



China Finance Review International

Empirical analysis of the effect of financial restraint policy on Chinese residents' consumption

Feiming Huang,

Article information:

To cite this document:

Feiming Huang, (2018) "Empirical analysis of the effect of financial restraint policy on Chinese residents' consumption", China Finance Review International, <https://doi.org/10.1108/CFRI-06-2017-0123>

Permanent link to this document:

<https://doi.org/10.1108/CFRI-06-2017-0123>

Downloaded on: 27 February 2018, At: 19:07 (PT)

References: this document contains references to 95 other documents.

To copy this document: permissions@emeraldinsight.com

The fulltext of this document has been downloaded 7 times since 2018*

**OXFORD
BROOKES**

Access to this document was granted through an Emerald subscription provided by emerald-srm:382580 []

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.

Empirical analysis of the effect of financial restraint policy on Chinese residents' consumption

Effect of
financial
restraint policy

Feiming Huang

Jiangxi University of Finance and Economics, Nanchang, China

Received 27 June 2017
Revised 19 October 2017
Accepted 19 October 2017

Abstract

Purpose – The purpose of this paper is to test whether the policies of China's financial restraint have an inhibitory effect on the consumption of residents.

Design/methodology/approach – This study used the principal component analysis for constructing a financial restraint index and also used empirical methodology.

Findings – The authors found that financial restraint policies create rent opportunities for banking sector and production sector, which further creates the rent opportunities for the household sector. Such transfer of rent and redistribution will have an inhibitory effect on residents' consumption. The financial restraint policies directly and indirectly inhibit the growth of residents' income; and in theory, the purpose of financial restraint policy is to promote economic growth, thus promoting residents' consumption. Thus, the financial restraint policies impacting the residents' consumption are non-linear and test the threshold effect of financial restraints on the residents' consumption of China.

Research limitations/implications – This paper's theoretical contribution includes: increasing the connotation of financial restraint in the policies of stock market and foreign exchange controls, and further developing the financial restraint theory; and exploring the inhibitory effect on the consumption of residents from the perspective of financial restraints to enrich the connotation of the consumption theory.

Originality/value – The findings in this study can help the financial authorities to gradually relax the financial restraint policies to encourage residents' consumption.

Keywords Financial restraint, Residents consumption, Threshold effect

Paper type Research paper

1. Introduction

Since the reform and opening up, China has taken an investment-driven and export-oriented development path, while the strongest driving force of Chinese economic growth is not consumption but its investment and net exports, which has benefitted the rapid growth of economy. However, the high economic growth which relies on high input and exports will result in the continue increase of investment rates and external dependence, while consumption rates continue to decline. Since 1984, the final consumption rate in China has been declining[1], and especially after the Asian financial crisis, there has been a steep decline, from 65.8 percent in 1984 to 47.4 percent in 2010, with the residents consumption rate of 33.8 percent, while capital formation rate and the external dependency over the same period rose from 34.2 and 17.4 to 48.6 and 51 percent, respectively. Even after the implementation of the policy of expanding domestic demand in 1998 and 2008, the declining trend in consumption rate has not been changed. This investment and export development path cannot be maintained for a long time, accumulated over the years. Overcapacity, resource and environmental pressures, trade friction and some "internal and external" economic problems need to be resolved. The international financial crisis that began in the USA has brought about far-reaching implications from which the global economy has not

Huang would like to acknowledge the financial support from National Natural Science Foundation of China (71263017), Social Science Planning Project of Jiangxi Province (15YJ27), Jiangxi Provincial Department of Education Science and Technology Project (GJJ1530469), and Key Research Base for Humanities and Social Sciences of Higher Institutions in Jiangxi Province (JD16055), Research Project of Graduate Education Reform in Jiangxi Province (JXYJG-2015-069).



yet come out of. The international market demand continues to decline, the development model of over-consumption in the USA is difficult to follow. For China, the space for the release of excess capacity through the international market, external demand becomes smaller; and with the decline of the demographic dividend, the aggravation of aging, high savings rate and high investment rate cannot be maintained for a long time, the situation that economic growth highly dependent on investment and export is difficult to sustain, urgent need to enhance consumer demand to stimulate economic growth.

The modern economy is a demand-oriented economy. Consumption, which is an important component of aggregate demand, plays an important role in effectively promoting economic growth and is considered to be the core of effective demand and the most important driver of economic growth. In recent years, Chinese consumer demand has been declining, the consumption rate continues to decline, the contribution of consumption to GDP has lost its leading position, there is a clear phenomenon of consumption inhibition, and the role consumption plays in boosting the national economy has been seriously weakened. To sustain high economic growth under consumption inhibition conditions, country must follow an investment and export-driven approach. This further troubled the transformation of Chinese economic development. Anderson (2007) pointed out that, from a realistic point of view, structural imbalances caused by consumption inhibition are plaguing the Chinese economy. According to the World Bank statistics, at present, the global average consumption rate is about 77 percent, and the rate of consumption in developed countries is generally higher than in developing countries. However, Chinese consumption rate is less than 50 percent, lower than the world average, far lower than the developed countries, and even less than some developing countries. Dynamic to see, a country's optimal economic growth requires a gold ratio of consumption and investment level. Reasonable arrangements for the relationship between the two are the key to the balanced development of economic operation. Overcapacity or lack of consumption will deviate economy from the optimal growth path and dynamic economic inefficiency. Recently, the Chinese Government has started to pay more attention to expand domestic demand, especially to boost consumption. For instance, the 2009 Central Economic Work Conference placed the increasing consumer demand in an unprecedented position; in 2010, the Fifth Plenum of the 17th Central Committee of the Communist Party of China put consumption as the forefront factor of stimulating economic growth. In the next five to ten years, the main challenge of Chinese economic development is whether it can shift from investment-driven economic growth to a consumer-led one. In order to ensure the effectiveness and sustainable development of Chinese economy, how to build a long-term mechanism to expand domestic demand and consumer demand has become an important question in the current economic work. Finance is the core of modern economy, expanding consumer demand is of great significance.

The financial restraint theory is an important theory in financial development. In developing countries, the financial system is not perfect and the financial market is not well developed; they cannot provide sufficient capital supply for economic development through market mechanism, they still need a special transitional institutional arrangement for government intervention, and the financial system takes advantage of this institutional arrangement to provide the financial support for economic development. So far from the reform, the Chinese financial restraint phenomenon has been evident, such as interest rate control policy, which keeps the banking industry stable for a long time. However, the current studies of financial restraint are focused on whether it contributes to the financial development and economic growth, even though domestic scholars also studied the applicability of China, analyzing the impact of consumer behavior from the perspective of financial restraint is relatively rare. This paper studies the problem of consumption inhibition caused by the financial restraint policy in China, and its contribution lies in the following: first, the connotation of financial restraint to broaden the capital market and open

conditions and so on used the financial constraint dynamic index to measure the degree of financial restraint, and further developed the theory of financial restraint. Second, it explored the inhibitory effect of residents' consumption from the perspective of financial restraint policy, enriched the connotation of consumption theory. Third, it proposed and verified the threshold effect of financial restraint on consumption inhibition; provided theoretical support for China to gradually relax the interest rate control, implement appropriate financial restraint policy mix model and take the road of financial development; provided alternative decision-making ideas for the financial system reform and development; and provided policy recommendations for support national macroeconomic decision making in general.

The remaining structural arrangements in this paper are as follows: Section 2 is a review and commentary of the relevant literature; Section 3 elaborates the relationship between the financial constraint theory and residents consumption; Section 4 constructs the financial restraint index (FRI) and uses it to analyze the relationship between the financial restraint and the residents consumption, the last parts are the conclusion and policy recommendations.

2. Literature review and commentary

2.1 A review of the study on financial restraints

Financial restraint means that government creates the opportunities for rent in the financial and production sector through formulating a series of financial policies. It induces the financial sector to carry out some financial activities which are insufficiently supplied in the market but are beneficial through interest rate control, financial institutions access restrictions and asset substitution restrictions and other policies. The financial restraint theory was proposed and formed by Hellmann *et al.* (1996, 1997, 1998, 2000) after McKinnon (1973) and Shaw's (1973) financial repression-financial deepening theory encountered theoretical and practical challenges. McKinnon (1973) and Shaw's (1973) financial repression theory argued that developing countries intervene too much in financial activities and financial systems, such as the deposit and loan interest rate control and credit size control in financial market that distorted the allocation of resources, inhibited the development of the financial system, hindered economic development and resulted in a vicious cycle of financial repression and economic backwardness. However, McKinnon (1973) and Shaw's (1973) financial repression theory is to introduce their financial deepening theory. They assumed that a more liberalized financial system would lead to increased savings and investment and economic growth, and therefore they advocated that developing countries must carry out financial deepening reforms and pursue financial deepening strategies aimed at financial liberalization, that is, to relax or remove unnecessary control. In reality, the assumptions implied in McKinnon and Shaw's theory that the interest rate is a single variable under Walrasian equilibrium market conditions are difficult to set up in developing countries. And because of the existence of incomplete and asymmetric information, agency behavior, moral hazard, even the Walrasian equilibrium market conditions set up, resources are difficult to effectively configure. Actually, the financial liberalization reforms began in the 1970s in Latin America and Asia, the Latin American debt crisis in the 1980s and the Asian financial crisis in the late 1990s prompted people to reflect on financial restraints – liberalization policies. In this regard, McKinnon proposed the conditions and order of economic marketization. And according to the research results of the East Asian economy, especially the experience of post-war Japan, Hellmann *et al.* (1996, 1997) put forward the “financial restraint” policy, that was, implying appropriate government intervention in economically backward, low degree financial deepening in the developing countries. An important aspect of this is that the government should set up rent[2] opportunities in the financial (mainly banks) sector. Through the “rent effect” and “incentive effect”, potential adverse selection behavior and moral hazard can be avoided, the market failure can be overcome caused by serious information asymmetry; innovation is encouraged,

and financial stability is maintained, thus financial restraint policies have a positive effect on the economic development.

