

## Research Article

### The Causes and Corresponding Strategy of Sub-prime Mortgage Crisis

Yongyong Zhu

Department of Economics and Business Administration, Chongqing University of Education,  
Chongqing 400067, China

**Abstract:** Make analysis through the five aspects including the Federal Reserve abetting the bubble, mortgage companies making loans perfunctorily, investment banks carefully packaging, credit company's default assessment and hedge fund pursuing profits. Expound the transmission mechanism and influences of the sub-prime mortgage from the four angles including the foreign investors, the investment portfolio adjustment effect, the asset rating and risk reassessment and the entity economy transmission and the expectancy effect. From above, reach the conclusions which are the following five corresponding strategies: strengthening the management of foreign investment; developing information disclosure; coordinating the macro and micro policies; take precautions against moral hazard with policies; avoiding the excess liquidity. These offer decision-making basis for the further study of the influences and corresponding strategies of sub-prime mortgage.

**Keywords:** Collateralized debt obligation, excess liquidity, investment bank, moral hazard, sub-prime mortgage crisis

#### INTRODUCTION

A subprime mortgage is a type of loan provided by lending agencies to their borrowers who have lower credit ratings or incomes. These Borrowers, as a result of their poor credit ratings or lower incomes, would not be able to qualify for loans on favorable terms because they can't meet the condition of the higher credit ratings required by the lenders (Masson, 1998). In addition to having higher rates than prime mortgages, such subprime mortgages often come with floating rates that move up significantly as time goes on, which present higher risks for their lenders. Restricted by credit ratings and incomes, subprime mortgages have higher default risks than prime mortgages and their lenders have higher credit risks than those of prime mortgages.

The US mortgage market differentiates its loan grades as sub-prime level and privilege level with applicants' credit quality. According to the good or poor credit condition, lending institutions extend different treatment to the lenders and thus two markets with different gradations are formed. Individuals with poor credit condition can not apply for privilege loans so they can only acquire loans in the sub-prime mortgage market. The two markets of divergent gradations both serve house buyers who need loans, but the interest rates of loans in the sub-prime mortgage market are virtually 2-3% higher than the privilege loans. Subprime mortgage industry is an industry of high risk with high reward. The bank rates in the USA once fell to 1% in the past few years and led to the prosperity of the industries related to the real estate boom. Because the lenders of subprime mortgage require lower credit ratings or

repayment capacity for their borrowers, they often provide services for borrowers who receive discrimination of loan policies or are not qualified for the standards of prime mortgages and their loan rates are usually higher than that of prime mortgages. Even in the initial stage of the back adjustment of the interest rate, it is still possible to acquire further credits by real estate appreciation in order to make up the gap produced by the interest back adjustment. However, with the increasingly mortgage rates rising and house prices falling, real estate industry and other related industries decline and face a crunch, accompanied by the shrinking of assets and sharply raised default rate of sub-prime mortgage. Thereby it may bring serious financing gap and irreversible loss on bad debt (Larry and Marc, 2003).

#### THE CAUSES OF SUB-PRIME MORTGAGE CRISIS

The US sub-prime mortgage crisis that was marked by the bankruptcy of The New Century Financial Corporation not only deeply influenced the US finance and real estate markets, but also made a considerable impact on the economy of the nation and the surrounding countries and regions and even the whole world. US sub-prime mortgage crisis consists of the following five contributing factors together.

**The Federal Reserve abets the bubble:** Fearing that the bursting of the internet bubble and other crisis events may lead the US economy into a prolonged

recession, the Federal Reserve carried out a series of continued policies of interest rate cutting (Wolf and Ian, 2006). In a low interest rate environment the high price of house promoted the prosperity of real estate industry. And as the necessary supportive facilities, the mortgage companies and commercial banks increased in a geometrical progression. Premised by this situation, people who are living on relatively low incomes were able to meet their desire of housing despite their poor credit records and insufficient credit lines. Interest-oriented mortgage companies and commercial banks snatched mortgage business with assorted productions and to some extent, massive sub-prime mortgage loans for houses formed economy bubble. Though the Federal Reserve's low interest rate policy sustained the economic growth for a period of time, it also created superior inflation pressures and excess liquidity. Under the pressure of the growth demanding of interest rate rising, US real estate market appeared fatigued and weak and the default rates of housing loan, especially the sub-prime mortgage loan continued to rise.

