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Asset Securitization and Bubbles: An Illustration of Subprime Mortgage Default Crisis

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Abstract The paper intends to explore the cause and mechanism of subprime mortgage credit crisis occurrence in the United States and thereby the financial crisis resulted. The research indicates that, the outbreak of subprime crisis in the United States in 2007 is the result of multiple factors. Among them, the unreasonable securitization of assets, the excessive creation and over-financing of financial assets and the over-expansion of subprime mortgage credits, and the unceasing inflation and final burst of asset bubbles, are root causes. In addition, the relaxation of government regulation as well as the neglect of efficient guidance and control on real estate markets since 2002 has created a favorable external condition for the sustainable expansion of subprime mortgage credits and the rise of housing prices.

Keywords Assets Securitization, Subprime Mortgage Credits, Asset Bubbles, Subprime Mortgage Default Crisis, Credit Risks

1. Introduction

The crisis of subprime mortgage credits occurred in the United States in 2007, not only finally resulted in the financial crisis in the U. S., but also triggered a global financial crisis. This is, since the 1929-1933 disastrous economic crisis that led to the global economic recession, the most serious global financial crisis what happened in the world. Then, what was the cause of subprime mortgage crisis? Why could it lead to the happen of the U.S. and global financial crisis? In this regard, the theoretical circles have different interpretations.

Some scholars think that the subprime crisis in the U.S. was mainly caused by the irrational rising of housing prices. Due to overly optimistic expectations of investors, an excessive demand for the housing and thus the substantial unreasonable increases of housing price were set. However, when the housing investors were aware of more and more serious housing price bubbles, they would change their original expectation and significantly reduce the investment in the housing demand, which resulted in the sharp fall of housing price and eventually the investors to sell their real estates in big quantities. Finally, the issue that the housing loans could not be timely repaid and thereupon the following subprime crisis occurred. This is similar to traditional debt-deflation theory, emphasizing the generation and burst of asset price bubbles, which causes the interrupt of normal debt chains and thus the debt crisis as a consequence.

Another viewpoint is that, the subprime crisis in the U.S. was mainly caused by expansionary mortgage credit policies. Since 2002, the United States has actually practiced the policy of expansionary mortgage credits. According to Mian and Sufi's research [1], in many areas only in such a short time from 2002 to 2005, the mortgage credits in the U.S. have increased more double times than the previous. The over-expansionary mortgage credits greatly increased the risk of default. When the reversal of housing prices occurred in 2007, the subprime mortgage crisis finally broke out.

Other viewpoint holds that, the subprime crisis in the U.S. was mainly caused by the lax credit standards what the United States had practiced. In a long period of time, the U. S. has always been carrying out loose credit policies. Even during the East-Asian financial crisis in 1997, the belief of the United States has not still changed. Because the momentum of economic development in the U.S. has been always good in a long period of time since the 1990s, the loose credit standards of the United States was widespread praised. After the subprime mortgage crisis happened, some people began to reflect on the loose credit standards, and thought that the over-loose credit standards and the weakening of supervision on the loan and financing behavior caused by them, are the root cause of subprime crisis [2,3].

The above-mentioned viewpoints explain the subprime crisis of the U. S. from different angles, respectively. In fact, the subprime mortgage crisis in the U.S. was caused by many factors. Among them, the most basic reasons are the unreasonable securitization of assets, the excessive creation and over-financing of financial assets and the over-expansion of subprime mortgage credits caused by the unreasonable securitization of subprime mortgage assets, and the unceasing inflation and final burst of asset bubbles

[4,5].

The asset securitization has been considered to be one of the most major innovations in the financial sectors since the 1990s, and it has brought a revolutionary change in financial sectors. The positive effects of asset securitization are obvious, which can enhance the liquidity of assets as well as transfer financial risks [6]. However, if the asset securitization is unreasonably used, it will bring many negative effects, too. Especially, the irrational behavior of micro-economic entities and the inappropriate financial policy of the government will exacerbate the negative effects of asset securitization. The obvious example is the excessive creation of financial assets and the over-financing and thus the subprime credit expansion as a consequence, which is also the basic reasons that led to the subprime mortgage crisis in the U.S. [7].

