006) showed that the stability of interest rate couldn't be realized even abandoning the exchange rate stability. However, evidence provided by Klein and Shambaugh (2015) supports that countries do have monetary autonomy when they implement flexible exchange rates or extensive capital restrictions. Rey (2015) pointed that a "dilemma" replaces the trilemma, which means monetary policies are effective independently when the capital flow is solely controlled.

These two views are based on studies of monetary policy autonomy under single exchange rate regime condition in one country. Chinese economy is in transition. It adopted two completely different exchange rate regimes during the period. This kind of special situation hasn't been studied yet.

The Monetary Policy and Consumption of Human

Household consumption, defined by Ravallion and Chen (2007), includes expenditures on nondurable goods (food, clothes, utilities, communication, etc.) as well as durable goods (electronic appliances, cars, etc.).

In China, household consumption per GNP, which has been below 40 percent since 2005 (Aziz and Li 2007), has trended persistently decline (Li 2014), in spite of being accompanied with the amazing continuous high economic growth. Researches have primarily based on savings behavior of household, suggesting that the high and rising savings by Chinese household impact on this trend. (Prasad and Rajan 2006) The savings behavior of household may be not only relevant to rationality but also to the traditional culture. However, the Chinese government has restricted the interest rate on household deposits below a limited level. As a result, depositors earned less and less over the years (Aziz and Li 2007; Liu 2014).

Furthermore, empirical evidences showed that the consumer credit has been subject to a hysteresis positive effect on the volume of consumption (Li 2014). It may be caused by the human behaviors, which are adapting credit loan and pre-mature consumption. There are three aspects about consumer credit. Firstly, factors affecting consumer credit. Endut (2008), with data collected from Malaysia, pointed out crucial factors affecting to increase of household debt, a kind of consumer credits, are stability of macro economy, development of financial sector, and easing of government control. Finocchiaro (2011) suggested the interest is an important factor. The second is relation between consumer credit and consumption. Ogawa and Wan (2007), using micro data of income and spending collected from Japanese household, found the decreasing price of land and property diminishes consumption in recession. The final one is consumer credit and monetary policy. Chung (2009) pointed out that the effectiveness of an easing monetary policy, aiming at stimulating consumption, is projected to be largely restrained, when the household savings rate decreased rapidly. Filardo (2009) showed a fact that an increase in consumer credit is not a reason to conduct a monetary policy but the influence of monetary policy decisions should rely on the effect of consumer credit. Barbu and Vintila (2009) pointed out how consumer credit affects to financial structure and stability of financial sector, demonstrating different economies with different flexibility and stage of development. They also indicated that

private consumption is decreased by an increase 100 base points of interest. Calza et al. (2013) indicated that private consumption responds more to monetary policies in western economies with developed and flexible mortgage market. There is evidence, provided by county-level data, indicating that a decline in short-term interest rates affects consumption more sensitively in counties which adjustable rate mortgage debt is a greater portion of (Maggio et al. 2015).

These viewpoints are concluded based on savings and consumer credit. Chinese economy is in transition. Little research has studied the effectiveness of Chinese monetary policy impacts on household consumption following the financial crisis.

RESEARCH METHODOLOGY

In terms of monetary policy effectiveness, common Western point of view is whether monetary policy can affect output and price. If the monetary policy tools can significantly impact on output and prices, it at least supports that the monetary policy is effective in the short run. If its impact on output and prices is trivial, then the monetary policy is ineffective. The reason may be the insensitivity of micro-economic entities towards monetary policy changes. The insensitivity can lead to jam when monetary policy transfer via interest rate channel, resulting in the ineffectiveness of monetary policy.

In terms of monetary policy autonomy, when the central bank raises the interest rate according to current economy cycle, capital will flow in the country and cause an increase of foreign reserves and domestic money supply. The interest rate and money supply are moving towards the same direction. That is contradictory to the government's original intention to contract money supply by raising interest rate. After the RMB exchange rate reform on July 21st, 2005, vast international capital flooded into China from low-interest rate international capital market betting RMB to appreciate. The inflow of foreign capital causes the above phenomenon being more prominent. If the fluctuation of interest rate can cause money supply of all level to change towards the same direction, then it can be treated as a sign of losing monetary policy autonomy. So one of the measurements to test whether China has the monetary policy autonomy is to see whether M1 and the interest rate move towards a same direction.

