

The Pursuit of Liquidity and Financial Crisis:  
A New Interpretation of the U.S. Financial Crisis

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## Abstract

The current U.S. financial crisis differs from other financial crises which developed in many countries in the past. The current financial crisis occurred in the U.S., which has the most developed financial market and the most effective supervision system, and is rooted in increasing risks in capital markets rather than in bank lending. The current U.S. financial crisis, therefore, may be explained differently from the existing financial crisis theories, for example, by the theory of asymmetric information.

This paper argues that the current U. S. financial crisis has arisen from the nature of financial activity, that is, the pursuit of financial liquidity, and financial development led by the pursuit of financial liquidity, not from the moral hazards of financial institutions. The pursuit of liquidity in the financial sector has developed securitization, which has boosted the lending boom in the subprime mortgage market. It has led to the boom and bust in the housing market, which has resulted in the current U. S. financial crisis.

*Key Words:* *financial crisis, subprime mortgage, financial liquidity, financial liberalization*

**JEL Classification: E3, G0**

## I. Introduction

Although the current U.S. financial crisis was triggered by the excess originations and subsequent nonperformance of subprime mortgages, the deeper root of the crisis originates from the development of the financial sector that had been led by the pursuit of liquidity that is the nature of financial activity.

The pursuit of liquidity means various efforts which financial investors seek to avoid the uncertainty that is inherent in the financial commitment, which is inter-temporal exchange between present and future. Therefore, the pursuit of liquidity does not mean only the willingness to hold money, but includes attempts and practices to shorten the maturity of financial contractions or to transform illiquid financial assets into marketable commodities, or to develop the secondary market of capital market to enhance liquidity of securities.

Since the 1980s, financial sector developments in the U.S. and other countries have been led by financial liberalization and financial innovation, which is motivated by the pursuit of profitability and liquidity of the financial sector and has resulted in the increase of both profitability and liquidity. In fact, profitability is accompanied with an increase in liquidity of financial transactions because the diversification of profit opportunities and the rise of transaction fees in financial activities increase profitability. Therefore, the enhancement of liquidity is an essential goal in the development of the financial sector led by financial liberalization and financial innovation.

The development of the financial sector through the pursuit of liquidity is both a positive and negative influence on financial development. On one hand, it provides higher liquidity and more opportunities to raise returns to individuals and financial companies. On the other hand, however, it incites them to undertake more risky financial contractions and thereby increases risk in the financial sector as a whole.

This paper attempts to analyze and explain the current financial crisis based on the behavior of liquidity pursuit in the financial sector. Section 2 describes the development of the current U.S. financial crisis and analyzes the characteristics of the crisis as compared with prior crises. Section 3 elaborates on ‘the pursuit of liquidity and financial fragility’ hypothesis to explain the current crisis. Section 4 analyzes the current U.S. financial crisis using this hypothesis. Section 5 summarizes and concludes the above discussions.

## II. The Development and Characteristics of the U.S. Financial Crisis

### 1. The development of the U.S. financial crisis

The U.S. financial crisis started from the failure of large investment banks and mortgage lenders, which resulted from the increase of sub-prime mortgage defaults. The origination of sub-prime mortgages increased rapidly since 2001. The sub-prime mortgage originations were \$190 billion in 2001, which is 8.6% of total mortgage originations. However, it grew to \$625 billion in 2005 and amounted to 20.0% of the mortgage market (see table 1). Sub-prime mortgage lending increased an average of 35.8% per year from 2001 to 2005, which is 3.5 times higher than overall increase in total mortgage lending and 13.0 times the increase of real GDP during the same period.