This paper will focus on such deep-seated problems including the asset securitization, the financial asset creation, the over-financing, the subprime credit expansion, the subprime crisis and so forth, to systematically investigate the underlying causes and mechanisms of the subprime mortgage crisis in the U.S. and thus global financial crisis triggered by it. Obviously, profoundly to explore these issues has both the theoretic and the practical significance. Especially, under the current unstable situation of the world economy, it is more meaningful.

The remainders of paper are organized as follows. Section Ⅱ probes into asset securitization, liquidity and credit risk. In section Ⅲ, the financial asset creation, the subprime credit expansion and the formation of asset bubbles in the process of asset securitization will be explored. Section Ⅳ inquires into the burst of asset bubbles, the subprime mortgage crisis and its global pounding impact. The final is conclusion.

2. Asset Securitization, Liquidity and Credit Risks

In recent years, the asset securitization based on the realignment and repackaging of housing mortgage credits and consumer credit assets, has made a great development. The essence of asset securitization is a kind of economic behavior that, the financial institutions of engaging in special business, namely, the special purpose vehicle (SPV), pool different assets absorbed from different channels into trust assets, and then on the basis to issue and sell securities to gain the funds [8].

The assets that may be securitized have many such as the physical assets, the credit assets, the security assets, the cash assets and so forth. Furthermore, the assets discussed here are broad credit assets including the housing mortgage loans, the auto credits, the receivables of credit card, the student loans and other types of bank loans. The prerequisite of asset securitization is that the assets can be standardized. As long as the assets can be standardized, then they can be securitized. Therefore, in addition to usual credit assets, the assets such as the film royalty, the receivable documents of electricity fees, the membership qualifications of health club and the others, have successfully been securitized, too. Generally, the reason that the original owners of assets entrust their assets to the SPV is that the credit rating of these assets is relatively low, and therefore there is no better source of financing. The SPV absorbs these assets and makes them realignment and packaged, again by way of debts or asset mortgage to issue the securities to get the funds, and this can significantly improve the expected return rate of original assets. In this way, the original owners of assets can get the cash with a lower cost, while the investors can get better benefits. By doing so, the SPV can also achieve the expected cash flow. Therefore, the asset securitization is an important financial innovation [8, 9].

Generally, the asset securitization has two obvious advantages. To begin with, it may convert non-liquidity assets into reasonable liquidity tools, and its role is to enhance the liquidity of assets. Secondly, it may take the debts with lower credit quality into the financial instruments with higher credit quality, and its role is to transfer the risk of assets [10].

From the perspective of abroad practice of asset securitization, the asset securitization has many different forms and purposes. Among them, one of main purposes and roles is to enhance the liquidity of assets such as the housing mortgage loan, the credit card consumption, the car credit and so forth. This sort of credit has generally the characteristics of small amount and various types, and thus the credit risks are greater than the others. However, by way of securitization, the predictability of original asset risks can significantly be enhanced, which can better avoid risks. In the asset securitization, the investors need only know the risks and the average expected rate of the return of asset pools (pooling similar assets together), and need not know the risks of single asset in the pools. Because the transaction risks are significantly reduced, it may greatly enhance the liquidity of overall assets. In fact, in a number of original assets, especially in some physical assets, the liquidity of relative large parts in these assets is weaker. Through the securitization of assets, it may pool weak and strong liquidity assets together into trust assets, and then on the basis to issue and sell the securities to gain funds. This can significantly improve the liquidity of overall assets, and thus effectively improve the operation performance of overall assets. This is one of the motives and goals of asset securitization [11].

Another purpose and role of asset securitization is to transfer credit risks. Its essence is to pool the different types of assets into trust assets, and then to use them to create subprime structural assets by means of the reorganization of the trust assets and the restructuring and optimization of the asset structure. For example, to take various debts as a collateral to issue the securities, by doing so the risks of medium and low credit assets can effectively be absorbed. This may convert low credit quality assets into high credit quality assets, and thereby reduce the credit risk of overall assets. In addition, through the securitization of assets, the assets with different risk structures can be created to accommodate the different risk preferences of investors. Therefore, the securities based on the asset securitization are known as the collateralized debt obligation (CDO). For example, the collateralized bond obligation (CBO) and the collateralized loan obligation (CLO) are two sorts of typical collateralized debt obligations. The former may reduce the liquidity of corresponding underlying assets in the pooling assets caused by the securitization, while the latter may enhance the liquidity of its corresponding underlying assets. However, the credit quality of both securitized subprime assets is significantly higher than before. Obviously, the principal purpose and role of the collateralized debt obligation is to transfer the credit risk rather than to enhance the liquidity [12,13].