The interest rate stands for price of money and is determined by money supply and money demand. If the change of foreign reserve can influence money supply, it indirectly can influence interest level. That means a country's monetary policy cannot be independent of other country and is "kidnapped" by foreign exchange, in another word, the country loses its monetary policy autonomy. If it is not, then it means China still maintain its autonomy under current exchange rate regime.

Data Sources

There are two monetary policy tools in China - money supply and interest rates. To measure the effectiveness of monetary policy is to measure the influence of money supply and interest rates on output and prices. The endogenity of money supply and interest is not clear, thus a simple regression equation is not enough to illustrate the problem. This paper will apply VECM to test the interrelationship among M1, interest rate (r), GDP and CPI.

This paper will apply four indicators: M1, financial institutional lending rate, GDP and CPI. M1 stands for the money supply, Since the People's Bank of China in 1996 has chosen M1 as intermediate target of monetary policy. Financial institutional lending rate stands for interest rate level. Data of GDP is collected from the state of National Information Center and data of CPI from the website of the People's Bank of China. Other data is collected from China Economic Information Network (CEInet). Data is arranged by quarter from January 1996 to September 2014.

Data Analysis

1) Stationary Test

Since most of the time series data is unstable, to avoid fallacy return, it is necessary to make unit root test for all variables. After all, unstable time series data without good statistical properties is useless for subsequent measurements.

2) Co-integration Test

After the stationary test for a single time series, it is necessary to have a Johnson Cointegration test because there may be long-term cointegration relationship among variables. The

Johnson Cointegration Test detects whether there is long-term co-integration relationship among variables and the number of cointegration as well.

3) VECM Test

Variables in this article are not stable in the beginning. Feldstein and Stock stressed that non-stationary cointegrated variables should be tested by VECM. There will be biases using VAR. The total of optimal lag length according to SIC variable criteria and the whole number of tests before agreement then be substituted in to VECM to set a VECM model.

For the VAR model with cointegration h, its VECM Representation is:

$$y_t = v + \delta t + \alpha\beta y_{t-1} + \Gamma_1 \Delta y_{t-1} + \Gamma_2 \Delta y_{t-2} ... + \Gamma_{p-1} \Delta y_{t-p+1} + \varepsilon_t$$

$$\Gamma_s = -(\phi_{s+1} + ... + \phi_p), \quad \alpha\beta' = -(I_n - \phi_1 - \phi_2 - ... - \phi_p)$$

β and β are n*h matrices (α and β are not unique, β is a matrix of parameter adjustment).

Then, the coefficient of VAR is $Z_{t-1} = \beta' y_{t-1}$, which stand for the long-term relationship among variables.

RESULTS

The Results of Each Variable Unit Root Test

The correlation matrix (see Table 1) shows that M0, M1 and M2 correlations are very high. The People's Bank of China choose M1 as an statutory required intermediate target, so only M1 is selected for analysis to simplify the VECM and make it easier to recognize the changes in monetary policy effectiveness and autonomy after the exchange rate reform.

Table 1: Correlation coefficient matrix

	M1	*M2*	*M0*
M1	1.0000		
M2	0.9911	1.0000	
M0	0.9911	0.9961	1.0000

Determine the Lag Length and Cointegration

Before co-integration test, in order to get more accurate results, optimal lag order should be determined first. According to the information guidelines (especially the AIC, HQIC and SBIC), the four macroeconomic variables before and after the reform lag behind fourth-order optimal lag order. Table 2 demonstrates the test result of the lag order before the reform. It generates similar results to that after the reform. According to Table 2, the AIC, HQIC and SBIC value -21.0002, -19.9626 and -17.9165 respectively, using a significance level of 10 percent, illustrating that the optimization of 4 macroeconomic variables in stages of both before reformation of exchange rate regime and post reformation of exchange rate regime is 4-order-lagged.