**Mortgage companies make loans perfunctorily:** The US mortgage market mainly consists of Fannie Mae and Freddie Mac that are dominated by the government. Their primary business accounts for 70% of the US sub-prime mortgage market. In the low interest rate environment, for the sake of gaining more clients, these two companies abandoned their original normative standards and established new loan types and loan standards independently and separately, which made the original normative market turn into a wanton management mode. The boom of the real estate market and the establishment of the new mortgage companies give birth to more uncontrollable factors, such as: don't require the borrower to provide the property qualification certificate which should be provided, housing mortgage value evaluation rely on the computer program instead of the mortgage appraiser's conclusion, no principal loan programs, etc. Many not standardized and unhealthy growths bury the foreshadowing for the subsequent economic development.

**Carefully packaged investment bank:** Along with the advancement of low interest rate environment, all kinds of investment banks change their business strategies, from various channels into or expand their own business which is related to the secondary mortgage loan market, such as: by providing the sub-prime mortgage loan packaged into mortgage-backed securities, to increase the liquidity of the asset. Although this way, to some extent, can change the liquidity of asset, its own evaluation still cannot achieve

the U.S. government securities rating AAA grade evaluation. Driven by the interest rates, the investment banks will divide the bond into different levels according to the probability of possible default, through the packing way into the collateralized debt obligation. This kind of packing and high rating interact each other, through indirect or part of the transfer and disperse way to transfer risk, from the external, the risk may reduce, but its original high-risk did not eliminate, the external packing in a great extent makes the sub-prime market's risk accumulate and expand.

**Hedge funds seeking income:** The hedge fund is the financial funds that combined by the financial futures, financial options or other financial derivatives and financial organizations, with a high risk of speculation as a means to profit for the purpose, mainly by selling short, leverage, program trading, swaps, arbitrage, derived varieties and other means to hedge, transposition, a set of head and hedging in order to make a profit. The pursuit of absolute income and highly dependent on leverage are the hedge funds' remarkable characteristics. In the subordinated bond derivatives trading, the CDO securities' trading is less, so the fund companies can optional writing their own performance. The transaction which is focus on liquidity poor asset make redemption less, but in case of redemption, because of the financial leverage, it would be a geometry multiple type amplification bond transaction scale and the risk arising there from.

**Credit company's default assessment:** Collateralized debt obligations are debt mortgage products which wrap up all the mortgages together, package the mortgages anew and put them into the market as products. Collateralized debt obligations are fixed income securities featured with high predictability of cash flow. The obligations provide investors a multiple of investment channels to increase investment income, intensify the capital managing effect of the financial institutions and transfer risk of uncertainty. Collateralized debt obligations are divided into three grades according to the default rate. Ranked by risk that is from low to high they are Senior, Mezzanine, Equity. Only based on the historical materials and data of the collateralized debt obligations and the mathematic models of the investment banks, the Senior CDO of lowest risk can still acquire the highest grade AAA from the rating company. The Synthetic CDO with greater risk of credit default swap also can acquire AAA. Besides, about 75% sub-prime mortgage debt derivatives such as collateralized debt obligation get the AAA grade, while only 7% are given BBB or other lower grades. This illustrates that credit rating

companies are not independent, objective, prudent and accurate in performance of their duties. Misled by the overly optimistic rating results, a great many investment institutions such as funds and commercial banks invest heavily in sub-prime mortgage bonds and its derivatives, which make the crisis's scale, extent and result more serious.