After the theory has been put forward, it has resulted in extensive discussion and application of the current study. Wyplosz (1999) reduced the average real interest rate by adopting financial restraint such as credit scale control and capital control in Belgium, France and Italy, provided cheap financing needs for fiscal deficit and industrial development. The rent opportunities created by financial restraint are initially shared by government departments and then shared by private sectors. Post-war Europe's financial restraint policy contributed to the recovery of the European economy, while also undermining fiscal discipline and monetary control. Demetriades and Luintel (2001) studied the role of financial restraint policy in South Korean economic miracles by establishing an econometric model closely related to South Korea – the South Korean bank model. They found that government intervention could stable the financial system at the early stages of economic development, but with the development of the financial system, it is necessary to give the market full control. They confirmed that financial restraint contributes to financial development by studying role of financial restraint policy in South Korea, thus explained the miracle of financial restraint and economic growth of South Korea. Hellmann *et al.* (2000) argued that the supervision ability of central banks in developing countries is limited. The implementation of financial restraint policies helps to eliminate the adverse selection and moral hazard caused by information asymmetry, encourages innovation, contributes to financial development, and thus plays a positive role on economic development. They believed that through the deposit interest rate control banks can invest carefully, increase their franchise value, and if the cap of deposit rates is not on the equilibrium path, they can also effectively deter bank risk, reduce the bank's moral hazard. Ang (2008) evaluated the impact of several financial restraints on the development of the financial system in Malaysia, including interest rate control, legal reserves, direct credit schemes, and liquidity requirements. He used the principal component analysis technique to construct an index that could simply measure the degree of interest rate policy restraint and drew the conclusion that the interest rate restraint contributes to the deepening of the financial system. Suzuki *et al.* (2008) studied Chinese banks' bad loans crisis by means of a financial restraint model. They argued that Chinese banks' poor performance was mainly due to the failure to create sufficient economic rents. Taghipour (2009) used the condition of the cointegration method to study Iranian financial restraints and financial development from 1960 to 2005; the results showed that the financial restraints imposed on Iranian monopolized banking industry had a negative impact on its financial development. Suzuki and Adhikary (2010) used the framework of financial restraint model to analyze the role of "bank rent" on the development of the banking system since Bangladesh's independence; they believed that bank rents created by policies could change the rigid banking system and promote the development of the banking system.

Studies of domestic scholars of financial restraint mainly focused on the following five aspects:

- (1) Introduce the theory of financial restraint purely from theoretical level and talk about the relationship with other financial development theories. Wang (1997) is the first domestic scholar to introduce this theory. He pointed out that the starting point of the financial restraint policy is to solve the problem of information and incentives; but he denied the feasibility of financial restraint on the bank's incentive policy in China. Later, Tan (1998) elaborated on the differences between financial restraint and financial inhibition, and pointed out that the stage of financial restraint was between the two stages of financial inhibition and financial liberalization, and financial inhibition and financial restraint could be transformed into each other.

Financial inhibition was the opposite of financial development, and financial restraint was the early stage of financial development, financial development was the latter part of financial liberalization. He pointed out that for those economies which were still in the state of financial inhibition, there were two alternative roads to go through this condition as soon as possible: one is financial liberalization and the other is financial restraint. Yang and Xie (1999) argued that the financial restraint theory was closer to the reality, and their proposal that government should intervene in economic development has a reference for the formulation of government policies in developing countries' financial deepening process.

- (2) Study the applicability of financial restraint in China. Shuai (2001) analyzed that China is implementing the financial restraint policy at this stage, rather than financial inhibition. Zheng also believed that Chinese financial development was in the financial restraint stage. Yu (2001) pointed out that the moderate "financial restraint" policy could accelerate the financial deepening while promoting economic development healthily and sustainably. And he believed that financial restraint would help us to balanced transit to the ultimate goal of financial liberalization as a transitional policy arrangement. Chen (2002) pointed out that the traditional theory of financial development, the "dichotomy" – non-financial repression, that was, financial liberalization – obviously could not explain the changes of the Chinese financial system. In his view, intervention of the Chinese Government in the financial system is essentially a financial restraint, but it also has a color of financial repression; financial restraint still meets the needs of the Chinese reality. Xie (2003) argued that no matter if the real interest rate is positive or not, a small enough resident savings interest rate elasticity is a sufficient condition for the financial constraint policy to be effective. And since the reform and opening up, the Chinese economy has met this condition well. Yang (2003) believed that after more than 20 years' exploration and practice in the Chinese financial industry, in fact, China was looking for a balance between the financial deepening and financial repression intentionally or unintentionally, and chose the financial restraint development path. For example, Zhou (2000) argued that, in reality, the two conditions required for financial restraint theory to set up and their implicated logic hypothesis were not satisfied, so the financial restraint theory was not feasible. Li and Shu also believed that the financial restraint theory was not suitable for China. Hua and Cheng (2004) argued that the three major policies mentioned in the financial restraint theory – the government control of deposit and loan interest rates, restrictions on market access and competition, and restrictions on asset substitution – were not sufficient for the Chinese effective financial restraint, because the Chinese state-owned finance has always been in a monopoly position. However, Lan (2001) argued that even if the preconditions for financial restraint were not realistic, in the economic analysis, the criterion for measuring the validity of the theory was to see whether the conclusion of the theory was in line with the economic reality, rather than to measure its hypothetical reality.
- (3) Study the rent generated by financial restraint. Yu (2001) pointed out that the financial restraint policy could make the banking sectors and the production sectors to obtain the opportunity to create rent, thereby enhancing banks' concession value and increasing companies' equity accumulation to reduce the agency cost caused by information asymmetry and non-equilibrium markets in the financial system, and supporting economic development by improving the efficiency of the allocation of financial system resources. Jin and Tan (2001) studied the rent created by financial restraint, believed that rent could alleviate the problem of information asymmetry

and incomplete market competition to a certain extent. Based on the domestic banks' financing market, Liu (2013) put forward two different rent scale calculation ideas, the approach based on the extended Taylor rule and the inflation tax perspective, estimated the scale of the rent, and compared the results of the two methods. The data show that the scale of the rent raised by the low interest rate policy is increasing year by year. Liu and Huang (2015) established a reasonable consideration model to calculate the degree of deviation between the reasonable consideration and the actual consideration, and calculated the policy rent scale raised by the non-tradable shareholders encroached on the shareholders of the tradable shares. According to the essence of the financial restraint theory, Huang (2015) expanded the analysis framework to the stock market, put forward two kinds of financial restraint policies, price type and quantity type in the Chinese stock market, empirically analyzed the rent effect of financial restraint in the Chinese non-tradable shares reform, and obtained the conclusion that the reform did not protect the small and medium investors from the impact of the lifting of the supply.

- (4) Study the impact of financial restraints on economic development. Wang (2006) started from the financial restraint theory, analyzed the current account surplus and found out that the fundamental reason for this was the coordinated relationship between investment and savings caused by financial restraint. Yin (2006) argued that the serious financial repression in rural China has weakened the function of supporting agriculture in the rural financial system, it was unable to meet the real requirements of building the new countryside, and financial restraint could effectively correct many shortcomings of financial repression. Qiu *et al.* (2011) explored the interaction between financial repression, financial restraint, financial liberalization and financial deepening, and constructed indexes and found that financial restraint could not promote financial deepening in the long run through empirical analysis. Chen and Qian (2011) argued that the financial restraint policy plays an extremely important role in the Chinese economic take-off in the transitional period and is an important financial system arrangement. They verified that under the financial restraint policy, state-owned enterprises drag on economic growth. Tian and Bai's empirical analysis showed that the Chinese inclined financial resources were born in the initial conditions and the progressive mode in economic transformation, and formed a path of dependence under the country's financial restraint policy. Huang (2014) analyzed the debt expansion of local government financing platform from the perspective of the financial restraint theory, and argued that under the deposit and loan interest rate control, the local financing platform shares the rent created by this financial restraint policy with commercial banks. Gu and Ma (2015) empirically analyzed that the fiscal expenditure bias (productive public goods spending far greater than the non-productive public goods expenditure) and financial market restraint are important factors for the Chinese foreign trade imbalance.

However, the rent effects of the financial restraint policy in addition to bringing economic growth through incentives also bring down the residents' consumption capacity by the transfer of wealth and the decline in the distribution of labor income, resulting in residents' consumption repression. Qiu and Liu (2012) studied that financial restraint was an important reason for the decline in residents' consumption rate. Huang (2015) pointed out that the rent effect of the financial restraint policy not only brought economic growth, but also brought down the residents' consumption capacity through the transfer of wealth and the decline in the distribution of labor income. In addition, he also believed that financial restraint may have a threshold effect with residents' consumption.

2.2 A review of the research works on residents' consumption suppression

In recent years, the Chinese economic operation shows an obvious phenomenon of consumer repression, mainly manifested in that the final consumption rate continues to decline, especially the consumer demand is very less. Li (2009) estimated whether there is consumption inhibition according to the consumption-investment ratio. When the consumption-investment ratio is small, the consumption inhibition exists. His study of Chinese provincial panel data from 1992 to 2007 showed that 84 percent of the provincial annual consumption rates were below the optimal consumption rate and the consumption rate was decreasing year by year.

The early consumption inhibition phenomenon was related to the country's consumption policy. Lin *et al.* (2002) conducted an economic analysis of Chinese macroeconomic policy of consumption inhibition in the 1950s and argued that this consumption inhibition policy was a measure taken by our country in order to implement the "catch-up" strategy, give priority to the development of heavy industry and reduce labor costs. Li (2005) studied the changes in consumption system since the founding of new China and believed that before the reform and opening up, China adopted the consumption inhibition policy, but since the late 1990s, China has adopted a policy and institutional arrangements for stimulating consumption. Fang *et al.* (2006) analyzed the changes in consumer demand and consumption policy since the founding of new China. He divided the country's consumption policy into four different stages: consumption inhibition stage (1949-1978); consumption compensation stage (1979-1988); moderate consumption stage (1989-1997); and encouraging consumption stage (1998-2004). Wang (2007) argued that after the socialist transformation was completed in 1956, "the inhibition of consumption" at that time was a recessive exchange between the country and individual, which was using the national commitment (future happiness and beautiful blueprint) to exchange residents' consent of restraining consumption ("lagging enjoyment") on the current stage.

The external manifestation of consumption inhibition is the lack of consumer demand. In recent years, the research on the lack of consumer demand is a hot issue. Analyzing from the perspective of consumer theory, Keynes' absolute income hypothesis, Duesenberry's relative income hypothesis, Modigliani's life cycle hypothesis, Friedman's permanent income hypothesis, and Samuelson and Diamond's overlapping generation models based on the life cycle theory all believe that income is the main factor affecting consumption. It can be said that the consumers who pursue for maximizing the level of long-term utility would consider the average income or permanent income of life to rationally plan their lifetime consumption. Based on Lucas' criticism, Hall (1978) applied the rational expectation methodology to the life cycle hypothesis and the permanent income hypothesis, he considered the uncertainty factors and put forward the random walk hypothesis. The hypothesis believes that the change of consumption is unpredictable; the expected growth in personal income has nothing to do with the expected growth in consumption; the uncertainty of future income will not have an impact on consumption. However, the majority of the test results of this hypothesis did not support this conclusion, in fact, there is a correlation between the real consumption changes and the expected income changes, consumption is overly sensitive to income (Flavin, 1981; Campbell and Deaton, 1989). According to this analysis, the main reason for the lack of consumption is the income restraint. Yuan and Song (1999) pointed out that the excessive accumulation of household savings forms a strong inhibition of consumption, and induces the bad cycle between consumption inhibition and income restraint.