Table 1. Mortgage Origination Statistics (Billion Dollars, %)

	Total Mortgage Originations	Subprime Originations	Subprime Share in Total Originations	Subprime Mortgage Backed Securities	Percent Subprime Securitized
2001	2,215	190	8.6	95	50.4
2002	2,885	231	8.0	121	52.7
2003	3,945	335	8.5	202	60.5
2004	2,920	540	18.5	401	74.3
2005	3,120	625	20.0	507	81.2
2006	2,980	600	20.1	483	80.5

Source: Inside Mortgage Finance, Mortgage Market Statistical Annual (Taken from Joint Economic Committee, October 2007)

The increase of mortgage loans including sub-prime mortgages increased the price of houses and created a bubble in the housing market. In fact, the home price index of 20 major cities in the U. S. rose by 13.8% every year during 2001-2005 (S&P/Case-Shiller Home Price Indices, June 2008). The rapid growth of house prices, in turn, led to the increase of mortgage loans, which caused the increase of house prices again. Such a spiral growth in house prices formed a bubble in the housing market, which is a situation in which “the reason that price is high today is only because investors believe that the selling price will be high tomorrow” (Stiglitz, 1990).

As house prices started to drop after the peak of July 2006, the bubble burst in housing markets. The price of houses dropped 20.1% in the 2 years from July 2006 to July 2008. The burst in housing markets brought about a rapid increase in delinquency rates on mortgage loans, especially on sub-prime mortgages, and a rising foreclosure rate. The rate of delinquency on sub-prime loans that were more than 30 days past due rose from 10.3% at the end of the second quarter of 2005 to 18.67% at the end of the second quarter of 2008. The rate of sub-prime ARM loans increased to 21.3% at the end of the second quarter of 2008. The foreclosure inventory rate for subprime loans at the end of the second quarter of 2008 was 11.81%, 3.6 times higher than the second quarter of 2005’s rate of 3.29%.<sup>1</sup>

The increase in nonperforming subprime mortgages caused prices of mortgage backed securities (MBS) and collateralized debt obligations (CDO) to fall rapidly. These defaults in subprime mortgages and depreciations of MBSs and CDOs caused the mortgage originators and the investors of MBSs and CDOs to suffer large losses. According to an estimation of the IMF, total losses in the U.S. financial markets amounted to 1.4 trillion dollars by October 2008. Of these losses, 425 billion dollars were the losses of write downs from mortgage

<sup>1</sup> The figures of delinquency rates and foreclosure rates are from Mortgage Banker Association, “National Delinquency Survey”, Q2 2008.

defaults, and 980 billion dollars were from the depreciation of securities based on mortgages (IMF 2008).

As a result of the defaults of mortgages and the depreciations of securities backed by those, a lot of mortgage issuing companies and investment banks were sold or filed for bankruptcy. In the case of mortgage companies, New Century Financial, the largest U.S. subprime lender filed for bankruptcy in April 2007; and Countrywide Financial Corporation, the biggest U.S. mortgage lender, was bought by Bank of America in July 2008. A number of major investment banks also were sold or went bankrupt in 2008: Bear Sterns, the 5<sup>th</sup> largest investment bank in the U.S., was sold to JP Morgan Chase on March 16; Lehman Brothers, the 4<sup>th</sup> largest, filed for bankruptcy on September 14; and Merrill Lynch, the 3<sup>rd</sup> largest, was sold to Bank of America on the same day. Commercial banks suffered great losses in financial assets; thus, some banks were nationalized and others went bankrupt. AIG, the largest U.S. insurance company, needed a bailout from FRB to avoid default.

## 2. The three characteristics of the current financial crisis

As we have seen above, on the surface it appears that the current financial crisis came from over-lending to subprime borrowers and the subsequent boom and bust in housing markets. Therefore, some economists argue that the current U.S. financial crisis does not differ from other financial crises which have occurred in the past 20-30 years in developed and developing countries.<sup>2</sup> However, the current financial crisis has three distinctive characteristics that differentiate it from other financial crises, such as Latin America in the mid 1980s, the three Nordic countries in the early 1990s, and East Asia in 1997.

First, the current financial crisis occurred in the U.S., which has the most developed financial techniques and the most developed financial supervision and regulation. The past financial crises usually occurred when countries that had less developed financial supervision and regulation systems and financial techniques liberalized their financial sectors. While many argue that the current financial crisis was generated in the non-bank financial institutions, which were not regulated by the supervisory authority (Bordo, 2008), it is a quite different case than the crises that occurred in the past. While the previous crises occurred in countries that had not even basic systems of regulation and supervision of the banking system, the current crisis occurred in a country with a developed supervision and regulation system even though it inevitably had loopholes.