### **THE SUB-PRIME CRISIS CONDUCTION MECHANISM**

The sub-prime crisis from the United States to the global diffusion, The global financial asset prices generally sharply dropped, at the same time, the various countries' market volatility fell and the global investors undersell the financial assets, the enterprise financing is very difficult, the various countries' financial institutions have huge losses, which cause a series of international range of financial institutions closed and entity economy thwarted (Eli and John, 2008). The sub-prime crisis on the global impact to the IPO market makes the global market panic. In a period , the consumer demand is weak, the market confidence is thwarted, money and credit policy tighten, economic outlook is bleak, the sub-prime loan crisis that caused by United States not only cause the huge influence to itself, all countries in the world which are associated with it have different degrees of conformance. How to face the impact of the sub-prime crisis, we first need to analysis the sub-prime crisis transmission channel and clarify the rapid spread of the causes and ways, to adopt corresponding strategies and methods to save. The U.S. sub-prime crisis spread mainly consists of the following four channels.

**Foreign investors:** Due to the developed countries' institutional investors' financial strength is abundant; the risk tolerance ability is strong and has the rich transnational investment and the experience of the global allocation of assets. As the most important part of the global finance market, the US occupies great portion in the global asset portfolio. When the institutional investors make global asset reorganization in the forms such as pension fund, mutual fund, insurance fund, etc, a large part of these reorganizations are realized by the operations of sub-prime mortgage loan derivatives. It results in that the institutional investors can be directly suffered from the sub-prime mortgage defaults. For the other foreign investors who haven't participated in these financial derivatives, the devaluation of assets in US caused by the sub-prime mortgage crisis, typically the devaluation of fixed assets

intangible assets, also bring losses to the foreign institutional investors at varying degrees.

**Investment portfolio adjustment effect:** The institutional investors from developed countries usually adopt global portfolio strategy. While one of the important markets of the portfolio has price fluctuation, it will influence the investors' assets value directly (John and Avinash, 2006). The investors of sub-prime mortgage loan spread over the US, Europe, Japan and many emerging markets. Thus the risk can also be diffused to other capital markets. Although the global portfolios are capable to reduce risk through area distribution, it cannot eliminate the impacts of the asset price fluctuation transmitted from one market to the others. The investors have to adopt the methods of reorganizing their assets or discarding the bad assets, however, the corresponding deficit and loss are irreparable.

**Asset downgrades and risk reassessment:** In crisis of subprime loan, the downgrading of rating agency makes the risks further amplify and transmit. During the real estate economic boom, the rating agency gives subprime mortgage loan higher credit rating and thus makes subprime mortgage loan get related costs by issuing bond (Yuan, 2005). The investors are in hot pursuit of subprime mortgage loan for its low risk and high income. However, the risks of bond increase as financial assets and the prices fall with the recession of real estate market. In a general way, the investors scramble to offload shares, which further aggravate the influence of subprime mortgage loan crisis. The crisis also influences other countries' markets at all levels. Because the financial market is closely related, the downgrading of subprime bond leads to other assets of global market rating downgrading correspondingly and risk reassessment. Then the risks transmit to other countries' financial markets when the housing prices are falling (Allen and Carletti, 2006).

**The entity economy transmission and anticipated effect:** Consumption occupies an important position in stimulating economic growth. But a big part of it comes from debit and credit. Subprime loan make commercial bank and financial institution tighten credit and reduce consumption lending. And then the phenomena of consumption cut and economic recession arise. Due to America trade with others like Europe, Japan, Britain and Asia Pacific countries quite closely, consumption cut and economic recession make it decrease the quantity of import commodity. This makes it worse especially when the investors are in the negative wealth effect of falls in assets and also aggravates the influence

of subprime loan to entity economy (Longstaff, 2010). At the same time, the influences from external trade still need some time when it spread to other countries. But most people have expectation to this phenomenon. And the expected efficiency makes people bearish countries' economy, which cause consumption and investment cut and capital market recession. Finally, the economy downturn appears.

### **THE CORRESPONDING STRATEGY OF SUB-PRIME MORTGAGE CRISIS**

Due to the accelerating global economy integration process, bulk commodity prices marked with dollars keep rising. How to alleviate the influences of the trade, finance and international capital flow towards the entity economy in the increasingly expanding economy and trade? How to do research before investment and to control the risks during the investment? And it is a critically pressing issue to us that how to further revive the economy, retrieving the situation that people are virtually holding underweight views to economy and reducing their investments and consumption.