The new trend in consumer theory research is the uncertain equivalence, which means using the "uncertainty" factors as assumptions, modifying Hall's (1978) random walk assumption within the framework of intertemporal optimal analysis, and then introducing it into empirical study, such as precautionary savings hypothesis (Skinner, 1988; Zeldes, 1989;

Dardanoni, 1991; Engena and Gruberb, 2001; Parker and Preston, 2005), liquidity restraint hypothesis (Deaton, 1991; Jappelli and Pagano, 1994; Carroll, 2001), buffer inventory savings hypothesis (Deaton, 1991; Carroll, 1992), and so on. Although the uncertainty of the basic logic of these new consumption theories greatly stimulates the consumer's precautionary savings behavior, it does not negate the classical consumption theory on income as it is the main factor that affects consumption, but just stresses that the existence of uncertainty (income) has great impact on consumers' decision making. Zeldes (1989) studied the effect of uncertainty on the optimal behavior of consumption when income fluctuates randomly, and affirmed its influence on consumption decision. Carroll (2006) pointed out that the optimal behavior depends on the total income of the consumer in deterministic conditions, while the optimal behavior tends to follow the income curve under uncertainty.

Domestic scholars use these consumption theories to explore the rapid decline in the Chinese consumption rate and the lack of consumer demand. These can be summarized into two aspects: first is according to the above hypothesis, combining the data of the Chinese residents' consumption demand, using the econometric model and method to test the suitability of the various western consumption theories to China's consumption demand and explaining the problem of lack of consumer demand (Qi, 2000; Shi and Zhu, 2004; Du and Deng, 2005; Guo and Li, 2006; Pan and Xu, 2009; Yang and Chen, 2009; Fang, 2009; Zhou, 2010). The second aspect is studying the impact of the more and more prominent residents' income gap between urban and rural to the consumer demand in recent years (Zhu *et al.*, 2002; Li, 2003; Lou and Li, 2009; Chen *et al.*, 2009; Jin *et al.*, 2011).

In addition, spending uncertainty (Chamon and Prasad, 2010; Luo, 2004) and consumption habits (Ai and Wang, 2008; Hang, 2010, 2011) will also restrict residents consumption. But Chen *et al.* (2005) found that the most important factor in determining the consumption savings of our residents at this stage is still the income. Income refers to the persistent income rather than the temporary income. Yang and Zhu (2007) empirically found that narrowing the income gap is conducive to expanding consumer demand through examining the relationship between the income level of Chinese residents and the marginal propensity to consume. Zou and Yu (2011) used the inter-provincial panel data from 1990 to 2008, and found that the most fundamental reason for the slow growth of residents' consumption was the share of labor income and the urban-rural income gap.

In summary, income, income inequality, and high preventive savings rate are considered to be important factors which affect residents' consumption, and one of the most important determinants is income, including current income and future income, property income and labor income. According to the financial restraint theory, the transfer of rent in the financial restraint policy will damage the residents' income, and the redistribution of the rent will increase the income gap between residents, which will have direct or indirect effect on the residents' property income and labor income (Huang, 2015).

Moreover, due to the lagging development of consumer credit market, residents' consumption is also affected by liquidity restraint. And it was concerned by some scholars who have proposed and validated the liquidity restraint hypothesis (Deaton, 1991; Jappelli and Pagano, 1994; Carroll, 2001; Wan *et al.*, 2001; Liu and Shao, 2004; Tang *et al.*, 2010). But there is lack of more in-depth thinking on the root causes of the development of consumer credit market lagging. Huang (2015) argued that this is closely related to the restricted market competition and market access policy in the financial restraint. High savings and preventive motivation affect the consumption of Chinese residents that significantly presents a helpless performance of the lack of assets investment channels for Chinese residents. Restricting asset substitution in the financial restraint policy is one of the deep causes of high savings rate in China. And due to the irregularity of the securities market and the existence of exchange rate control, there are lacking of high liquidity asset investment

channels, which is particularly significant for rural residents, leading savings to be the only option to choose. So it can be inferred that financial restraint will inhibit the consumption of residents.

2.3 Review and research outlook

In summary, the domestic and international research works on financial restraint mainly focused on whether it contributes to financial development and economic growth. Domestic scholars have also increased their research works on the applicability of financial restraint policy in China, but the study results of the problem of consumption inhibition from the perspective of financial restraint are rare. Based on the analysis of the status quo and limitations of the previous research works, it is innovative to explore the problem of the residents' consumption inhibition from the perspective of financial restraint.

As the Chinese Government uses the financial restraint policy in the bank credit market and the securities market to create rent and improve the efficiency of financial markets for financial institutions, state-owned enterprises, and listed companies, it infringes the residents' property income and restricts the development of private economy as a major channel to solve the employment problem and the improvement of residents labor income at the same time, which is not conducive for the national economic growth mode changing to the consumer-oriented model. It is basically a consensus that the decline in the share of residents income is the reason for the Chinese consumption downturn in recent years. According to the mainstream consumption theory, the most important factor that affects consumption is the income. According to the classic theory of economic growth, if the actual economic operation deviates from the optimal growth path, the government should take some appropriate interventions to lead the economic to re-take the best track. Therefore, it provides a theoretical basis for the government to implement appropriate financial restraint policy to improve economic efficiency.

3. The main points and connotations of financial restraint

3.1 The main points of financial restraint theory

Hellmann *et al.* (1996, 1997) argued that the condition of financial deepening and financial liberalization put forward by McKinnon (1973) and Shaw (1973) are too high for developing countries and countries with economies in transition. Therefore, he advocates to take finance constraint policy to promote financial development. They argued that financial restraint is painstaking for developing economies and transition economies. On the other hand, financial liberalization does not achieve the desired results yet. So, it is necessary to take their so-called financial restraints road. In respect of policy, the financial constraint theory emphasizes the important role of government intervention, and that selective government intervention helps, rather than hindering financial development. Its main policies are interest rate control, market access restrictions, restrictions on asset substitution, etc., where interest rate control is the main factor. The government uses these financial restraint policies to induce the financial sector to carry out some of the financial activities that are inadequate but beneficial in the market. The government limits the deposit rate to below the competitive market rate, creates a rent for the financial institutions, at the same time, limits the lending rate below the competitive market rate, forcing the financial institutions to transfer part of the rent to the production sector that is financed (Hellmann *et al.*, 1997). The essence of financial restraint is that the government creates a rent opportunity in the financial sector and the production sector through a series of financial policies aimed at improving market efficiency and promoting economic development[3]. Therefore, rent is the core factor of financial restraint policy. In this process of rent flow, the government does not occupy the rent[4], whereas in the state of financial repression the government directly occupies the rent.

Hellmann *et al.* (1997, 1998) noted that the government raised the concession value of the bank by setting limits on deposit rates. Hellmann *et al.* (1997, 2000) argued that, due to the existence of information asymmetry in the economy, even if the market is under the conditions of Walrasian equilibrium, it is difficult to effectively allocate the funds. Therefore, government's selective and appropriate intervention helps rather than hindering the financial development and economic growth. In the process of implementing the financial restraint policy, the government hopes to achieve the goal to enable enterprise to share the rent of the bank while the bank is rented. Banks' rents can provide sufficient financial support for their stable operations. The stable and healthy banking system is conducive to moderate the insufficiency of market mechanism functions caused by information asymmetry. Before the bank issues loans, the account manager will get insight into business status and other internal information of target enterprise to determine its repayment ability. This process not only supervises the operation of the enterprise, but also promotes the survival of the fittest in the market (Huang, 2014, 2015).

From a theoretical point of view, a country's financial development level can be broadly divided into following stages: financial repression, financial constraint, financial liberalization, and financial deepening. There is a disagreement whether China's current stage is of financial repression and financial constraint. China is in the stage of financial constraint has been illustrated in the above literature, while Huang and He (2011), Chen and Lin (2012) Lv and Mao (2013), Lin and Zhao (2015) and so on argue that China is still in the stage of financial repression. Under the constraints of market conditions such as asymmetric market information, adverse selection, and moral hazard, financial constraint is a reasonable choice in our gradual reform (Chen, 2002). The financial constraint imposed by the Chinese Government not only helped the financial sector and the production sector to get long-term progress, but also contributed to the development of China's economy (Jiang and Chen, 2011). In essence, financial restraint makes the government seize rents from the private sector or get "coinage" (Tan, 1998), while under the financial constraint, the government creates rental opportunities for the financial sector and the production sector, and does not get rent itself. Therefore, according to this essential feature, the government implements the intervention policy and itself does not get rent or "coinage" to divide the financial development stage of China. In this way, because of the reform of the state-owned enterprises and the commercialization of the state-owned specialized banks, they have become the legal person that are self-managed, self-risk taking, self-financing, and self-restraint and have began to mark the financial development of China after entering the financial restraint stage.

3.2 *The connotations of the financial restraint theory*

According to the essential characteristics of the theory of financial restraint, China's financial restraint policy is reflected in the stock market and the foreign exchange market in addition to the measures such as interest rate control, market access restriction, and asset substitution restriction in the bank deposit and loan market (Huang, 2015). Bank deposit and loan market through the interest rate control and other measures of banks to create a stable deposit and lending spread and maintain bank business stability while providing enterprises with relatively low-cost funds to ensure production profits.

The policy objective of financial restraint in the stock market and the foreign exchange market is to create rental opportunities for the listed production and export sectors, while limiting the resident sector to convert deposits in the banking sector into securities or foreign exchange assets. The financial constraint theory argues that in order to maintain the rents of the financial sector, measures should be taken to restrict the substitution of assets to slow down the conversion of deposits in the banking sector to other forms of assets, such as securities, informal market deposits, and foreign deposits. In the case of our country, the

RMB has not been freely convertible under the capital account and the capital outflow has been more strictly controlled; in addition, the country stipulates that only financial institutions holding bank licenses can absorb public deposits. Thus, informal market deposits and foreign deposits have restrictions for the residents of the stock market only within the banking sector. In the stock market, listed companies directly get financed from the family sector through the issuance of shares that diverts the savings of the banking sector. Considering that these listed companies are all walks of life of high-quality enterprises, direct financing makes the banking sector lose some high-quality lending business, affecting the banking sector rent, and reducing the concession value of the banking sector. China's stock market has been financing the state-owned enterprises from since its inception. There are some unreasonable phenomena of concentrating on financing instead of return, high premium issuance, low threshold of refinancing, and so on, making the investors' accumulated investment over the years much higher than the return from the stock market, which reduces the enthusiasm of residents to converse deposit into securities assets. However, it is precisely because of the existence of these irrational phenomena, making the transfer of the stock market no longer a strict sense of the asset substitution, but the same connotation with the banking sector to absorb deposits, that is, the difference between investors' investment and return acts for the rent that was obtained by listed companies and brokerage and other departments, thus inspiring the production sector to become bigger and stronger for listing. In the open economy, the control of exchange rates in foreign exchange market and restrictions on capital flows are also part of government intervention in finance, which also comes in the scope of financial constraint. These government intervention measures decide the savings rate of our residents and have the characteristic of low elasticity; the financial sector only pays a relatively low cost of savings to mobilize and provide a lot of money for China's economic development.