From above analysis we can know that, the asset securitization can change the liquidity of underlying assets as well as transfer their credit risks. However, the liquidity and the credit risks have not only synergistic relation, but also adverse effects between them. In the case of the synergy, the asset securitization can enhance the liquid as well as reduce the credit risks, and thus they have undoubtedly a positive role in promoting economic development. On the contrary, if the adverse effects appear, that is, that the asset securitization can enhance both the liquid of assets and the credit risks, then it may make a negative impact on economy. Generally, if the excess liquidity appears in the economy, then it may lead to the over-financing and the excessive competition, and thus increase the credit risks. Under the normal circumstances, in the financial system, the liquidity raised by the asset securitization is after all limited. However, if the over-expansion of the asset securitization and the lack of timely and effective supervision in a short time appear, then it is possible to significantly improve overall economic and social liquidity, which may cause excessive financing and seriously distort financing structure, and thus exacerbate the credit risks [14].

In fact, from the aspects of the practice of asset securitization in the United States and the Europe we can find that, in many cases, the main purpose of asset securitization is to enhance the liquidity of assets rather than to transfer the credit risks. Especially, in the case of the faster economic development and the widespread shortage of funds, the asset securitization for enhancing the liquidity of assets is more popular. Even if the original intention of some asset securitization is primarily to transfer the credit risks, yet it often takes into account to increase the liquidity of assets simultaneously, too. In recent years, the asset securitization in the Asia-Pacific regions rapidly develops, and whether the securitization of mortgage credit assets or the securitization of consumption credit assets, in most emerging countries and regions, is more to enhance the liquidity of assets rather than to transfer the credit risks [15].

3. Financial Asset Creation, Subprime Credit Expansion and the Formation of Asset Bubbles in the Securitization

Different from the operation and management of ordinary financial assets, the asset securitization (particularly the securitization of subprime mortgage assets) can realize the separation between the credit growth and the income growth, and thus the basic conditions for the large-scale creation of financial assets in the short term are provided. Under the normal circumstances, to create financial assets only through the securitization of prime assets is limited. However, the large scale of financial assets in the short term can be created with the securitization of subprime mortgage credit assets. The reason that the securitization of subprime mortgage credit assets can significantly play a multiplier effect of financial asset creation is that, the asset securitization institutions of the SPV take different financial assets with high and low risks to mix together to form asset pools, then on the basis of the asset pools to make the securitization financing, undoubtedly which will inappropriately raise the value of the assets that original real value is very low. Through the continuous circulation of securitization or re-securitization, the value of original assets of low value can be unceasingly pushed higher and higher, even seriously deviating from their actual value and resulting in the appearance of speculative bubbles of financial assets. Once this situation occurs, it will accelerate the process of the securitization of subprime asset mortgage credits. If the external conditions are met, the financial assets in this process will be unlimitedly created, which in turn can create the conditions for the over-financing in some economic sectors (especially in the economic areas that easily produce the economic bubbles such as the real estate and others). By doing so, the subprime credit creation can be made over and over again [16-18].

From the perspective of the behavior of economic agents, whether the suppliers or the demanders of funds have the inherent impulse of investment or speculative expansion, but under the normal circumstances, the inherent impulse of expansion, due to the constraints of fund flows, is confined within a reasonable limit. However, because the securitization of subprime mortgage credit assets can create financial assets on a large scale, which greatly enhances the liquidity of assets, it will unceasingly weaken the constraints of real fund flows to create a good condition for achieving this expansion impulse [19].

Of course, the creation of financial assets resulted from the securitization of subprime mortgage credit assets only offers the possibility for the over-financing and the subprime credit expansion, and to make this possibility into a reality still requires other conditions. Among them, the interaction between the real estate markets and the credit markets (especially the subprime mortgage credit markets) is one of the most critical factors. According to the research of Mian and Sufi [1], Demyanyk and Hemert [4] and others, before 2002, the credit markets (especially the subprime mortgage credit markets) and the real estate markets in the United States are relatively healthy. However, since 2002, the credit (especially the subprime mortgage credits) scale has always been unceasingly expanding, causing the incessant increasing of housing prices, too. From the perspective of the exerting mechanism of the subprime mortgage crisis in the U.S., just because of the anticipation of the incessant rising of the housing prices induced and promoted by the unceasing expansion of subprime mortgage credit markets, the unceasing expansion of subprime mortgage credit markets become in turn an important capital pillar of the incessant expansion of the real estate markets and the incessant rising of housing prices [16]. Clearly, since 2002, the relaxation of the control of the U. S. government on the subprime mortgage markets and the neglect of reasonable guidance and control on the real estate markets, also create a favorable external conditions for the rapid and continuous expansion of credit (especially subprime mortgage credit) scales and the unceasing rise of housing prices. Here, we only focus on the interaction between the real estate markets and the subprime mortgage credit markets.