New financial techniques (the introduction of the mortgage origination and distribution model, the trade in off-balance sheets, and securitization) and financial commodities (MBSs and CDOs) were financial innovations that developed to avoid regulation and supervision. It was very difficult for financial supervisory authorities to monitor these financial innovations for irregularities even though they had a sophisticated supervision system. This suggests that the current financial crisis derived from financial innovations undertaken to avoid supervision rather than from an inadequate supervisory system. Taken to its logical extremes, this implies that a financial crisis can occur at any time even if we establish sufficient supervision and regulation systems, for the financial sector may attempt to innovate to avoid regulation at any time: the financial sector is always looking for loopholes.

Second, the current financial crisis is rooted in the development of capital markets: securitization developed and the volume of trade of securitized commodities, such as MBSs

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<sup>2</sup> Among others, Reinhart and Rogoff (2008) argue that “while each financial crisis no doubt is distinct, they also share striking similarities, in the run-up of asset prices, in debt accumulation, in growth patterns, and in current account deficits.”

and CDOs, increased dramatically. The burst in the housing markets led to the abrupt depreciation of these commodities; it caused many investors, in particular investment banks, to suffer great investment loss. Even if many subprime mortgage companies also suffered a great loss from the failure of subprime mortgage lending, a considerable portion of them are affiliated companies of large investment banks. The trouble of commercial banks mainly derives from investment in securitized commodities, not from lending to subprime borrowers.

In contrast to our current crisis, the root of the past financial crises was in the asset management of commercial banks which took excessive risks. In the past, lending booms of commercial banks brought about booms in the real estate markets and subsequent bursts. The lending booms came from the moral hazard of banks, not from the development of financial innovations in the capital markets. This means that while the past financial crises originated from the moral hazard of commercial banks, the current financial crisis originates from developments in the financial markets during the last two decades.

Third, while the current financial crisis started in the U.S. financial sector, the financial crisis has a global dimension. The current U.S. financial crisis has rapidly spread all over the world. The extension of past financial crises was limited to one country or particular regions. Nordic financial crises were confined within the Nordic three countries, and East Asian financial crises were also confined within the East Asian countries. However, the current financial crisis has extended to encompass the entire world, not only in developed countries but also in developing countries. The failure of the U.S. subprime mortgage harms investors all over the world: specific examples are UBS of Switzerland, Northern Rock of the U.K., IBK of Germany, and some Chinese banks. Stock markets around the world have seen stock prices crash.

### III. The Pursuit of Liquidity and Financial Crisis

The characteristics which differentiate the current financial crisis from other financial crises demand a new interpretation of the root of financial crisis. Existing explanations of financial crisis have found the root of financial crisis to lie in either the expansion of the money supply or the moral hazard of financial institutions.

Mainstream theories attribute the current financial crisis either to the easy money supply policy of the FRB since the early 2000s or to the moral hazard due to asymmetric information in the financial markets intensified by the recent development of financial techniques. Schwartz (2008) argued that the current disturbance started with a mania, and “if you investigate individually the manias that the market has so dubbed over the years, in every case, it was expansive monetary policy that generated the boom in an asset.” Stiglitz (2008) argued that securitization has created a series of new problems in information asymmetries, which are incentives for excessive risk taking and fraudulent behavior. Mishkin (2008) also stated that the current financial crisis is derived from the incentive problem in which the agent (the originator of the loans) did not have the incentives to act fully in the interest of the principal (the ultimate holder of the loan).

However, as we see above, the current financial crisis did not come directly from either the perverse incentive problem derived from increasing information asymmetries or from expansive monetary policy. It may originate from the pursuit of liquidity in the financial sector, as we will see below, which led to financial innovations that were able to strengthen the liquidity of financial contracts and resulted in financial fragility and financial crisis. From here on, we will explore why the financial sector pursues liquidity, how such liquidity is enhanced, and what the results of the pursuit of liquidity are.