4. The effect of mechanism analysis of financial restraint to residents' consumption

4.1 *The mechanism analysis of financial restraints to promote the consumption of residents*

The theory of financial restraint was proposed by Hellmann *et al.* (1996, 1997, 2000) when they attempted to summarize the theories of East Asian economic phenomena, including the "Han River miracle" and the rapid development of Japan after the war. The theory affirms the need of proper inventions of the government policies of the poorly developed economies and low financial deepening on the financial sector. The reason why financial restraint policies promote economic growth is that it captures the two basic points to solve economic problems: "information and incentives" (Wang, 1997). The information problems in the financial market are mainly asymmetric information between residents and banks and between banks and enterprises. Financial constraint creates rent opportunity to help banks accumulate more capital, thereby reducing the bank's moral hazard to depositors. In addition, the banks will be encouraged by the rent opportunity, and pay attention to the supervision before, during, and after enterprise loans, to ease the enterprise's reverse selection and moral hazard to the bank. By improving the information asymmetry problem of the above two sections, the funds get effectively mobilized and allocated, thus driving economic growth. As a branch of the theory of financial development, the theory of financial restraint conforms to the concept of gradual reform in China, emphasizing the role of government in reconstruction of the backward financial system caused by the market failure. The rapid growth of China's economy over the past 30 years has significantly improved the living standards of the residents and promoted the consumption of the residents. The new financial system has become an important support for economic growth, but also to a certain extent, damaged the income and consumption of our residents. Thus, financial constraint on the consumption of our residents has a more complex impact.

4.2 *The mechanism analysis of financial restraints to suppress the consumption of residents*

There are two main ways for financial restraints to suppress the consumption of residents: reducing the income of residents and expanding the gap between rich and poor. The first way is to damage the residents' income. The rents created by financial restraints are essentially the loss from the income of the residents, so the effect of financial restraint on consumption inhibition is mainly due to its impact on residents' wealth and income. First, in the deposit and loan market of the bank, due to the limited deposit interest rate, which is lower than the competitive market deposit interest rates, resulting in household sector deposit income damage; second in the stock market, due to the existence of unreasonable phenomenon in China's stock market that is focusing on finance instead of return, high premium of issuance, low threshold refinancing, and so on, making investors' accumulated investment funds over the years much higher than the return from the stock market. The difference that is equivalent to the rent was obtained by listed companies, brokers, and other institutions, resulting in family wealth damage. The second way is widening the gap between rich and poor. Hellmann *et al.* (1996, 1997) pointed out that rent allocation affects the gap of income distribution. There exist tilt phenomena of financial resources when financial restraints are in the implementation process, which to some extent affect the imbalanced development in China's various levels, thereby increasing the urban-rural income gap and the income gap between different industries. First of all, in the deposit and loan market of banks, China has always been focused on the development of industry as a result a large number of bank loans flow to the industrial areas through government directional credit, and urban residents are the first to get benefit in the development of industry; rural residents on the one hand suffer losses and on the other hand cannot enjoy the results of industrial development in a very long period of time, which results in a huge income gap between urban and rural. Furthermore, the government has supported some key industries through a guided loan, which has made an indirect loss to practitioners in unsupported industries, resulting in income gaps between industries. Besides, under the conditions of financial restraint, the wealth threshold effect will also affect the income gap. Due to the limited accumulation of wealth, people with low income are still unable to reach the threshold of financial services or investment threshold, and cannot get high returns. People with high income can enjoy the return due to the advantages of accumulation of wealth. In China's villages, the lack of good financial services is even worse. The rural financial system has become the main force from the rural "blood" (Yin, 2006), financial resource tilt to the city industrial sector seriously, while the rural agricultural sector development get insufficient credit support. Finally, the exchange rate market in China has been there for loose or strict exchange rate controls, which has contributed to exports, but increased the prices of imported products, which increased the income of the export sector practitioners, exacerbating the income gap between coastal areas and mid-west areas.

The empirical results of most scholars show that there is a significant negative correlation between the income gap and the consumption of residents. So how does the income distribution structure and the income gap affect the consumption of the residents? Its mechanism can be summarized as follows: first, the income gap between urban and rural in our country seriously inhibits the consumption of residents. In general, urban residents have a strong ability to pay, but the purchase intention is relatively inadequate; rural residents have the desire to buy, but the ability to pay limited (Zou and Yu, 2011). The income gap between urban and rural residents in China is too large, and reduces the consumption propensity of overall society. Second, the gap between rich and poor problems is very prominent, making a serious suppression in the consumption of residents. According to the law of declining marginal propensity to consume by Keynes, we can see that although people's consumption increases with the increase of income, but the part of increase in income becomes less and less for the increase in consumption, and the decline of marginal propensity is decided by human nature.

4.3 Analysis of the threshold effect of financial restraint on residents' consumption

According to the theory of financial constraint, on the one hand, the role of financial constraint is to promote economic development through the construction of a suitable financial system and enhance the living standards of residents, which have a direct positive effect to promote the consumption of residents. On the other hand, the rents created in the financial restraints are essentially direct or indirect losses from the income of the residents, and the income structure problem and the income gap are generated during the distribution of the rents, which have a direct or indirect reversal effect on the consumption of the residents. Therefore, combined with the previous analysis, this paper puts forward the hypothesis that the effect of financial restraint on the consumption of residents may have a threshold effect, that is, under certain financial restraints, it can promote economic growth and stimulate residents' consumption. But if surpassed the critical level, financial restraints on the consumption of residents will have suppression effect.

5. The quantification of China's financial restraint policies

5.1 Quantitative methods of financial restraint policies

In order to deeply analyze the implementation of the financial restraint policy and its effect, it is necessary to quantify the financial constraint policy and analyze the policy effect of financial restraints on the consumption of Chinese residents. When quantifying the response of China's financial restraint policy, first of all, we should classify the specific circumstances of the financial restraints in China, and subdivided the quantified indicators; then, quantify the indicators through a certain calculation method to draw an index – FRI. There is no mature theory that can be used directly to construct the financial constraint index. This paper draws on the exponential synthetic method of Bandiera *et al.* (2000) and Qiu and Liu (2012), combined with the financial inhibition index of Demetriades and Luintel (2001) and the construct method of financial liberalization index of Johnston and Abiad and Mody. This paper uses the fractal dimension principal component analysis to analyze nine indicators of financial prices, transaction size, market access, etc., in the three dimensions of deposit and loan market, capital market and foreign exchange market in China (see Table I), and construct the financial constraint index through the membership function and dummy variable assignment. The selected indicators should not only be based on the theory of financial constraint, but should also fully reflect the specific performance of financial constraint in deposit and loan market, stock market, and foreign exchange market. The principle of selecting the proxy variables of various indicators of financial restraints policy is to make the change direction of all variable values consistent with the direction of financial restraints, that is, the greater the value of the variable, the stronger the degree of financial restraints. So as to ensure that the effect of the variables will not offset each other when we use the principal component analysis.

5.2 The construction of FRI

In this way, it quantifies the corresponding time series of nine policy indicators under the financial restraints (see Table II). In spite of this, it cannot intuitively reflect the intensity level of financial restraints in China, and there is inevitably a correlation between the nine indicators. In order to avoid the overlap of information between the indicators to affect the empirical analysis, in this paper, a statistical dimensionality reduction method is used to convert the relevant primitive variables into irrelevant factor components, at the same time, try to cover the information contained in the above nine indexes as far as possible and keep them irrelevant to each other. The total variance decomposition table (see Table III) can be obtained by using the Stata software for principal component analysis. It can be seen from the total variance decomposition table that the eigenvalues of components 1, 2, and 3 are

CFRI	Dimensions	Policy indicators	Agent variables and assignment	variable description	Symbol
	The bank credit market	Rate control	Private loan interest rates and the rate of deviation in official deposit interest rates $DRR = (r - R)/R$	Use Wenzhou private short-term borrowing interest rate to represent the interest rates on private loans r , official deposit rates choose the current period deposit rates R . Larger deviation, greater financial constraint	DRR
		Banking access restrictions	HER index that reflects the banking industry market concentration degree $HER = \sum_{i=1}^n (T_i/T)^2$	Use the concentration degree of banking industry market to represent the strength of access restrictions in banking industry, and the strength are positively correlated with financial restraints. T is the total assets of banking; T_i is the assets in every bank; n is the number of banks. larger value of HER, less competition in the market, and stronger financial constraint degree	HER
		Credit constraint	Measured by the ratio of added loans to GDP of the year	It is positively correlated with financial restraints	LOAD
		Limit on asset substitution	The ratio of additional savings to income	Larger value represents the higher ratio of the saving assets in residents' sector to total assets. It is positively correlated with financial restraints	SUB
	Capital markets	Financing and dividend indexes	Ratio of net financing to dividends	Net financing is the amount of financing of listed company deduct the dividends. The larger number represents the transfer degree of the rent through stock market, are positively correlated with financial restraints	FD
		Refinance index	Ratio of refinancing to net profit	The indicator measures the intensity of the low threshold for refinancing, it is positively correlated with financial restraints	RF
		High premium index	Mean PE of IPO stock index	The indicator represents the circumstance of the high premium in IPO, it is positively correlated with financial restraints	SP
	The foreign exchange market	Exchange rate control	Ratio of added foreign exchange reserves to GDP	The indicator measures the control strength of the exchange rate, it is positively correlated with financial restraints	ERC
		Capital flow control	Ratio of consumption and investment rates	According to Jin Hun's (2004) method. The index reflects the difficulty of the transfer from bank deposits to foreign currency assets, it is positively correlated with financial restraints	CC

Notes: The total amount of refinancing of listed companies is calculated by summing up the refinancing of all listed companies in the year. The total net profit of the listed company is calculated by summing up the net profit of all the listed companies

Sources: Website of People's Bank of China, People's Bank of China, Wenzhou City Center Branch, Wind Database, RESSET Financial Research Database, China economy Network Database, website of State Administration of Foreign Exchange

Table I. Financial restraints policy indicators in China and their agent variable index

more than 1, and the cumulative contribution rate of these three components is 75.82 percent, which can better reflect the information covered by the above nine indicators. According to the eigenvalues, we can find that it is the fourth eigenvalue from where the eigenvalues start to decline, the number of the principal components is confirmed to be 3, and the components 1, 2, and 3 are selected as the principal component factors. The three principal components are shown in Table II, PC1, PC2, and PC3.