The number of cointegration rank needs to be determined, that is the total number of linearly independent cointegrating vectors. In this paper, a Vector Autoregressive (VAR) systems, Johansen cointegration test is used. Johansen cointegration test is a test approach of variables cointegration by applying maximum likelihood estimation, proposed by Johansen and Juselius. When two or more variables are with cointegration rank problems, this approach avoids bias than other methods.

According to the Table 3, the value of Trace statistic under Johansen Cointegration is 2.8578 before reformation of exchange rate regime, while 28.0224 post reformation of exchange rate regime, both using a significance level of 10 percent, indicating that there are three linearly independent cointegrating vectors before the reform while there is just one after the reform (see Table 3).

VECM Test

Error correction model only applies to the time series when cointegration exists, and it is sensitive to the lag order. Combining the before two-step test, the cointegrations are observed among

Table 2: The result of selection-order criteria Periods: (1996.1-2005.6)

Lag	*LL*	*LR*	*df*	*p*	*FPE*	*AIC*	*HQIC*	*SBIC*
0	199.214				8.5e-11	-11.8311	-11.7701	-11.6497
1	215.663	32.898	16	0.008	8.4e-11	-11.8584	-11.5532	-10.9514
2	227.415	23.504	16	0.101	1.1e-10	-11.6009	-11.0516	-9.96835
3	366.246	277.66	16	0.000	7.5e-14	-19.0452	-18.2517	-16.6871
4	414.503	96.515*	16	0.000	1.4e-14*	-21.0002*	-19.9626*	-17.9165*

Endogenous: dm1 dloan dcpi dgdp

Table 3: The result of Johansen Test for cointegration

Periods	*Rank (Max)*	*Parms*	*LL*	*Eigen-value*	*Trace statistic*	*5% critical value*
1996.3-2005.6	0	52	377.70875		73.5883	47.21
	1	59	391.63506	0.57002	45.7356	29.68
	2	64	404.36402	0.53766	20.2777	15.41
	3	67	413.07397	0.41014	2.8578*	3.76
	4	68	414.50288	0.08296		
2005.6-2014.9	0	52	370.01972		64.4670	47.21
	1	59	388.24203	0.67983	28.0224*	29.68
	2	64	398.47242	0.47239	7.5616	15.41
	3	67	402.19864	0.20776	0.1092	3.76
	4	68	402.25323	0.00341		

" money supply, interest rates, prices, output", and the optimal lag order is found to be 4. So we can use MLE method to estimate the Johansen system vector error correction model (VECM).

The effectiveness of monetary policy in China under the fixed exchange rate regime (see Table 4).

1) The price equation: in the Table 4, the amount of order 1, valued 0.0410, and order 2 of M1, valued 0.0638, is positive to the change in price, and the amount of M1 has insignificant impact on price changes. In addition, all lending rates on the orders of price changes are insignificant, which 1-order-lagged, 2-order-lagged, and 3-order-lagged are -0.33, 0.59, and 1.09 respectively in t test. Base on the test, the changes in the quantity of money and interest rates exert insignificant effect or no effect to the change of price.
2) The output equation: in the Table 4, all the orders of t M1 is positive coefficient, 0.165, 0.303, and 0.0249 respectively, on output impact now, but not significant, which value 0.62, 1.54, and 0.17 respectively in t test. The amount of order 2, valued 0.215, and order 3 Loan, valued 0.140, is positive to the change in output, therefore, the model does not support that the change in the quantity of money can affect the change of output but interest rates did significantly impact on output.

In practice, during the traditional peg period, the quantity of money did not significantly impact on prices and output. Moreover, influence

Table 4: Vector Error-Correction Model Periods: (1996.1-2005.6)