Undoubtedly, above mentioned interaction process is sophisticated. Firstly, we analyze the driving factors of the expected rise of housing prices. For the sake of simplicity, we divide the expected housing price change (p_t^e) into several components, for example, the long-term trend (p_{1t}), the seasonal change trend (p_{2t}) and the cyclic change trend (p_{3t}). That is,

$$p_t^e = p_{1t} + p_{2t} + p_{3t} \tag{1}$$

and

$$p_{1t} = \alpha_0 + p_{1,t-1} + e_{1t} \tag{2}$$

$$p_{2t} = \varphi_1 p_{2,t-1} + \varphi_2 p_{2,t-2} + e_{2t} \tag{3}$$

$$p_{3t} = \eta_1 p_{3,t-1} + \eta_2 p_{3,t-2} + e_{3t} \tag{4}$$

Here,

$e_{it} \sim N(0,\sigma_i^2)(i=1,2,3)$, $E(e_{1t}e_{2t}) = E(e_{1t}e_{3t}) = E(e_{2t}e_{3t}) = 0$, $(1-\phi_1 L - \phi_2 L^2) = 0$, $(1-\eta_1 L - \eta_2 L^2) = 0$.

Among them, $(1-\Phi_1 L-\Phi_2 L^2)=0$ and $(1-\eta_1 L-\eta_2 L^2)=0$ has the roots outside the unit circle, respectively. Because the p_{1t}, p_{2t} and p_{3t} is respectively the state variables that can't be observed, here to express the above model as the following state space form [20]. That is,

$$p_t^e = [1 \quad 1 \quad 1 \quad 0 \quad 0]\begin{bmatrix} p_{1t} \\ p_{2t} \\ p_{3t} \\ p_{2,t-1} \\ p_{3,t-1} \end{bmatrix} \tag{5}$$

And

$$\begin{bmatrix} p_{1t} \\ p_{2t} \\ p_{3t} \\ p_{2,t-1} \\ p_{3,t-1} \end{bmatrix} = \begin{bmatrix} \alpha_0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} + \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & \phi_1 & \phi_2 & 0 & 0 \\ 0 & 0 & 0 & \eta_1 & \eta_2 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \end{bmatrix} \begin{bmatrix} p_{1,t-1} \\ p_{2,t-1} \\ p_{2,t-2} \\ p_{3,t-1} \\ p_{3,t-2} \end{bmatrix} + \begin{bmatrix} e_{1t} \\ e_{2t} \\ e_{3t} \\ 0 \\ 0 \end{bmatrix} \tag{6}$$

It is easily found that the change of any one factor in the model will lead to the change of expected housing prices (p_t^e) from above state space model. Among them, though some fluctuations can appear in the long-term trend (p_{1t}) change of expected housing prices (p_t^e), yet generally it is relatively stable in the short term. However, the seasonal change trend (p_{2t}) and the cyclic change trend (p_{3t}) of expected housing prices (p_t^e) can take a greater fluctuation along with the fluctuations of recent prices. In addition, whether the change of the long-term trend (p_{1t}) or the change of the seasonal change trends (p_{2t}) and the cyclic change trend (p_{3t}) often exhibits the characteristic of positive self-reinforcing. Therefore, the housing prices have inherently unstable characteristic. Once the housing prices driven by some factors appear to be an upward trend, it will be unceasingly strengthened.