Year	Every indicator series of financial constraint index									Three principal components			Effect of financial restraint policy
	DRR	HER	LOAD	SUB	FD	RF	SP	ERC	CC	PC1	PC2	PC3	
1995	1.73	0.28	0.18	0.24	0.23	0.18	15.22	0.03	0.89	-2.04	9.18	3.55	
1996	2.08	0.26	0.15	0.29	0.76	0.20	15.50	0.04	0.84	-1.80	9.39	3.79	
1997	2.95	0.20	0.18	0.33	0.88	0.47	14.92	0.04	0.54	-1.41	9.39	3.82	
1998	3.66	0.18	0.14	0.21	0.83	0.55	16.05	0.00	0.39	-1.34	10.88	4.01	
1999	4.48	0.14	0.08	0.20	0.78	0.38	20.80	0.01	0.81	-1.96	14.22	4.76	
2000	7.80	0.10	0.06	0.20	0.79	0.86	32.88	0.01	0.80	-2.89	23.37	7.47	
2001	7.00	0.18	0.12	0.19	0.65	0.28	33.89	0.03	0.67	-3.79	22.71	8.02	
2002	3.80	0.22	0.16	0.18	0.35	0.20	19.41	0.05	0.67	-2.27	12.79	4.52	
2003	4.36	0.25	0.21	0.17	0.16	0.06	18.19	0.07	0.93	-2.18	12.40	3.90	
2004	4.49	0.21	0.12	0.16	-0.14	0.08	17.42	0.11	1.00	-2.12	12.08	3.48	
2005	4.56	0.24	0.09	0.16	-1.34	0.10	20.69	0.09	0.95	-3.07	14.00	3.98	
2006	3.86	0.21	0.14	0.16	0.45	0.19	23.23	0.09	0.87	-2.84	14.93	5.41	
2007	3.39	0.09	0.14	0.14	0.64	0.22	30.35	0.13	0.70	-3.90	18.66	7.52	
2008	2.43	0.33	0.13	0.13	-0.03	0.20	26.74	0.09	0.49	-3.84	16.09	6.66	
2009	4.80	0.28	0.28	0.13	0.20	0.19	51.73	0.09	0.49	-7.27	31.36	13.16	
2010	5.32	0.24	0.20	0.12	0.49	0.21	58.78	0.07	0.73	-8.14	35.55	14.87	
2011	7.84	0.20	0.15	0.12	0.16	0.16	47.51	0.04	0.71	-6.06	30.80	11.37	
2012	5.06	0.24	0.16	0.11	-0.49	0.13	30.20	0.01	0.34	-4.10	19.62	7.16	

Table II.
The data of every indicator and the time series of principal components

The number	Correlation matrix eigenvalue			Extracting results		
	Eigenvalue of every factor	Contribution of every factor variance (%)	Accumulated contribution of every factor variance (%)	Eigenvalue of principle components	Contribution of every component variance (%)	Accumulated contribution of every component variance (%)
1	3.02304	0.3948	0.3948	3.02304	0.3359	0.3359
2	2.16774	0.2409	0.5768	2.16774	0.2409	0.5768
3	1.63291	0.1814	0.7582	1.63291	0.1814	0.7582
4	0.890942	0.0990	0.8572			
5	0.606545	0.0674	0.9246			
6	0.276434	0.0307	0.9553			
7	0.202271	0.0225	0.9778			
8	0.122981	0.0137	0.9914			
9	0.077136	0.0086	1.0000			

Table III.
Decomposition of variance

Take three components time series data into the computing formula of resultant value:

$$\begin{aligned}
 PC &= \sum_{n=1}^3 PC_n \times \text{variance contribution of } PC_n \\
 &= 0.3359PC_1 + 0.2409PC_2 + 0.1814PC_3
 \end{aligned}$$

The resultant value of PC is the financial constraint index (FRI), and we get the changes of financial constraint index of China from 1995 to 2012 (see Table IV).

To visualize the change of the strength of financial restraint policy over time using the data in Table IV, we can draw a chart of FRI from 1995 to 2012 (Figure 1).

5.3 An interpretation of the validity of financial restraint

Chinese finance went into the financial restraints stage from 1995. China focused on the introduction of many financial reform measures in 1994-1995, which increased the strength

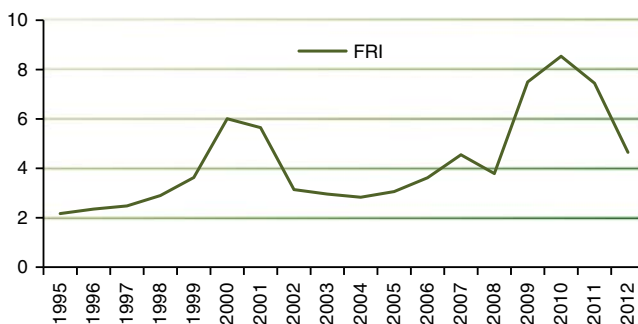
CFRI

of China's financial restraints year by year between 1995 and 2000. It is during this time that China established a financial system led by commercial bank. The strength of financial restraints appeared to descend between 2000 and 2008, this is because China officially joined the World Trade Organization after 2001, and the financial markets were opened to the outside world, which made some policies of financial restraints loose in a certain degree. In addition, advancing of the reform of interest rate marketization is also an important reason. The management policy of Chinese interest rate in 2004 was that it "only controlled the deposit rate ceiling and lending rate floor," which reduced the effect of financial restraint policy on the control of interest rate. There was a slight increase in the financial restraint strength between 2005 and 2007, it was mainly due to the implementation of the reform of the shareholder structure in listed companies in China in 2005, resulting in the boom in the security market. Many enterprises, especially large enterprises, completed the IPO during the bull market. In 2007, the stock market financing came up to 781.474 billion yuan, and in 2005 only 33.930 billion yuan. The financing of enterprises in the stock market is also a part of financial restraint policy for rent distribution, and thus the strength of financial restraint increased during this period. When the stock market fell into the bear market in 2008, with the financing of the stock market fell to 331.239 billion yuan, financial restraint also declined. In 2008-2011, China's financial restraint intensified, because the global financial crisis prompted China to strengthen the financial sector control; on the one hand, the positive monetary policy reduced the bank deposit interest rates, while on the other hand, the positive fiscal policy stimulated the economy. The demand for funds from the real economy do not make the interest rate differ for the bank deposit. For example, the benchmark interest rate of the one-year financial institution deposit in 2008 is 4.14 percent and the Wenzhou private lending rate is 14.2 percent. In 2011, financial institutions one-year deposit interest rate is as low as 2.75 percent, while Wenzhou private lending rate is as high as 24.3 percent. This part of the spread is the rent; the expansion of rent opportunities directly leads to the rapid increase in the strength of financial restraint. Financial restraint in 2011 began to decline, it is because in order to control inflation and to prevent the rapid rise

Table IV.
The financial restraint index (FRI) of China

Year	FRI	Year	FRI	Year	FRI
1995	2.17	2001	5.65	2007	4.55
1996	2.35	2002	3.14	2008	3.79
1997	2.48	2003	2.96	2009	7.50
1998	2.90	2004	2.83	2010	8.54
1999	3.63	2005	3.06	2011	7.45
2000	6.01	2006	3.62	2012	4.65

Figure 1.
Financial restraint index (FRI) of China



in prices, China's monetary policy changed from a moderately loose to a stable monetary policy, as a result rent transfer was reduced accordingly accompanied by credit contraction.

It can be seen that the FRI constructed in this paper is a good representative of the main changes in the implementation process of China's financial restraint policy, which is consistent with the actual situation and proves the validity of the FRI.

6. An empirical test on the threshold effect of financial restraint residents' consumption suppression

6.1 Selection of the threshold model

The financial restraint policy influences the residents' consumption by influencing the residents' income, and this effect may have positive or negative effects with the intensity and effect of the financial restraint policy. Therefore, this paper will use the threshold model to test whether there is a threshold effect of the financial restraint on the consumption of Chinese residents, and to determine which of the two models is more appropriate in the empirical part.

The threshold model is a non-linear model with the following two forms:

$$\text{Model I : } y = \begin{cases} a_0^- + \sum_{i=1}^n a_i^- x_i + \zeta, & z \leq \eta \\ a_0^+ + \sum_{i=1}^n a_i^+ x_i + \zeta, & z > \eta \end{cases}$$

where z is the threshold variable, η the threshold, x_i the control variable, and y the explanatory variable. When the threshold variable is greater or less than the threshold, there is a corresponding linear model, that is, a different equilibrium state:

$$\text{Model II : } y = a_0 + \sum_{i=1}^n a_i x_i + \eta_1 z + \eta_2 z^2 + \zeta$$

where z is the threshold variable, $-(\eta_1/2\eta_2)$ the threshold, x_i the control variable, and y the explanatory variable. The relationship between the threshold variable and the interpreted variable is either a positive U or an inverted U. Using the simulation method of Mao Zesheng and Wan Yalan (2012), we use Excel software to simulate the quantitative relationship between the FRI and the total consumption of residents to determine the threshold model.

It can be seen from Figure 2 that the FRI is the non-linear relationship with the household consumption expenditure, and that the quadratic equation relationship can be further seen from the trend equation. Therefore, this paper examines the existence of the threshold effect on the consumption of Chinese residents by introducing the second term (FRI²) of the FRI in the linear model. The threshold model is structured as follows:

$$\text{CON} = a_0 + \sum_{i=1}^n a_i x_i + \eta_1 \text{FRI} + \eta_2 \text{FRI}^2 + \zeta \quad (1)$$

where the total amount of household consumption expenditure CON is the explanatory variable, FRI the threshold variable, and x_i the control variable. It can be seen from Figure 2 that the relationship of CON and FRI is an inverted U-shaped relationship, threshold is the top point of the quadratic function corresponding FRI; according to the nature of the quadratic function, we can obtain that the threshold is $-(\eta_1/2\eta_2)$ (Table V).