	Currency D_d_lnm1		*Interest Rate D_d_lnloan*		*Price level D_d_lncpi*		*Output D_d_lngdp*	
L._ce1	-1.311**	(-2.66)	2.085	(1.83)	0.00201	(0.01)	-0.336	(-0.96)
L._ce2	0.163	(0.87)	-1.670***	(-3.84)	0.0265	(0.21)	0.00461	(0.03)
L._ce3	-0.301	(-0.53)	5.559***	(4.21)	-0.589	(-1.53)	0.511	(1.26)
LD.d_lnm1	0.311	(0.84)	-1.223	(-1.42)	0.0410	(0.16)	0.165	(0.62)
L2D.d_lnm1	-0.0524	(-0.19)	-0.327	(-0.51)	0.0638	(0.34)	0.303	(1.54)
L3D.d_lnm1	-0.000747	(-0.00)	-0.170	(-0.37)	-0.00407	(-0.03)	0.0249	(0.17)
LD.d_lnloan	0.0757	(0.50)	0.408	(1.16)	-0.0340	(-0.33)	0.115	(1.06)
L2D.d_lnloan	0.201	*(2.05)	-0.00683	(-0.03)	0.0387	(0.59)	0.215**	(3.10)
L3D.d_lnloan	0.177	*(2.40)	0.0693	(0.41)	0.0542	(1.09)	0.140**	(2.68)
LD.d_lncpi	0.606	(0.86)	-6.494**	*(-4.00)	-0.453	(-0.96)	0.0321	(0.06)
L2D.d_lncpi	0.574	(0.72)	-5.894**	(-3.21)	-0.0465	(-0.09)	0.633	(1.12)
L3D.d_lncpi	-0.198	(-0.39)	-3.489**	(-2.98)	0.302	(0.89)	0.225	(0.63)
LD.d_lngdp	0.498**	(2.96)	0.0713	(0.18)	0.249	*(2.20)	-1.088***	(-9.12)
L2D.d_lngdp	0.331**	(2.95)	0.0294	(0.11)	0.165	*(2.18)	-1.064***	(-13.37)
L3D.d_lngdp	0.148**	(2.64)	0.0123	(0.10)	0.0826	*(2.18)	-1.026***	(-25.74)
Constant	-0.000161	(-0.06)	-0.00000535	(-0.00)	0.000548	(0.29)	0.000596	(0.30)
Observations		33		33		33		33

* represents 10% significant level,** represents 5% significant level,*** represents 1% significant level

of lending rate on output changes is positive. That is clearly contrary to common sense in economics. It also highlights that the monetary policy transmission channels are in infarct, leading to unreasonable changes of sign.

Inspecting China's monetary policy autonomy under the fixed exchange rates regime (see Table 4).

1) The monetary equation: changes in interest rates on order 2 and order 3 effect on price are positive, valued 2.05 and 2.40 respectively in t test. This shows that the quantity of money and interest rates changed in same direction, that means it is difficult for the central bank keeping the autonomy of monetary policy.

2) The interest rate equation: the amount of money M1 on all the order do not impact on interest. Therefore, the impact of money supply on interest rates is not significant.

Comprehensively, currency and interest rate equations illustrate significant correlation between the quantity of money and interest rate during the fixed exchange rate regime. Chinese monetary policy autonomy should be strengthened.

Examine a managed floating exchange rate regime during the effectiveness of China's monetary policy (see Table 5)

1) The price equation: the quantity of money M1 of order 1 and order 2 towards the change of price is significantly positive, valued 3.00 and 2.71 respectively in t test. Therefore, it can be considered that the amount of money M1 significantly impact on price changes.

However, the M1's impact on prices is partly negative coefficient, while it values -0.00407 in the Table 4, before the reform, and its impact on prices is all positive coefficient after the reform. Obviously, the impact of money supply on prices should be positive so that after the exchange rate reform, the monetary conduction channels on prices have been improved.

Additionally, all lending rates of all order to price changes are insignificant, while the 1-order lagged, 2-order lagged and 3-order lagged are 0.80, 1.22 and 1.33 respectively in t test in the table 5. Similarly, the results do not support that the changes in the quantity of interest rates can affect the number of price changes.

2) The output of the equation: interest rates on output GDP impact shows significant negative coefficient, and the absolute values is 0.175, with -2.93 in t test. This explains after the exchange rate reform, the level of interest rates have a critical impact on GDP.

Therefore, with the implementation of the managed floating exchange rate regime, the change in the quantity of money and interest rate can affect the output. Also after the reform, China's monetary policy becomes at least partially effective. The changes of lending rate, especially have tremendous impact on national output.

Examine the Chinese monetary policy autonomy under the managed floating exchange rate regime.