## 1. Uncertainty in financial transactions and the pursuit of liquidity

There are three essential characteristics of general financial activity: uncertainty about the likelihood of repayment on maturity, information asymmetry between lender and borrower, and the ultimate dependence<sup>3</sup> of the financial on the real sector for returns. Of these peculiarities, information asymmetry is known very well in the financial economics and has been widely discussed. Borrowers have more information about the investment project they will undertake than lenders. Information asymmetry results in adverse selection and moral hazard. Adverse selection of high-risk borrowers are made because only high-risk borrowers want to borrow money at a higher interest rate as low risk borrowers drop out of the bidding for loans when the interest rate gets too high (Akerlof, 1970; Mishkin, 1990). The second result from information asymmetry, moral hazard, is a situation in which the borrower has incentive to engage in activities that may be personally beneficial but will increase the probability of default and thus harm the lender (Mishkin, 1990). Financial institutions, as borrowers from depositors, often have incentives to take higher risks for more profits, but this practice may be harmful for depositors. Financial institutions as borrowers from depositors also have a moral hazard due to the fact that they possess more information than the depositors. If there are no adequate supervisions and regulations, a financial crisis may occur due to the moral hazard of financial institutions. Many arguments have sought to find the root of financial crisis in this moral hazard (McKinnon, 1993; Mishkin, 1996).

Uncertainty is rather less discussed in financial economics; however, it may be just as important as information asymmetry in influencing financial activities and financial development. Keynes introduced the uncertainty problem in the course of discussing the analysis of real investment decisions. Economic activities, in particular capital assets investment activity, have a time span set between the start and the completion of the activities. Thus, it is necessary to form an expectation about the future consequences at the start point. Keynes argued in relation to this expectation that the future is uncertain, which means the true situation is one in which “there is no scientific basis on which to form any calculable probability whatever. We simply do not know” (Keynes, 1937).

This uncertainty is undoubtedly more evident in financial activities because financial transactions are always inter-temporal exchanges. Baltenspeger says, “the credit market is essentially a market for inter-temporal exchange. Something is given up in the present in exchange for something else in the future” (1990, p. 97). However, we don’t know about the probability of future repayment. The uncertainty Keynes referred to is another essential peculiarity in financial transactions. The uncertainty is not one with the potential of fraudulent behavior such as in the moral hazards mentioned above, in which borrowers do not provide adequate information about investment projects that they want to undertake to the lender. It is rather a normal state that is always faced whenever financial contracts are entered into by both lenders and borrowers who do not know the true probability of future repayment.

Lenders or investors troubled by this uncertainty try to seek techniques to lessen it by shortening the time to maturity of contracts, by selling their assets to third parties, or by securitization of debts and high risk bonds. Lenders and investors can increase the liquidity of their financial contracts and decrease the uncertainty inherent in their financial activities through these techniques. We will label the behavior of seeking these devices *the pursuit of liquidity*, which differs from Keynes’s liquidity preference. While liquidity preference usually

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<sup>3</sup> By this I mean that returns in the financial sector, that is interest and dividends, ultimately depend on profit in the real sector.

refers to a demand for money, the pursuit of liquidity refers to behavior on the part of lenders and investors that increases the liquidity of their financial contracts.

The pursuit of liquidity is a driving force in all financial activities because all financial transacts have uncertainty and all lenders and investors want to avoid this uncertainty. Thus, the pursuit of liquidity compels and shapes financial sector development. Keynes argued that the stock market developed due to this pursuit of liquidity, explaining how stock markets provide investments which are ‘fixed’ for the community to be ‘liquid’ for the individual. He said that “it has been, I am sure, on the basis of some such procedure as this that our leading investment markets have been developed” (Keynes, 1936, p. 155).

In fact, we can say that the development of the financial sector during the past two decades has also been led by the pursuit of liquidity in financial activities. An examination of how the financial sector has developed in line with the inherent nature of financial activities over the past two decades, specifically related to financial liberalization and innovation, provides further evidence for this interpretation.

## 2. Financial liberalization and innovations in the pursuit of liquidity

While the pursuit of liquidity typifies the nature of financial activities, investors are often frustrated when engaging in this pursuit. Historically, sometimes the pursuit of liquidity was restrained by legal regulations and institutional insufficiency, sometimes it was hindered by a low development level of financial technique. Until the mid-1980s, most developed countries had several regulation clauses that constrained the development of free financial activities. Not only the activities of banking but also the issuance and trade of equities and bonds were regulated by legal clauses even in the most developed countries. Adequate techniques and technology to evaluate risks were not developed until that time.