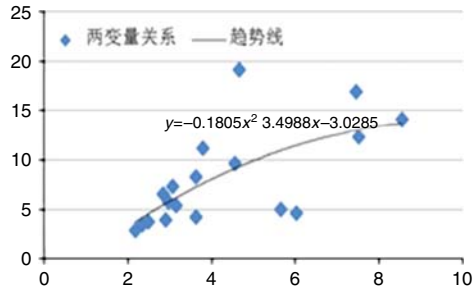


Figure 2. Simulation of the relationship between the financial restraint index and the total amount of household consumption

Notes: The abscissa is the financial restraint index, the Y-axis is the total consumer spending. The figure is the trend line between the financial restraint index and the total consumption of the residents, and the unit of the total consumption expenditure of the residents is RMB1 billion

Table V. Description of the variable selected in the studies

Type of variable	Variables and symbols	Proxy variable
Explained variable	Residents' consumption level (CON)	With the total consumption expenditure of our residents as a proxy variable
Threshold variable	Financial restraint policy (FRI)	China's financial restraints index
Control variable	Per capita real income level (lnPRGDP)	Reference to Du Li <i>et al.</i> (2010), representing the logarithm of real GDP per capita

Notes: Before 2012, China's per capita income data are divided into "per capita net income of rural residents" and "urban residents per capita disposable income," they were counted separately
Sources: China Network Statistics Database, China National Bureau of Statistics, and CSMAR

6.2 Variable selection and data processing

The introduction of per capita real income level as a control variable is to make the empirical results more robust. In order to eliminate the heteroscedasticity of the data, by using the logarithm of the total consumption expenditure of our residents (unit is trillion) lnCON is obtained. In 1994, the price index of the fixed base 100 on the per capita GDP (unit is yuan) to exclude the impact of price per capita real GDP, and then take the logarithm to receive lnPRGDP. Data interception is from 1995 to 2012. The descriptive statistical results of the data are shown in Table VI.

6.3 The empirical test analysis

- (1) Stability test: in the process of estimating the model, the information of the unprocessed data will cause pseudo-regression. Even if the *t*-value and *F*-value are normal and the estimated coefficients are significant, the validity of the empirical

Table VI. Variable descriptive statistics

Variable	Mean	SD	Minimum value	The maximum value	Number of samples
lnCON	1.92	0.58	1.05	2.95	18
lnPRGDP	8.75	0.23	8.45	9.13	18
FRI	4.29	1.95	2.17	8.54	18
FRI ²	22.02	20.40	4.71	72.85	18

results cannot be proved. Therefore, before empirically using the above data, in addition to eliminating the heteroskedasticity on the horizontal value of the data logarithm, we also need to test the smoothness of the data. The results show that there is a unit root in the original sequence, which is stationary when the first-order difference of the original sequence is stationary. Indicating that these data are first-order single-integer, meeting the same order in a single cointegration test condition.

- (2) The cointegration test: here, we use Engel-Granger two-step method for the cointegration test. First of all, we temporarily ignore the problem that the non-stationary time series appears in the linear regression, regulate the non-regression variables directly, such as $\ln\text{CON}$, $\ln\text{PRGDP}$, FRI , FRI^2 , etc., where $\ln\text{CON}$ is the dependent variable, and $\ln\text{PRGDP}$, FRI and FRI^2 are independent variables. Therefore, we get the residual term e_t of the regression equation. Then, we test whether the residual term e_t exists in the unit root to determine whether there is a long-term cointegration relationship between the relevant variables. It is worth noting that the ADF test here is for the covariance regression calculated by the residual term e_t rather than the true non-equilibrium error μ_t . From the OLS residual minimum squared sum principle, the estimator is often biased downward, which leads to a greater chance of rejecting the null hypothesis than the actual situation. The ADF threshold for the e_t stationary test should be less than the normal ADF threshold. The ADF value is -1.781 , and then several variables are obtained by MacKinnon (1991) through simulation experiments. The ADF value of the residuals is checked by the simulation. The covariance test threshold values were compared at 5 percent of the significance level, which is stable, indicating that there is a long-term cointegration relationship between the above variables.
- (3) Granger causality test: the Granger causality test is generally applicable only to stationary time series, but for non-stationary data it can be directly tested for variables with cointegration relations. The covariance test shows that there is a long-term equilibrium relationship between the variables. In order to test whether the equilibrium relationship constitutes a causal relationship, and further clarifies the direction of causality, the results of the Granger causality test for $\ln\text{CON}$, $\ln\text{PRGDP}$, FRI , FRI^2 , and other variables are shown in Table VII.

The focus of this paper is the size of the impact of financial restraints on the level of household consumption, so we only analyze the test results of FRI and $\ln\text{CON}$, and FRI^2 and $\ln\text{CON}$. It can be concluded that the FRI is the Granger cause of $\ln\text{CON}$ at the 5 percent significance level when the optimal hysteresis selection is 2, and we reject that the FRI is not the original assumption of the Granger causality of $\ln\text{CON}$. So, FRI is the Granger reason of $\ln\text{CON}$. Similarly, FRI^2 is also the Granger reason of $\ln\text{CON}$.

Empirical results of the threshold model. Since there is a cointegration relationship between $\ln\text{CON}$, $\ln\text{PRGDP}$, and FRI , the cointegration equation is the threshold model. In this paper, the model is structured as follows:

$$\ln \text{CON} = a_0 + a_1 \ln \text{PRGDP} + \eta_1 \text{FRI} + \eta_2 \text{FRI}^2 + \xi \quad (2)$$

The results of the model regression estimation are shown in Table VIII.

From the estimation results, the p -value of the FRI is 0.022, and the p -value of the quadratic term of the FRI is 0.036, which is significant at the significant level of 5 percent. Therefore, the impact of the FRI on the consumption level of our residents is non-linear, in which the term of the FRI is positively correlated with the consumption level of the residents, and the second term of the FRI is negatively correlated with the consumption level of the residents. Furthermore, the FRI and the level of consumer consumption in China are

CFRI		Test variables	Null hypothesis	F-value	p-value
<i>lnCON</i>					
	lnPCRGDP	lnCON is not the Granger reason of lnPCRGDP		11.833	0.003
	FRI	lnCONF is not the Granger reason of FRI		5.0884	0.079
	FRI ²	lnCON is not the Granger reason of FRI ²		5.3056	0.070
<i>lnPCRGDP</i>					
	lnCON	lnPCRGDP is not the Granger reason of lnCON		10.345	0.006
	FRI	lnPCRGDP is not the Granger reason of FRI		2.1946	0.334
	FRI ²	lnPCRGDP is not the Granger reason of FRI ²		4.3102	0.116
<i>FRI</i>					
	lnCON	FRI is not the Granger reason of lnCON		6.4527	0.040
	lnPCRGDP	FRI is not the Granger reason of lnPCRGDP		16.768	0.000
	FRI ²	FRI is not the Granger reason of FRI ²		8.1173	0.017
<i>FRI²</i>					
	lnCON	FRI ² is not the Granger reason of lnCON		8.9582	0.011
	lnPCRGDP	FRI ² is not the Granger reason of lnPCRGDP		22.988	0.000
	FRI	FRI ² is not the Granger reason of FRI		14.273	0.001

Table VII.Granger causality test **Note:** The lag order is 2

Variable	Coefficient estimate	Robust standard deviation	t-value	p-value
FRI	0.182261**	0.070996	2.57	0.022
FRI ²	-0.0153984**	0.0066202	-2.33	0.036
dlnPRGDP	2.279276***	0.1155738	19.72	0.000
C	-18.47316***	0.9657185	-19.13	0.000

Notes: $R^2 = 0.9817$, $\bar{R}^2 = 0.9778$, F-value $F = 250.85$

Table VIII.

Model regression estimation

presented as an inverted “U”-type relationship. The peak of the graphics corresponding FRI is the threshold and the threshold is equal to 5.92. That is, when China’s FRI is less than 5.92, with the increase of financial restraint intensity, the consumption level of our residents is getting stronger and stronger, which promotes the growth of residents’ consumption. When the FRI is equal to 5.92, the positive impact of financial restraint intensity is that the consumption level of our country reaches the maximum value. When the FRI of China is greater than 5.92, with the further increase of the financial restraint intensity, the consumption level of the residents in our country begins to weaken, which restrains the growth of the residents’ consumption.

Why there appears this kind of threshold effect? In the early stage of the implementation of financial restraint policy, China’s financial market gradually improved, the financial system led by commercial banks is conducive to improving the allocation of financial resources efficiency, along with the transfer of financial resources, rent also contributes to the development of market players. The policy dividend released by this progressive reform has greatly contributed to the growth of the economy and has been effective in improving the living standards of the residents. However, with the financial restraints strength overall increasing in our country, the negative impact of interest rates and other measures on the income of residents is also increasingly apparent. When the income and wealth of the residents due to the transfer of rents come to a certain extent, it is very unfavorable to improve the level of consumption of residents. More seriously, the tendency of financial resources and the existence of financial services threshold have exacerbated the income gap,

including the income gap between urban and rural areas, regional income gap and industry income gap; with the income gap coming to a certain extent, it will further constrained growth of the consumption level of our residents. To sum up, the threshold effect of financial restraints on the consumption of our residents exists; in a certain level of financial restraints, it can promote economic growth, stimulate consumer spending, and beyond this critical level, financial restraints will restrain the consumption of residents.

7. Policy recommendations

The financial restraint is a theory summarized based on Japan and South Korea and other successful development of supply-oriented economy as a sample of countries. The rent effect arising from the financial restraints policy is to stimulate the investment demand to promote the rapid economic development, which does not consider the improvement of consumer demand. The above empirical results also show that financial restraints that exceed the threshold have an inhibitory effect on the level of household consumption. Therefore, in the current process, China's investment changes from export oriented to consumer oriented, gradually relax the financial restraints policy, through stimulating consumer demand to drive economic development, and become the righteousness. At the same time, in the process of relaxing financial restraints policies, we should improve the utilization rate of existing rents, rationally allocate rents, try to weaken or even reverse the redistribution process of residents caused by the widening of income gap. Specifically for increasing the income, reducing the income gap and the elimination of income loss and other aspects, I would like to give the following policy recommendations.

7.1 *Broaden the residents investment channels, increase property income*

The property income can be divided into two parts: the income generated by the financial asset and the rental income generated by the physical asset. The property income here refers to the income, dividends and dividends generated by the financial assets owned by the residents. Financial restraints in the policy of restricting the replacement of assets to the residents of the lack of funds for investment channels, it can only flow to the banking sector, the formation of a stable source of funds. When the rent is transferred from the resident sector to the banking sector, the residents of the property income are damaged, restraining the level of consumption; therefore, the government should broaden the residents of the investment channels. In recent years, with the development of financial markets, financial products are increasing, personal financial income through financial investment continues to increase, but comparing with all income growth, both the absolute number or relative proportion are still lower. With the stock market and the property market booming early or later, our residents had high enthusiasm of investing in financial management, the habit of depositing the money into the bank to obtain interest is changing, but they have to face the situation that investment channel is narrow. In order to maintain value or increase the value of assets, many people deposit their money into private lending market which has high risk, and causes great hidden dangers to Chinese financial market. Therefore, efforts should be made to broaden the residents of investment channels, on the one hand, to increase the property income of residents, while on the other hand, it has important practical significance to the stability for China's financial market. In this regard, first, the development of the stock market should be regulated and confidence of investor and value investment should be improved, instead of pursuing speculation, so that stock can be recalled as an alternative asset of bank saving deposits. Second, through the financial product innovation, types of investment products should be increased which residents can choose from. One of the most important reasons for the high savings deposits of our residents is the lack of a suitable choice for financial products. Third, by regulating the development of the insurance market, make the insurance products become part of the alternative assets of preventive savings.