1) The monetary equation: the 1-order lagged and 2-order lagged variables of interest rate

Table 5: Vector Error-Correction Model Periods: (2005.6-2014.9)

	Currency *D_d_lnm1*		*Interest Rate* *D_d_lnloan*		*Price level* *D_d_lncpi*		*Output* *D_d_lngdp*	
L._ce1	-0.462*	(-2.09)	1.174	(1.48)	-0.112	(-0.81)	0.287	(1.79)
LD.d_lnm1	-0.650***	(-4.17)	0.563	(1.01)	0.294**	(3.00)	-0.528***	(-4.66)
L2D.d_lnm1	-0.147	(-0.80)	0.833	(1.27)	0.312**	(2.71)	-0.294*	(-2.21)
L3D.d_lnm1	-0.00668	(-0.04)	-0.332	(-0.53)	0.171	(1.55)	0.00639	(0.05)
LD.d_lnloan	-0.00623	(-0.05)	-1.514***	(-3.36)	0.0631	(0.80)	0.00481	(0.05)
L2D.d_lnloan	-0.206	(-1.80)	-0.920*	(-2.24)	0.0874	(1.22)	-0.150	(-1.80)
L3D.d_lnloan	-0.215**	(-2.60)	-0.154	(-0.52)	0.0687	(1.33)	-0.175**	(-2.93)
LD.d_lncpi	1.676**	(3.14)	1.510	(0.79)	-0.132	(-0.39)	0.548	(1.41)
L2D.d_lncpi	1.467**	(2.83)	0.276	(0.15)	0.109	(0.33)	0.761*	(2.02)
L3D.d_lncpi	0.438	(1.05)	-3.458*	(-2.31)	-0.0453	(-0.17)	0.943**	(3.10)
LD.d_lngdp	-0.694*	(-2.06)	1.778	(1.47)	-0.172	(-0.82)	-0.554*	(-2.27)
L2D.d_lngdp	-0.449*	(-2.01)	1.141	(1.42)	-0.116	(-0.83)	-0.697***	(-4.29)
L3D.d_lngdp	-0.240*	(-2.21)	0.566	(1.45)	-0.0618	(-0.90)	-0.849***	(-10.74)
Constant	-0.00357	(-1.24)	-0.000991	(-0.10)	-0.000185	(-0.10)	-0.00175	(-0.84)
Observations		32	32	32	32			

* represents 10% significant level,** represents 5% significant level,*** represents 1% significant level

are -0.05 and -1.80 respectively, which indicates most of the orders of the changes in interest rates impact on M1 was not significant, and therefore, the quantity of money and interest rates do not change in the same direction;

2) The interest rate equation: the quantity of money M1 of all orders have no significant impact on interest rates. Therefore, it do not support that the quantity of money exert a significant impact on interest rates.

In general, there is no clear correlation between the quantity of money and interest rates. Therefore China's monetary policy maintains its autonomy after the exchange rate reform.

The Relation between the Behavior of Chinese and Real Estate

According to the Table 6, the average price of real estate in China increased from 3119 RMB/m2 in 2006 to 6160 RMB/m2, almost as twice as in 2006, in 2014, which is the period of reformation of exchange rate regime. The rapid increase of price rose the spending of residents. Simultaneously, the contribution to GDP from real estate industry was enlarged, which is 33.05 percent in 2006 and increased dramatically in 69.04 percent in 2014, making GDP more sensitive to this industry. That is the reason why the effectiveness of China's monetary policy enhances. Based on the behavior of human being, people will have more preference on mortgage, which accelerates the development of real estate industry and GDP, when the interest rate decreases. The Chinese traditional culture and behavior have a high relation with the effectiveness of China's monetary policy.

DISCUSSION

Discussion on The Changes of Effectiveness in Monetary Policy under China's Fixed Exchange Rate System and Managed Floating Exchange Rate Regime

Does the effectiveness in monetary policy changes whether under China's fixed exchange rate system or managed floating exchange rate regime? Under the traditional pegged exchange rate regime, the quantity of money M1 has no apparent effect on change of price. All orders of interest rates also have no apparent impact to the change in price. Therefore, the results do not support that the statement that quantity of money and interest rate have influence on price level, which is against Friedman (2015). In output equation, all orders of the quantity of money M1 have no apparent effect on output, but the order 2 and 3 of interest rate have apparent statistical magnitude.