**Enhance the management of foreign investment:** Besides the comprehensive investment scheme, strict vetting procedures and scientific demonstration, there is a more important point that is to carry out real-time and effective measures in the process of making foreign investments. For instance, the strategy of buying the foreign company's stocks in prophase of foreign investment may gain short-term profit because of the trend of market prices or interval. But if no real-time control and a series of following measures such as early warning, remedy and transfer are adopted, a greater follow-up loss may occur. Therefore, the comprehensive investment schemes, strict vetting procedures, scientific safeguard measures and real-time and effective monitoring structure the foreign investment management system. To establish forewarning mechanism towards the ongoing projects in the investment system and to grasp the real-time condition based on various feedback information and dynamic management, to make pre judgment correctly (Brunnermeier, 2009). Via the establishments of these systems and mechanisms, it is possible to examine and distinguish the disclosed information of the program effectively. Once the risks or the crisis signals appear, the systems give alerts to the administrators. It offers sufficient time of consideration and judgment to the decision-making institutions to transfer the investment risks of the programs with financial derivative instruments such as interest rate swaps, option swaps, etc (Pesaran and Pick, 2007).

**Reinforce the management of information disclosure:** The deficiency of full information disclosure will certainly cause accounting's deficiency of crisis's forecasting. It is a system for capital market to solve information asymmetry. Corporate borrowers sell high-risk mortgage which is beyond the bearing capacity to personals. But at the same time, they sell high-risk derivative financial products to personals and institutional investors. For this reason, accounting information disclosure must be accurate, timely, complete and public. Commercial banks should strengthen the credit investigation to customers instead of bringing down the lending criteria for pursuing the volume blindly. Besides, they should also set up restraint and punishing system to these financial institutions which cannot reach the standard.

Investors generally think a lot of specialized company's rating scores in the process of foreign investment for the reason that overseas investment exist large unpredictability. The rating from rating agency always plays an important role in overseas investment. During the economy starts growing period, the rating agency usually give higher rating of investment and get commission by deal. On the contrary, they bring down the rating substantially and temporarily while facing economy crisis, thus causing capital withdrawal. Whether the credit rating agency has performed the just duty or not is the key of investors' decision to success when subprime loan companies sell loan assets to institutions or personals in bond form. It is an important link of perfecting financial pre-warming system that the transparency is being improved and the information of rating is being fully disclosure in the process of rating. If the rating company overrate the credit grade of derivatives or haven't brought down the grade correspondingly when there's a crisis, the investors will lose heavily. Therefore, it is needed for rating agency to set up effective supervisory system, strengthen the building of internal control system and punish severely to the fraud company. The securities regulatory commission is advised to undertake the task of supervision and its supervisory is advised to carry out by central bank. If there's no supervision, the price signal transmission system of financial market will be blocked or distorted. So false rating can be eliminated by publishing the standard of credit rating and making the fair rating process or other systems.

Although in 1997 the US had formulated the overall accounting standards concerning financial instruments, which means making recognition in the income statement and off-balance-sheet information disclosure, yet in the specific practices of application many finance institutions make financial assets valuation with fair value and they realize profit through

selling the assets with excess market price and preserve the impaired assets with the cost value. It makes the accounting information in the statements unreliable and the correctness and accuracy of the decision are questioned. Reformulate the accounting standards of financial instruments including specific application rules and qualification examination of the financial staff who work with massive financial derivative products. This task can be accomplished by colleges and universities, research institutes and finance institutions together.

**The coordinating of macro and micro policies:** The real estate industry is usually considered as the pillar industry in market economy. Its multiplier effect can't be compared with any other common industries. Because its development will bring the rising of many markets and industries like rebar, cement, building materials, even labour force and transportation. The same as the real estate industry, the stock market's financing function, restructuring function and wealth effect are also can't be replaced by other markets. When the U.S. subprime loan crisis meets the inflection point of housing price and accelerates the slump of real estate industry, at the result of reciprocal causation, the U.S economy is put into difficulties. We should avoid negative effect which comes from excessive control and higher frequency when the subprime bond storm and housing prices fall cause economic slowdown. Besides, we should also avoid the new phenomenon of structural imbalance that is caused when regulate tools bias toward monetary policy.