However, though the housing prices have continual rising and unceasingly self-fulfilled trend, yet it requires corresponding credit growth and cash flows as a support. Under the normal circumstances, because the traditional credit growth is always restricted by relevant macroeconomic variables such as the income, the savings and the others, so this part of credit growth is difficult to go beyond economic growth. However, the subprime credit growth generated by the subprime mortgage securitization, due to being out of the constraints of relevant real macroeconomic variables, may quickly increase securitization rate and thereby greatly promote the growth of whole society credits and the asset liquidity. The rapid expansion of subprime credits and the rise of their liquidity led by the rapid expansion provide necessary capital basis for the rapidly continued rise of housing prices. In addition, compared with prime mortgage credits, the requirement of subprime mortgage credits is relatively low, and in turn this can provide the chance for more people who previously could not afford a house but purchase through the subprime mortgage credits, again. This will greatly stimulate housing demand, and thereby directly lead to the rise of housing prices. Obviously, the expansion of subprime credits directly or indirectly promoted the continually rapid rise of housing prices. When the housing prices rose to the level that has been seriously out of physical economy, the bubbles of real estate speculation would be inflated with the rise of the housing prices [21, 22].

Then, which factors did contribute to the expansion of subprime credits? Generally, the factors that promote the expansion of subprime credits are nothing more than the income, the supply and the expected housing prices. Because the rising of income reduces the likelihood of default, so it increases the likelihood of subprime credit success. However, according to the research of Mian and Sufi [1] and others, during the period of 2002 to 2005, with the expansion of the subprime credits, the income of residents generally showed a downward trend. This shows that there is no significant effect of the income on the expansion of the subprime credits.

As for the supply, due to the reason of the innovation of financial risk management techniques, the relaxation of credit standards, the direct or indirect encourage of the government for subprime mortgage credits, and the misjudgment of expected risks made by financial market participants, making that the risk premium of subprime credit supply in the period of 2002 to 2005 showed a downward trend. The drop of risk premium reduced the financing cost of subprime credits, which made that the buyers who could not originally obtain a credit to purchase the house had conditions to get subprime credits, and thereby stimulated the demand of subprime credits in whole society.

Considering the expected house prices, general views think that the principal factor that promoted the expansion of subprime credits is the expected rising of housing prices. In fact, according to the findings of Glaeser et al. [21], the anticipated growth in housing prices can't exceed inflation rate, especially in the areas of high supply elasticity. Even though in the areas of inelastic supply, the anticipated growth in housing prices is also restricted by the immediate demand, the liquidity and other factors. This shows that, the anticipated growth in housing prices is not the root causes for promoting the expansion of subprime mortgage credits, and it is only the booster of the expansion of subprime mortgage credits.

It is thus clear that, the root reasons that have resulted in the expansion of subprime mortgage credits are the unreasonable securitization of assets and thus the excessive creation and over-financing of financial assets caused by it. At the same time, though the rise of expected housing prices is not the root cause of the expansion of subprime mortgage credits, yet it has a fueled effect on the expansion of the subprime mortgage credits. It is just the interaction between the expansion of subprime mortgage credits and the rise of expected housing prices to make the continuous expansion of subprime credits, and thus the continued rising of housing prices, too [23].

4. The Burst of Asset Bubbles, Subprime Mortgage Crisis and Its Global Pounding Impact

Compared with prime credits, the inherent financial risks of subprime mortgage credits are relatively high. First of all, the credit conditions of subprime credits are relatively low, which belongs to the mixed or low-required mortgage loans. Therefore, the quality of subprime credits is lower, and it itself implies higher default risks [24]. Secondly, the vast majority of subprime mortgage credits make the financing by way of securitization, and the entire chains of debt relations involve in numerous financial institutions and the financiers and investors including the institutions of subprime mortgage credits, the commercial banks, the investment banks, the security investors and so forth. Specifically speaking, as the initial credit institutions, the credit institutions of subprime mortgage loans for the housing firstly provide subprime mortgage loans for housing buyers, and then sell the subprime mortgages provided by the housing buyers again to the banks to obtain funds. And the banks put those different types of housing mortgages together to package it into pooling assets and manipulate the pooling assets through the restructuring, the segmentation and the re-packaging in the light of different investors, and then take them as a basis to issue securities for different investors, again. From the above operation mechanism of subprime mortgage credits we can find that, in the entire chains of debt relations, the subprime risks are step by step amplified through the multiplier effect [14].

Therefore, with the expansion of subprime credits, their default rates and the possibility of default crisis will become larger and larger. However, due to the temptation of high housing prices inducing the "herding effect" of real estate investment, thus resulting that the subprime risks are in a short period concealed by the high housing prices of cumulatively rising. Certainly, the subprime risks have a potential, lurk, and cumulative feature, and thus the subprime expansion induced by high housing prices is bound to make subprime loan risks unceasingly to be accumulated. When the subprime risks are accumulated to a certain degree, once the financial and economic conditions take an adverse change, it may lead to the outbreak of subprime crisis [25, 24].