In particular, in capital markets where the pursuit of liquidity can be developed easily, the issuance of equities and bonds was subject to the approval of the proper authorities. Many countries also regulated the initial public offerings of equity, requiring companies to have several years of positive earnings before listing. The insider trader regulations which were needed to improve transparency and fairness were not functioning in most countries.<sup>4</sup> Thus, the average age of a company on first listing in the stock market in European countries was 40 years even in the 1980s (Razan and Zingales, 2003a, p. 240). The evaluation and pricing of risk was subject to a significant lag before the information technology revolution of the 1990s (Aglietta and Breton, 2001). Conditions were unfavorable to the pursuit of liquidity in the financial sector until the mid-1980s because of these legal regulations and the unavoidable lag associated with the evaluation and subsequent pricing of risk.

However, since the mid-1980s there has been a great transformation in the financial sector. Regulations have been abolished or mitigated for the most part, and methods of pricing and evaluating risk have also improved greatly due to the development of information technology (Edey and Hviding, 1995; Aglietta and Breton, 2001). This is financial liberalization and financial innovation. After this financial liberalization and innovation, the financial sector has developed greatly. This financial liberalization has been driven by the nature of financial activity: the pursuit of liquidity. The financial sector developed new financial assets and techniques in order to circumvent the existing regulations to improve their liquidity. They had also pressed financial authorities to relax or remove financial regulations.

The first financial development was the liberalization that occurred in the banking sector

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<sup>4</sup> “Before 1990, there were laws against insider trading in only 34 out of 103 countries with stock markets” (Razan and Zingales, 2003, p. 239).

in the 1970s and the early 1980s when most policies controlling interest rates on bank loans, deposits, and short-term financial instruments were deregulated. At that time, new financial instruments were developed. Commercial paper has been issued since 1960 in the U.S.<sup>5</sup> and CDs, MMFs, and MMDAs have been circulating since the 1970s.

The second development was the liberalization of the capital market in which entry to the security industry and the removal of fixed commission rates were deregulated between the 1980s and the early 1990s. The removal of government regulations on security firms' commissions was enacted in 1975 in the U.S. The deregulation wave in Europe started in the mid-1980s, and was especially evident in the big bang in the U.K. (Edey and Hviding, 1995). As a result, security markets and derivative markets have grown rapidly in comparison to banks' assets and liabilities. While all financial assets have grown faster than real capital since financial liberalization, the most distinguished growth since liberalization has been seen in equities and derivatives. This shows that the liquidity of financial transactions has increased very dramatically. The trade values of stocks and turnover in the stock market increased tremendously in the 1980s and the 1990s as the secondary market developed, which equates to an increase in liquidity. Financial derivative markets also have grown substantially. The stock of outstanding financial derivatives in the OTC market increased nine-fold during the period 1998-2008. The growth of financial derivatives was also the result of the pursuit of liquidity in the financial sector.<sup>6</sup>

A third financial development was the securitization which began in the 1970s.<sup>7</sup> The issuance of mortgage-backed securities in 1971 in the U.S. was the first securitization. Securitization was also introduced in 1987 in the U.K. and in 1991 in France.<sup>8</sup> Securitization is the process through which illiquid non-trade assets are transformed into tradable securities by repackaging existing assets (Elul, 2005). The assets usually used as collateral for securitization are bank loans, corporate bonds, commercial papers, but residential mortgages are the most largely used collateral assets. This is because they are generally more homogeneous, easier to pool, and easier for the rating agencies to analyze than other asset types (Lumpkin, 1999). Securitization not only increases the liquidity of financial contracts by transforming the illiquid financial assets into liquid tradable securities, but also has the effect of expanding the capital markets by absorbing non-marketable loans into these markets.

The development of new short-term financial commodities, the rapid growth in capital markets, the rapid growth in financial derivatives markets, and the enormous expansion of securitization after financial liberalization and innovation were all the result of the pursuit of liquidity in the financial sector.