Under the Managed Floating Exchange Rate Regime, the quantity of money M1 has apparent effect on price level. However, the coefficient of M1 to prices is partly negative before the new regime, and it becomes totally positive after. After the implementation of the new regime, lending rate has significant effect on GDP.

The reason for this phenomenon is mainly that the housing price in China has risen since 2003 (Wen and Tao 2015). Therefore, the leading rate is a crucial factor for buying houses and has apparent effect on real estate, as well as on the national output. Test results in this paper reflect this economic fact.

Table 6: The price of real estate in China and the ratio of the increase value of real estate industry to the increase value of GDP

Periods	*The increase value of real estate industry (billion RMB)(1)*	*The increase value of GDP(billion RMB)(2)*	*(1)/(2)*	*Price per m^2 (RMB)*
2006	1037.046	3137.700	33.05%	3119
2007	1380.975	4949.600	27.90%	3645
2008	1473.870	4823.500	30.56%	3576
2009	1865.488	2685.700	69.46%	4459
2010	2278.201	60610.00	37.59%	4725
2011	2678.387	7159.200	37.41%	4993
2012	2935.973	4583.800	64.05%	5429
2013	3112.131	4990.310	62.36%	5850
2014	4668.197	6761.779	69.04%	6160

Discussion on the Changes of Autonomy in Monetary Policy under China's Fixed Exchange Rate System and Managed Floating Exchange Rate Regime

Does the autonomy in monetary policy change whether under China's fixed exchange rate system or managed floating exchange rate regime? Under traditional pegged exchange rate regime, according to the currency equation, the changes of interest rate will have positive influence on prices, and they're apparent. In interest rate equation, quantity of money has no apparent effect on interest rate (Belongia and Ireland 2015). Chinese monetary policy partly maintains its autonomy under the fixed exchange rate regime.

Under the new regime, the currency equation shows that most orders of interest rate have no significant coefficient to prices. Interest rate equation shows the quantity of money M1 of all the orders has no significant effect on interest rates, which meets the viewpoint of Georgiadis and Mehl (2015). Therefore, after new regime, there is totally autonomy in Chinese monetary policy.

Discussion on Whether Chinese Consumption Habits Make Monetary Policy to be More Effective

Do Chinese consumption habits make monetary policy to be more effective? Since the implementation of the exchange rate reform in 2005, the monetary policy effectiveness is enhanced. However, the improvement on the effectiveness of monetary policy, which is primarily due to the Chinese real estate industry, is highly bundled to the national economy after 2005. The increasing population increases real estate prices both directly, and indirectly, which is such as by real estate loans (Zhang et al. 2015). The real-estate and the GDP are tied together, so lending rate affects the GDP apparently since consumer's purchasing power depending on interest rate especially in the real estate industry.

CONCLUSION

This paper applies two econometric testing methods, VECM and VARGRANG to examine two completely different exchange rate regimes of China, in order to observe the effectiveness and the autonomy of monetary policy before and after the exchange rate reform in June 2005. It found that (1) the money supply should have positive effect on change of prices, and the turning sign of the coefficient implies the change in monetary policy and its effects upon price are significant; (2) Chinese monetary policy partly maintains its autonomy under the fixed exchange rate regime while there is totally autonomy in Chinese monetary policy after new regime; and (3) Chinese consumption habits make monetary policy to be more effective.

RECOMMENDATIONS

It is important to stabilize the economies and financial system by keep the autonomy and effectiveness of monetary policy. The monetary policy of China has a highly autonomy is relevant to low exchange rate stabilization, open capital account, and sterilized intervention. Therefore, the China government should maintain both a completed RMB exchange market and sterilized intervention.

Secondly, the real-estate industry is highly related to the economy, which leads participants, such as firms and residents, into being sensitive to the quantity of money and interest rate. To achieve the aim of sustainable development, China policy makers should upgrades and diversify the industrial structure. Simultaneously, the government should enhance the happiness of households by increasing income of individual and guiding people to rationalization of behavior, by transforming from owning a residence to renting a residence.

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