Then, what are the incentive factors that led to the final outbreak of subprime crisis? Generally thinking that, the direct incentive factors are the rising of interest rates and the continued cooling of housing markets in the U. S.. This explanation has some truth. Considering interest rates, the majority of subprime mortgage loans implement the repayment of incremental principals and interests, which is fixed interest rates at the earlier stage and floating interest rates at the later stage, but the interest rates are lower at the earlier stage than at the later stage. Before 2003, the Federal Reserve has repeatedly cut down interest rates, causing the drop of interest rates from 5% to 1% or so and reducing the cost of loans, and thus prompting more people to purchase the housing by way of subprime loans. However, after 2003, in order to control the inflation, the Fed began repeatedly to raise the interest rates, again. At the beginning of 2006, the interest rates were again raised to 5% or so, which significantly aggravated the burden of the principal and interest repayments of subprime creditors. At the same time, the housing prices of continuingly rising have led to the serious bubbles of housing markets since 2002. In the case of interest rate rise, the expected housing prices will inevitably decline. When the housing prices stopped rising or took a decline, the subprime risks were fully exposed, thus leading to the subprime crisis [7].

In fact, the rise of interest rates and the continued cooling of housing markets are only the direct causes that led to the subprime crisis, but the fundamental reason is excessive speculation and economic cyclical movement in the process of asset securitization. According to the research of the Mian and Sufi [1] and others, in the process of subprime mortgage credit securitization, almost all financial institutions including the commercial banks, the non-commercial banking institutions, the securitization institutions and their subsidiary bodies involved in the speculative activities. The results of mutual speculation between various financial institutions will inevitably lead to the excess liquidity and the excessive financing in the financial markets, thus exacerbating the inherent financial risks (especially default risks) in the financial markets [26].

From the perspective of the cyclical movement of economy, before 2003, the reason that the Federal Reserve unceasingly dropped the interest rates is that the economy in the U.S. is at decline stage of economic cycle, and to cut the interest rates is primarily to save economic downturn and to stimulate economic growth. However, after 2003, the economy in the U.S. started to recover and gradually show the momentum of economic overheating and inflation. In this case, the Federal Reserve can slow down economic growth through raising interest rates and thus check the inflation. In fact, since the end of the World War II, the economy in the U.S. is always in the process of cyclical movements. On average, about every 8 to 10 years or so, the economy will occur a cycle of movement, which is determined by the technological innovation and the large-scale renewal cycle of physical capitals. At the uptrend stage of economic cycle, people tend to be over-optimistic about the economy, and this can result in over investments and speculations in the subprime markets in the process of asset securitization and the bubbles of real estate markets associated with them. However, once the economy appears a downturn, that is, that the economy changes from the rising into the decline phase, which people’s expectancy may also make a corresponding reversal, this will lead to the burst of the bubbles in financial and real estate markets. This is the root cause that resulted in the subprime crisis.

The effect of subprime crisis was initially limited only in the financial sectors and real estate markets related to subprime mortgage credits, and later evolved gradually to the entire financial sectors, finally resulting in serious financial crisis. With regard to the mechanism of its action, the initial impact of the subprime crisis is monetary shocks, due to the emergence of subprime mortgage default, destroying normal debt relations, resulting in the liquidity crisis of relevant financial institutions. With the spread of the liquidity crisis across the financial sectors, normal financial order was seriously damaged, and a large number of financial institutions appear bankruptcy or closure and the bond and stock markets were hit hard, finally leading to financial crisis. The financial crisis not only destroyed normal bank and credit relations, which led to reductions in the amount of money in circulation, but also caused the turmoil of real estate markets and resulted in the unemployment and the demand shrink. These will in turn result in the decline of output and income levels, and the initial monetary shocks were eventually evolved into actual shocks. The subprime crisis and thus the financial crisis triggered by it make a heavy blow on the economy of the U.S. [27, 28].