### 3. The rise of liquidity and the financial crisis

The rise of liquidity in financial activity makes it possible for individual investors to increase liquidity and reduce the risks involved with their financial investments. Furthermore,

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<sup>5</sup> Commercial paper began to be issued in 1960 in the U.S. and Canada, 1985 in France, 1986 in the U.K., 1987 in Japan, and 1991 in Germany.

<sup>6</sup> According to Remolona, "the growth in exchange-traded derivative arose primarily from the demand for liquidity-enhancing innovations and the growth in OTC derivatives from the demand for market-risk-transferring innovations" (Remolona 1992-93, 33).

<sup>7</sup> Securitization is the process by which homogeneous, but illiquid, assets are pooled and repackaged, with security interest representing claims to the incoming cash flows and other economic benefits generated by the loan pool sold as securities to third party investors (Lumpkin 1999).

<sup>8</sup> On the recent trend and development of securitization, see Lumpkin (1999).

the increased liquidity gives them the opportunity to diversify their financial investments, and thus to raise their financial returns. The rapid growth of financial transactions during the past 20 years is without a doubt a result of the increase of liquidity.

In fact, before the time that various alternative financial instruments to afford liquidity were created and developed, individual investors had to increase their cash holdings (cash or demand deposit) to gain liquidity. However, after financial liberalization and innovation, which greatly increased liquidity, various alternative financial instruments exist to increase liquidity other than money, such as short-term financial commodities (CDs, RPs, MMFs, etc.) and mutual funds. Even securities such as stocks and bonds can be used as alternatives to money accordingly as the secondary securities exchange markets have developed due to financial liberalization. The development of these marketable financial commodities has led to the rapid increase of financial transactions and an enormous accumulation of financial assets.

On the other hand, after the rise of liquidity in financial activity, financial intermediaries have changed their strategies for managing assets, businesses, and evaluating risks. They have sought to increase liquidity and profitability in their asset management; thus, they transferred their asset portfolio from traditional loans to securities investments, and their lending lines from long-term loans in the corporate sector to short-term loans in the household sector. The business strategy of financial intermediaries has also expanded from traditional deposit and lending activities which gain income from interest to securities brokerages and deals which make income from fees. A more important innovation in the financial intermediary's business model is securitization, which enables financial intermediaries to transform their long-term illiquid loans to short-term liquid securities. Securitization has transformed the banking business from the old model of holding loans on banks' balance sheets to an 'originate and distribute' model. Now intermediaries can increase liquidity and pass the risks of their long-term loans onto others through securitization.

However, while the rise of liquidity in the financial sector allows individuals to increase liquidity and reduce the risks of their financial investments, it inevitably resulted in increases of illiquidity and risks in the financial sector as a whole. Naturally, in the economy as a whole, financial commitments are illiquid until the obligations are settled; thus, the uncertainty and risks of financial contracts in the economy viewed as a whole cannot be considered to be abolished or decreased until settled. Even though the level of liquidity of financial activities has risen through financial liberalization and innovation, this applies only to individuals or each financial intermediary, not for the financial sector as a whole. This is because the individual or each financial intermediary can transfer his/her illiquid financial assets to others and can gain money in developed financial markets; consequently, they can increase their liquidity. But even though the liquidity of each financial instrument increases with financial development, the total volume of financial contracts of an economy need not decrease. Rather, the total volume of financial contracts may increase due to the rise of liquidity. Therefore, individuals increase their liquidity only through the transfer of property holding between individuals, not through the decrease of illiquid contracts.

The increase of liquidity of financial activities at the individual level can increase the illiquidity and risks in the economy as a whole. The liquidity increase of each individual financial asset can enlarge the financial transactions in an economy. Furthermore, the development of techniques through which illiquid financial contracts become liquid financial assets, which reduces uncertainty and risks, allows financial investors to take on financial contracts, even those with high risk. The ironic result is that this process results in an enormous expansion of financial contracts and financial assets with *high uncertainty and risk*

in the financial sector, investments which inherently possess the very same nature (high uncertainty and risk) that investors seek to avoid.