7.2 Optimize the allocation of financial resources, narrowing the income gap

In economically backward countries, financial resources play a vital role in promoting the development of the economy. In particular, the financial restraint policy makes rents transfer and redistribution with the allocation of financial resources, increasing the income gap. When the financial resources tilt to some particular industries, there is development of that industry as a result of which there will be a big gap between the industry practitioners and income gap will arise; when the financial resources tilt to urbanization and industrialization, then the urban-rural income gap will expand with the imbalance between urban and rural areas development. Optimizing the allocation of financial resources is to gradually withdraw from the financial restraints of the policy, at the same time making it reasonable to guide the redistribution of existing rents.

By the influence of our government's ideology, the allocation of financial resources in the early development of the financial system comply with the "political master-slave order," and formed a discriminatory policy against non-state enterprises (Huang, 2003), financial restraints policy of the distribution of rent has a clear ownership preference. Whether it is in the bank credit market or the stock market, there priority is to serve the state-owned enterprises. Financial resources must first meet the needs of the development of state-owned economy. Non-public economy can get financing opportunities only until the state-owned enterprises meet the basic needs of funds, and a large number of the most innovative vitality, providing more than 80 percent of the urban jobs of small- and medium-sized private enterprises, is difficult to obtain from external financing. Therefore, optimized financial resources in the non-public sector in the main body of the configuration promote the development of private enterprises, thus improving the income of workers.

7.3 Speed up the establishment of supporting system to achieve a smooth financial policy restraints exit

At present, China's financial restraint policy has a variety of policy measures in the bank deposit and loan market, the stock market and the foreign exchange market. In the process of withdrawing these measures, the government needs to accelerate the establishment of the matching system to realize the smooth transition of the policy. The high threshold of the stock market IPO and the low threshold of refinancing can be resolved through the implementation of the stock issuance of the registration system. The mandatory dividend regulatory requirements of listed companies can reduce the rent effect of financial restraints policy in the stock market to some degree. Financial restraints policy of exchange rate control on foreign exchange market and capital flow restrictions will gradually withdraw with the RMB internationalization process. And the withdrawal of banking access restrictions will reduce the concession value of the banking sector, the bank credit market in the new private banks and village banks and other main body will face fierce market competition. The withdrawal of restricting of asset substitution measures will increase the loss of deposits in the banking sector, while the withdrawal of interest rate control measures will lead to further narrowing of profit margins. Facing of these adverse effects, in addition to the introduction of the deposit insurance system. Related departments should also improve the current financial regulatory system, and make the financial innovation reasonable of the bank to manage the risk of interest rate in the market.

Notes

1. During the period from 1998 to 2001, because of the positive fiscal policy, the consumption rate has improved, then down again.
2. Rent refers to the portion of income that can be gained from a competitive market, rather than income from inelastic factors of production which is commonly referred to in economics.

3. The purpose of government's creation of rent opportunities is to provide an appropriate incentive for the economic factors to make good use of the rent and get rapid development at meanwhile, make contribution to economy development.
4. In the state of financial repression, as put forward by McKinnon (1973) and Shaw (1973), the government directly occupies the rent.

References

- Ai, C. and Wang, W. (2008), "A sensitivity analysis of Chinese household consumption with habit formation", *The Journal of Quantitative & Technical Economics*, Vol. 25 No. 11, pp. 98-114 (in Chinese).
- Anderson, J. (2007), "Solving China's rebalancing puzzle", *Finance and Development: A Quarterly Magazine of the IMF*, No. 44, pp. 32-35.
- Ang, J. (2008), "Are financial sector policies effective in deepening the Malaysian financial system?", *Contemporary Economic Policy*, Vol. 26 No. 4, pp. 623-635.
- Bandiera, O., Caprio, G., Honohan, P. and Schiantarelli, F. (2000), "Does financial reform raise or reduce saving?", *Review of Economics and Statistics*, Vol. 82 No. 2, pp. 239-263.
- Campbell, J.Y. and Deaton, A.S. (1989), "Why is consumption so smooth?", *Review of Economic Studies*, Vol. 56 No. 3, pp. 357-374.
- Carroll, C.D. (1992), "The buffer- stock theory of savings: some macroeconomic evidence", *Brookings Papers on Economic Activity*, Vol. 23 No. 2, pp. 61-135.
- Carroll, C.D. (2001), "A theory of the consumption function, with and without liquidity constraints", *Journal of Economic Perspectives, American Economic Association*, Vol. 15 No. 3, pp. 23-45.
- Carroll, C.D. (2006), "Consumption and saving: theory and evidence", NBER Reporter: Research Summary, Spring.
- Chamon, M.D. and Prasad, E.S. (2010), "Why are saving rates of urban households in China rising?", *American Economic Journal: Macroeconomics*, Vol. 2 No. 1, pp. 93-130.
- Chen, B. and Lin, Y. (2012), "Financial repression, industrial structure and income distribution", *The Journal of World Economy*, No. 1, pp. 3-23 (in Chinese).
- Chen, B., Yang, Y. and Xu, W. (2009), "The evolution of labor income gap in Chinese urban residents and its reasons: 1990-2005", *Economic Research Journal*, No. 12, pp. 30-42 (in Chinese).
- Chen, C. (2002), "An analysis of financial restraints in progressive reform", *Economic Science*, No. 2, pp. 5-14 (in Chinese).
- Chen, X., Yang, L. and Fang, S. (2005), "The micro-foundation studies of monetary policy effect – an empirical analysis of the Chinese residents' consumption-savings behavior", *Fudan Journal (Social Sciences Edition)*, No. 1, pp. 42-54 (in Chinese).
- Chen, Y. and Qian, L. (2011), "State-owned enterprises and economic growth under financial restraint policy: an analysis of ownership preference based on rent distribution", *Shanghai Finance*, No. 8, pp. 12-17 (in Chinese).
- Dardanoni, V. (1991), "Precautionary savings under income uncertainty: a cross-sectional analysis", *Applied Economics*, Vol. 23 No. 1, pp. 153-160.
- Deaton, A.S. (1991), "Saving and liquidity constraints", *Econometrica*, Vol. 59 No. 5, pp. 1121-1148.
- Demetriades, P.O. and Luintel, K.B. (2001), "Financial restraints in the South Korean Miracle", *Journal of Development Economics*, Vol. 64 No. 2, pp. 459-479.
- Du, H. and Deng, X. (2005), "Precautionary saving with liquidity constraints and uncertainty-an empirical analysis of Chinese rural and urban households", *China Economic Quarterly*, Vol. 4 No. 1, pp. 297-316 (in Chinese).
- Du, L., Pan, C., Zhang, S. and Cai, J. (2010), "Housing price rising to promote or inhibit the consumption of residents-an empirical study on the panel data of 172 prefecture-level cities in China", *Zhejiang Social Sciences*, No. 8, pp. 24-30 (in Chinese).

- Engena, E.M. and Gruber, J. (2001), "Unemployment insurance and precautionary saving", *Journal of Monetary Economics*, Vol. 47 No. 3, pp. 545-579.
- Fang, A., Fan, J. and Zhu, X. (2006), *China's Consumer Demand Trends and Consumer Policy Research*, China Economic Publishing House (in Chinese).
- Fang, F. (2009), "A study of inadequate consumer demand among Chinese residents – based on data for urban and rural areas in different provinces", *Chinese Social Sciences*, Vol. 30 No. 4, pp. 21-40 (in Chinese).
- Flavin, M.A. (1981), "The adjustment of consumption to changing expectations about future income", *Journal of Political Economy*, Vol. 89 No. 5, pp. 1020-1037.
- Gu, G. and Ma, Y. (2015), "Fiscal expenditure bias, financial restraints and China's trade imbalance", *Journal of International Trade*, No. 11, pp. 3-13 (in Chinese).
- Guo, Y. and Li, W. (2006), "To empirically test the Chinese saving behavior by using buffer stock model", *The Journal of Quantitative & Technical Economics*, No. 8, pp. 127-135 (in Chinese).
- Hall, R.E. (1978), "Stochastic implications of the life-cycle-permanent income hypothesis: theory and evidence", *Journal of Political Economy*, Vol. 86 No. 6, pp. 971-987.
- Hang, B. (2010), "Why is Chinese urban residents' APC keep decreasing?", *The Journal of Quantitative & Technical Economics*, No. 6, pp. 126-138 (in Chinese).
- Hang, B. (2011), "Rational habit preference and consumption behavior", *Statistical Research*, No. 3, pp. 23-29 (in Chinese).
- Hellmann, T., Murdock, K. and Stiglitz, J. (1996), "Deposit mobilization through financial restraint", in Hermes, N. and Lensink, R. (Eds), *Financial Development and Economic Growth: Theory and Experiences from Developing Countries*, Routledge, London, pp. 219-246.
- Hellmann, T., Murdock, K. and Stiglitz, J. (1997), "Financial restraint: toward a new paradigm", in Aoki, M., Kim, H.K. and Okuno-Fujiwara, M. (Eds), *The Role of Government in East Asian Economic Development: Comparative Institutional Analysis*, Clarendon Press, Oxford, pp. 163-207.
- Hellmann, T., Murdock, K. and Stiglitz, J. (1998), "Financial restraint and the market enhancing view", in Hayami, Y. and Aoki, M. (Eds), *The Institutional Foundations of East Asian Economic Development*, MacMillan Press Ltd, New York, NY, pp. 255-279.
- Hellmann, T., Murdock, K. and Stiglitz, J. (2000), "Liberalization, moral hazard in banking, and prudential regulation: are capital requirements enough?", *American Economic Review*, Vol. 90 No. 1, pp. 147-165.
- Hua, G. and Cheng, C. (2004), "Criticism of financial restraints", *Jianghai Academic Journal*, No. 6, pp. 63-66 (in Chinese).
- Huang, F. (2014), "An analysis of financial restraints on debt expansion of local government financing platform", *Reform of Economic System*, No. 3, pp. 132-136 (in Chinese).
- Huang, F. (2015), *Study on the Financial Restraints Policy Effect of China's Securities Market*, Fudan University Press (in Chinese).
- Huang, Y. (2003), *Selling China: Foreign Direct Investment During the Reform Era*, Cambridge University Press.
- Huang, G. and He, S. (2011), "Structural distortion and the mystery of Chinese currency – based on the perspective of financial depression in transitional economy", *Journal of Financial Research*, No. 7, pp. 1-13 (in Chinese).
- Jappelli, T. and Pagano, M. (1994), "Saving growth and liquidity constraints", *The Quarterly Journal of Economics*, Vol. 109 No. 1, pp. 83-109.
- Jiang, S. and Chen, Y. (2011), "Financial development and economic efficiency under financial constraint policy", *Statistical Research*, No. 7, pp. 21-26 (in Chinese).
- Jin, H. (2004), "A study on the strength of China's capital regulation", *Journal of Financial Research*, No. 12, pp. 9-23 (in Chinese).