The subprime crisis further made an adverse shock impact on the world’s finance and economy. To begin with, it made a direct devastating effect on the world's major financial markets such as the European Union’s financial markets, the Japan’s financial markets and so forth. Because many financial institutions such as the European Union, the Japan and others purchased the securities related to the subprime credits of the U.S., they directly suffered losses from the subprime crisis of the U.S.. Secondly, it made bad effects on the world’s trade and investment. In particular, for some countries that have close trade relations with the United States such as the European countries, the Japan and the China, due to the decline of the domestic demand in the U.S. caused by the subprime crisis and the unceasing depreciation of the U.S. dollar, their exports to the U.S. declined markedly, too. From the perspective of current world’s financial and economic development, the subprime mortgage crisis has triggered a global financial crisis and economic recession. In fact, in the context of financial and economic globalization, if a country's finance and economy appears any problems, it is bound to disseminate and spread to other regions and countries. In particular, like the great countries such as the United States playing a decisive role in the development of the world, if the subprime crisis happens, it will inevitably take a shock impact on global finance and economy.

5. Conclusion

The rapid development of subprime mortgage markets in the U.S. during the period of 2001 to 2006 is built on the basis of the securitization development of personal mortgage assets. Without the development of asset securitization, it is impossible to make the rapid expansion of subprime mortgage credits in a short time. As the asset securitization can enhance the liquidity as well as transfer the financial risks, so it is considered to be one of major innovations in financial sectors since the 1990s, and it brings a revolutionary change for financial sectors. The creation of the financial assets achieved by securitization is not inevitably to take negative impact on the economy. However, under certain conditions it may create the conditions for the over-financing of socio-economy. If the securitization is unreasonably used, it will bring some negative effects. Especially, the irrational behavior of micro-economic entities and the inappropriate financial policy of the government will exacerbate the negative effects of asset securitization.

Although the asset securitization provides the possibility of subprime credit expansion for over-financing, yet to make this possibility into a reality still requires other conditions. However, since 2002, the relaxation of the control of the government on subprime mortgage markets and the neglect of reasonable guidance and control on real estate markets have created the favorable external conditions for the rapid and continuous expansion of subprime mortgage credits and the unceasing rise of housing prices. At the same time, it also provided the conditions for the interaction and the joint promotion between real estate markets and subprime mortgage markets.

As the conditions of subprime mortgage credits are relatively low, the subprime credit quality is also lower and the internal financial risks are relatively high. With the expansion of subprime credits, the probability of their default rate rise and the default crisis will become larger and larger. When the adverse economic factors such as the expected rise of interest rates and the expected fall of housing prices appear, the subprime credit risks are fully exposed, thus leading to the subprime crisis.

Considering the impact process of subprime crisis, it displays the two features of the transformation from the impact of currency to the real shocks and the transition from the internal shocks to the external shocks. At the initial stage, the main impact of subprime mortgage crisis was the financial sectors, gradually extended from the financial sectors to the entire economy again, thus leading to the decline of the U.S. economy. The recession of the U.S. again made the shock impact on the world's finance and economy through the finance, the trade, the investment and others, provoking a worldwide economic recession.

The asset securitization has both the advantages and the shortcomings. It is not only conducive to promoting financial innovation and economic development, but also could make a devastating impact on the finance and economy. Therefore, it is necessary to strengthen the effective supervision on financial institutions and markets and to prevent the illegal operation of financial institutions to avoid the finance and its related markets to run under the state of getting out of control. At the same time, under the current backgrounds of financial and economic globalization, all countries in the world should strengthen international cooperation between them, especially to establish a flexible and efficient early-warning and monitoring mechanism for international finance to jointly cope with global financial crisis.

REFERENCES

[1] A. Mian, A. Sufi. The consequences of mortgage credit expansion: Evidence from the 2007 mortgage default crisis, Quarterly Journal of Economics, 124, 1449-1496, 2009.

[2] False Dam, W. Kenneth. The subprime crisis and financial regulation: International and comparative perspectives, Chicago Journal of International Law, 10: 581-638, 2010.

[3] G. D.Ariccia, D. Igan, L. Laeven. Credit booms and lending standards: Evidence from the subprime Mortgage Market, Journal of Money, Credit and Banking, 44(3), 367-384, 2012.

[4] Y. Demyanyk, O. V. Hemert. Understanding the subprime mortgage crisis, Review of Financial Studies, 24(6), 1848-1880, 2011.