Over quick housing price rising is disadvantageous to economic healthy development. Except the land, the scarcity one, these markets like labor force and building material which are related with entity economy are still facing the situation of supply exceeds demand. If under the control of policies such as increasing down-payments and loan interest rate, collecting land using tax and property tax, real estate market will decline sharply and bring negative effect to the whole economy. Therefore, housing price control and economic development should pay attention to the cooperation of macro and micro control. For example, here are several ways: restraining demand and by raising housing cost to promote recession in demand; or making use of dual function of reserve rate and deposit and loan rate,; or using directional bond or others to absorb the liquidity, or government offer low-rent housing and economically affordable housing to meet market demand in consider of increasing supply. Although the result of macro and micro's combined action has been come out, the using of financial policy is still weak. And it can't change economic structure

and the mode of economic development successfully as well as solve the problem of excessive liquidity radically. In case that, we can take advantage of tax lever and income policy tool to solve the justice which is always neglected by market economy and reach the aim of social harmony and stimulate consumption. By making a link between income tax exemptions and price and income level, beginning property tax, cutting subsidy or tax rebate of some industries, more public service products from financial expense can be provided. Meanwhile by transferring payment from the exchequer to increase most lower-middle class's income, thus can stimulate consumption and promote China's economy sustainable growth.

**Take precautions against moral hazard with policies:** At present market commentaries in many countries are mostly holding favorable attitudes towards their central banks' positive intervention. They think many countries' intervention actions are timely, sufficient and effective and restrain the crisis's spread and worsening. Nevertheless, there are still some opposite attitude which point out that the interventions aggravate moral hazard. Though the immediate crisis is solved in a certain period, the seeds for future crises in the financial system are created. In some developing countries, most of the banks' huge amount of bad debts and securities companies' shady capital operations should be ascribe to the moral hazard bred by soft capital constraint (Caramazza *et al.*, 2004). If the finance institutions which neglect risk management escape punishment with ease, it will make them lose risk consciousness and consequently recommit the same error with greater loss. To this end, more powerful actions should be taken on the moral hazard problem. The punitive interest rates which are adopted during the crisis to offer circulating funds can not completely solve the moral hazard problem alone, but it represents the seriousness of facing the problem.

**To avoid the excess liquidity:** In an economy system with much money supply, the spare capital needs to find ways to do investments and the overheated investment phenomenon or inflation thereby presents. Any seemingly incidental and insignificant factor can lead to the change of the market expectation. As the default rate of sub-prime mortgage increases progressively and the hooked funds, investment banks and commercial banks show deficits, capital throngs to flow out, driven by herd behavior. This forms a vicious circle of self protection and can transform the excess liquidity to exhausted condition instantly. In a very short term, not only the subordinated bond market

freezes, but also the corporate bond market and even the precious metal market with the function of evading investment products fall rapidly. This superficial excess liquidity is a relative state and has close connection with the investors' market expectations. If value maintenance is expected to be unlikely, the investors will dump assets at all cost and conserve cashes. Then the superficial phenomenon of excess liquidity will be eliminated by the assets loss. Therefore making foreign investment needs effective adjustments to the changing circumstances and positive actions of market prejudgments. Investors should adopt adequate measures such as liquidity recovery to maintain the market information and avoid the big margin fall after a rise in the financial market.

In summary, with the integration of global finance, the transmission of financial crisis is increasingly susceptible and rapid. Through strengthening the management of foreign investment and information disclosure, the coordinating of macro and micro policies, avoiding the excess liquidity together, it will be effective to reply to the influences of the sub-prime mortgage crisis. Regulators from various countries should build up an information disclosure and communication platform to response to transnational and trans-area crisis in this new era, enhancing the mutual coordination and talk, as well as the risk forewarning in advance, the risk control in the matter and the process management afterwards, to prevent the spread and proliferation of the crisis at first time and safeguard the stability of the global finance system.

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