- Jin, Q. and Tan, K. (2001), "The rent in financial restraints", *Forecasting*, Vol. 20 No. 6, pp. 33-36 (in Chinese).
- Jin, Y., Li, H. and Wu, B. (2011), "Income gap and social status seeking: a reason of high savings rate", *China Economic Quarterly*, Vol. 10 No. 2, pp. 887-912 (in Chinese).
- Lan, Y. (2001), "Again on financial restraints", *Economic Science*, No. 1, pp. 103-108 (in Chinese).
- Li, J. (2003), "A quantitative analysis of the impact of income gap on consumption demand", *The Journal of Quantitative & Technical Economics*, Vol. 20 No. 9, pp. 5-11 (in Chinese).
- Li, J. (2009), "China's consumption restriction in the evolution of investment-output efficiency: a provincial panel data analysis based on national income aggregate demand function", *Contemporary Finance & Economics*, No. 4, pp. 22-25 (in Chinese).
- Li, T. (2005), *Research on the Institutional Change of China's Consumption*, Economic Science Press (in Chinese).
- Lin, Y., Cai, F. and Li, Z. (2002), *China's Miracle: Development Strategy and Economic Reform (Updated Edition)*, Shanghai Sanlian Bookstore, Shanghai People's Publishing House (in Chinese).
- Lin, Z. and Zhao, Q. (2015), "Can financial repression suppress labor share in income? Empirical evidence from World Bank 2012 China enterprise survey data", *China Economic Studies*, No. 6, pp. 49-59 (in Chinese).
- Liu, Y. (2013), "Financial restraint, policy rent and rent estimation: a comparative study based on domestic banking financing market", *Review of Investment Studies*, Vol. 32 No. 10, pp. 67-82 (in Chinese).
- Liu, J. and Shao, X. (2004), "Empirical analysis of relationship between liquidity constraints and consumer behaviors", *Journal of Management Sciences in China*, No. 4, pp. 90-94 (in Chinese).
- Liu, Y. and Huang, F. (2015), "Reasonability of non-tradable share reform: based on the policy rent of financial restraint", *Finance and Trade Research*, No. 2, pp. 110-117 (in Chinese).
- Lou, F. and Li, X. (2009), "Urban consumer demand in China: an empirical analysis using the dynamic semiparametric panel data model", *Social Sciences in China*, No. 3, pp. 109-115 (in Chinese).
- Luo, C. (2004), "Uncertainty during economic transition and household consumption behavior in Urban China", *Economic Research Journal*, No. 11, pp. 100-106 (in Chinese).
- Lv, B. and Mao, J. (2013), "Financial repression and the formation of government investment dependence", *The Journal of World Economy*, No. 7, pp. 48-67.
- McKinnon, R.I. (1973), *Money and Capital in Economic Development*, Brookings Institution, Washington, DC.
- MacKinnon, J.G. (1991), "Critical values for cointegration tests", in Engle, R.F. and Granger, C.W.J. (Eds), Chapter 13, *Long-Run Economic Relationships: Readings in Cointegration*, Oxford University Press, Oxford.
- Mao, Z. and Wan, Y. (2012), "A study on threshold effect of Chinese shadow bank and bank system stability", *Studies of International Finance*, No. 11, pp. 65-73 (in Chinese).
- Pan, B. and Xu, X. (2009), "Empirical research on liquidity and consumption: the asymmetric effect of economic prosperity", *Social Sciences in China*, No. 4, pp. 43-53.
- Parker, J.A. and Preston, B. (2005), "Precautionary saving and consumption fluctuations", *American Economic Review*, Vol. 95 No. 4, pp. 1119-1124.
- Qi, T. (2000), "A study on Chinese residents' savings in the period of economic transition: also on the relationship between uncertainty and residents' savings", *Economic Research Journal*, No. 9, pp. 25-33 (in Chinese).
- Qiu, H. and Liu, Y. (2012), "An empirical study on financial constraints and residents' consumption growth", *Statistics & Decision*, No. 11, pp. 135-139 (in Chinese).
- Qiu, J., He, F. and Ai, Y. (2011), "The exploration of the interactive relationship between financial repression, financial restraint, financial liberalization and financial deepening", *Modern Finance and Economics*, No. 6, pp. 55-63 (in Chinese).

- Shaw, E. (1973), *Financial Deepening in Economic Development*, Oxford University Press, New York, NY.
- Shi, J. and Zhu, H. (2004), "Preventive savings and preventive motive intensity of Chinese urban residents: 1999-2003", *Economic Research Journal*, No. 10, pp. 66-74 (in Chinese).
- Shuai, Y. (2001), "The third road of financial deepening: financial restraints", *Economic Review*, No. 5, pp. 94-96 (in Chinese).
- Skinner, J. (1988), "Risky income, life cycle consumption and precautionary savings", *Journal of Monetary Economics*, Vol. 22 No. 2, pp. 237-255.
- Suzuki, Y. and Adhikary, B.K. (2010), "A 'bank rent' approach to understanding the development of the banking system in Bangladesh", *Contemporary South Asia*, Vol. 18 No. 2, pp. 155-173.
- Suzuki, Y., Miah, M.D. and Yuan, J. (2008), "China's non-performing bank loan crisis: the role of economic rents", *Asian-Pacific Economic Literature*, Vol. 22 No. 1, pp. 57-70.
- Taghipour, A. (2009), "Financial restraint and financial development in Iran: the conditional co-integration approach", *Review of Middle East Economics and Finance*, Vol. 5 No. 2, pp. 1-19.
- Tan, R. (1998), "Financial repression and financial restraint", *Journal of Financial Research*, No. 12, pp. 26-29 (in Chinese).
- Tang, S., Wang, H. and Xu, J. (2010), "Binary structure and regional differences of China's consumption behavior under liquidity constraint", *The Journal of Quantitative & Technical Economics*, No. 3, pp. 81-95 (in Chinese).
- Wan, G., Zhang, Y. and Niu, J. (2001), "Liquidity constraints, uncertainty and consumption of Chinese residents", *Economic Research Journal*, No. 11, pp. 35-44, 94 (in Chinese).
- Wang, N. (2007), "Consumption institutions, incentives to labor, and legitimacy resources", *Sociological Studies*, No. 3, pp. 74-98 (in Chinese).
- Wang, S. (2006), "Financial restraints: new ideas for current account imbalance analysis", *Finance & Trade Economics*, No. 9, pp. 86-89 (in Chinese).
- Wang, X. (1997), "Information and encouragement of government and bank: review of financial restraint policy", *Comparative Economic & Social Systems*, No. 5, pp. 12-17 (in Chinese).
- Wyplosz, C. (1999), "Financial restraints and liberalization in Postwar Europe", *Journal of Development Economics*, No. 4, pp. 112-128.
- Xie, Z. (2003), "The condition analysis of 'financial restraint' and the adaptability in China", *Sun Yatsen University Forum*, No. 2, pp. 40-42 (in Chinese).
- Yang, D. (2003), "Financial restraint, financial deepening and financial constraints: the choice of China's financial reform", *Journal of Beijing Technology and Business University (Social Sciences)*, No. 3, pp. 60-65 (in Chinese).
- Yang, R. and Chen, B. (2009), "Higher education reform, preventive savings and residents' consumption behavior", *Economic Research Journal*, No. 8, pp. 113-124 (in Chinese).
- Yang, R. and Zhu, S. (2007), "Can fairness and efficiency be equal? A study based on the marginal propensity to consume of residents", *Economic Research Journal*, No. 12, pp. 46-58 (in Chinese).
- Yang, S. and Xie, Y. (1999), "New development of financial development theory: a review of financial restraints", *Economic Science*, No. 2, pp. 92-97 (in Chinese).
- Yin, B. (2006), "Financial restraints: financial institutional arrangements for new countryside construction", *Chinese Rural Economy*, No. 6, pp. 38-42 (in Chinese).
- Yu, H. (2001), "On the rent under financial restraints", *Shanghai Journal of Economics*, No. 8, pp. 45-50 (in Chinese).
- Yuan, Z. and Song, Z. (1999), "Consumption behavior variation of urban residents and China's economic growth", *Economic Research Journal*, No. 11, pp. 20-29 (in Chinese).
- Zeldes, S.P. (1989), "Optimal consumption with stochastic income: deviations from certainty equivalence", *Quarterly Journal of Economics*, Vol. 104 No. 2, pp. 275-298.
- Zhou, S. (2010), "A study on preventive saving behavior of urban residents in China", *The Journal of World Economy*, No. 8, pp. 112-122 (in Chinese).

- Zhou, Y. (2000), "Criticism of 'financial restraints'", *Economic Science*, No. 3, pp. 104-113 (in Chinese).
- Zhu, G., Fan, J. and Yan, Y. (2002), "China's consumption disparity and income distribution: theory and data", *Economic Research Journal*, No. 5, pp. 72-80 (in Chinese).
- Zou, H. and Yu, K. (2011), "Lador income share, urban-rural income gap and household consumption in China", *Economic Theory and Business Management*, No. 3, pp. 45-55 (in Chinese).

Further reading

- Huang, S. and Zhang, G. (2001), "Analysis on equity financing preference of China 's listed companies", *Economic Research Journal*, No. 11, pp. 12-20 (in Chinese).
- Kimball, M.S. (1990), "Precautionary savings in the small and in the large", *Econometrica*, Vol. 58 No. 1, pp. 53-73.
- Modigliani, F. (1986), "Life cycle, individual thrift, and the wealth of nations", *Science*, Vol. 234 No. 4777, pp. 704-712.
- Tian, G. (2005), "Uncertainty, financing constraint and empirical analysis of rural high saving phenomenon in China", *Economic Science*, No. 1, pp. 5-17 (in Chinese).
- Tian, S. and Bai, Q. (2011), "Financial restraint, financial preference and economic growth – an empirical analysis on China's financial resources allocation", *Shanghai Finance*, No. 12, pp. 3-7 (in Chinese).
- Yuan, X. and Fan, H. (2010), "A study on the impact of urban-rural income gap on consumption demand", *Research on Financial and Economic Issues*, No. 6, pp. 15-20 (in Chinese).

Corresponding author

Feiming Huang can be contacted at: huangfeiming@jxufe.edu.cn

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com