[5] Benjamin J. Keys, Tanmoy Mukherjeeb, Amit Seruc, Vikrant Vigd. Financial regulation and securitization: Evidence from subprime loans,. Journal of Monetary Economics, 56, 700–720, 2009.

[6] J. Gyntelberg, E. M. Remolona. Securitisation in the Asia and the Pacific: Implications for liquidity and credit risks, BIS Quarterly Review, 6, 65-75, 2006.

[7] M. A. Petersen, M. P. Mulaudzi, J. Mukuddem-Petersen, I. M. Schoeman, B. de Waal. Stochastic control of credit default insurance for subprime residential mortgage-backed securities, Optimal Control Applications & Methods, 33, 375-400, 2012

[8] A. B. Ashcraft, T. Schuermann. Understanding the securitization of subprime mortgage credit, Foundations and Trends in Finance, 2(3), 191-309, 2008.

[9] Benjamin J. Keys, Tanmoy Mukherjee, Amit Seruc, Vikrant Vig. Did securitization lead to lax screening? Evidence from subprime loans, The Quarterly Journal of Economics, 125(1), 307-362, 2010.

[10] T. Piskorski, A. Seru, V. Vig. Securitization and distressed loan renegotiation: Evidence from the subprime mortgage crisis, Journal of Financial Economics, 93, 369-397, 2010.

[11] R. M. Stulz. Credit default swaps and the credit crisis, Journal of Economic Perspectives, 24, 73-92, 2010.

[12] M. A. Petersen, M. C. Senosi, J. Mukuddem-Petersen, M. P. Mulaudzi, I. M. Schoeman. Did bank capital regulation exacerbate the subprime mortgage crisis?, Discrete Dynamics in Nature and Society, 10, 100-115, 2009.

[13] C. A. Parlour, G. Plantin. Loan sales and relationship banking, Journal of Finance, 63, 1291-1314, 2008.

[14] A. Pennington-Cross, S. Chomsisengphet. Subprime refinancing: Equity extraction and mortgage termination, Real Estate Economics, 35, 233-263, 2007.

[15] A. K. Purnanandam. Originate-to-distribute model and the sub-prime mortgage crisis, Review of Financial Studies, 24, 1881-1915, 2011.

[16] J. Kiff, P. Mills. Money for nothing and checks for free: Recent developments in U. S. subprime mortgage markets. World Bank Working Paper, WP/07/188, 2007.

[17] X. Gabaix, A. Krishnamurthy, O. Vigneron. Limits of arbitrage: Theory and evidence from the mortgage-backed securities market, Journal of Finance, 62, 557-596, 2007.

[18] C. Mayer, K. Pence, S. Sherlund. The rise in mortgage defaults, Journal of Economic Perspectives, 23(1), 23－50, 2008.

[19] J. Mukuddem-Petersen, M. P. Mulaudzi, Petersen Mark Adam, I. M. Schoeman. Optimal mortgage loan securitization and the subprime crisis, Optimization Letters, 4, 97-115, 2010.

[20] S. C. Saxena, K. Y. Wong. Economic growth, over-investment, and financial crisis. Mimeo, University of Washington, 2002.

[21] E. Glaeser, J. Gyourko, A. Saiz. Housing supply and housing bubbles, Journal of Urban Economics, 64 (2), 198–217, 2008.

[22] Martin F. Hellwig. Systemic risk in the financial sector: an analysis of the subprime-mortgage financial crisis, De Economist, 157, 129-207, 2009.

[23] A. C. Cutts, R. A. Van Order. On the economics of subprime lending, The Journal of Real Estate Finance and Economics, 30, 167-196, 2005.

[24] K. Gerardi, A. Shapiro, P. Willen. Subprime outcomes: Risky mortgages, homeownership experiences, and foreclosures, Federal Reserve Bank of Boston Working Paper 07-15, 2007.

[25] M. Doms, F. Furlong, J. Krainer. Subprime mortgage delinquency rates, FRB San Francisco Working Paper 07-33, 2007.

[26] C. Papagianis, A. Gupta. Making the housing market work again, Policy Review, 2, 171-173, 2012.

[27] James W. Kolari, Donald R. Fraser, Ali Anari. The effects of securitization on mortgage market yields: A Cointegration Analysis, Real Estate Economics, 26(4), 677-693, 1998.

[28] Y. Demyanyka, I. Hasanb. Financial crises and bank failures: A review of prediction methods. Omega, 38, 315–324, 2010.