The expansion of financial assets with high risk makes the financial sector fragile. As the default risks and market risks of financial contracts gradually increases due to the growth of high risk assets, the financial sector becomes more fragile. That is, an increase in liquidity leads to an increase of general financial contracts in the market, which leads to an increase in special financial contracts with high risks, which leads to ABSs based on such financial contracts. Therefore, it follows that the liquidity of financial activities enhances the fragility of the financial sector. Now, the increase of financial sector fragility can lead to a situation in which even a small percentage of defaults easily degenerates into a financial crisis. In summary, the financial development led by the pursuit of liquidity results in fragility of the financial sector and consequent financial crisis. In fact, as we have seen above, financial sector development in the past 20 years has been lead by the pursuit of liquidity, which has increased fragility; this increased fragility is the root cause of the current U.S. financial crisis.

#### IV The Pursuit of Liquidity and the Current U.S. Financial Crisis

##### 1. The pursuit of liquidity and securitization

Among the financial developments to increase liquidity, the securitization of mortgages may be the most noteworthy invention in relation to the current U.S. financial crisis. Although mortgage securitization first appeared in the U. S. in 1970, its rapid growth occurred between 2000 and 2006. In the U.S., the issuance of securitization (MBSs plus ABSs) was about 600 billion dollars in 1996, but this issuance increased to 3,656 billion dollars in 2003 and 3,187 billion dollars in 2006. The issuance of securitization has increased more than 5 times during the past 10 years. The issuance of securitization has also grown rapidly in Europe during the past 10 years. It was less than 50 billion dollars in 1996 but increased to 577 billion dollars in 2006, which is more than 11 times the amount of 1996.

Figure 1. Trends in securitization issuance in the U.S. and Europe



Source: International Financial Services, London (2007)

The rapid growth of securitization, especially in the issuance of MBSs or CDOs, has been spurred by a rise of liquidity and profitability for investors (such as insurance companies, hedge funds, asset managers, investment banks, and commercial banks), issuers (such as government sponsored enterprises [e.g., Fannie Mae and Freddie Mac], investment banks, and commercial banks), and mortgage originators (such as investment banks, commercial banks, and mortgage companies). The first of these groups, investors, are exposed to much

less risk because the maturities of MBSs and CDOs are shorter than mortgage loans themselves and each individual investor’s risk is diversified and reduced through a pooling process. The shortening of maturities and reduction of risks just increase the liquidity of the financial contracts. The second of these groups, issuers, gain profits from the margin between the yield on the assets and interest payments to these asset backed securities, and gain fee income in the issuing and trading of these securities. They have more income as issuances and trades increase. The third group, mortgage originators, can also increase their liquidity and profitability by securitization. They can sell their illiquid mortgage assets to the issuers and can thereby avoid the risks inherent in these mortgages and improve cash flow as a result of securitization techniques: “instead of holding loans on banks’ balance sheets, banks moved to an ‘originate and distribute’ model” (Brunnermeier, 2008). This allows originators to increase the liquidity of their financial activities.

## 2. Securitization, excessive mortgage issuance, and financial fragility

While securitization increased the liquidity and profitability of investors, issuers, and originators, it also has led to the excessive issuance of mortgage loans to high-risk borrowers and, in the end, resulted in the increase of fragility in the financial sector. In fact, in the U. S., it was the rapid expansion of originating subprime mortgages and the growth of issuance of MBSs from 2000 to 2006 that generated the financial fragility and crisis in the financial sector in 2008-2009.

Why was there such rapid expansion of originating subprime mortgages? Mian and Sufi (2009) examined the relationship between the expansion of subprime mortgage credit and the innovation of securitization. They discovered the following facts through the analysis of zip code. First, subprime zip codes were significantly more likely to be denied credit before the expansion of subprime mortgages. However the denial rate for subprime zip code mortgages disproportionately falls from 2002 to 2005. Second, the historically unique period when credit growth became divorced from income growth coincides exactly with the expansion of subprime mortgage securitization. Third, the increase in the rate of securitization is much stronger in subprime zip codes compared to prime zip codes during this period. These facts show that the increase of securitization caused the growth of subprime mortgage loans in the early 2000s.

In fact, subprime mortgage lending has followed the increase of the issuance of subprime MBSs since 2000. Until 2000, the GSEs’ origination of mortgages was predominantly composed of loans to prime borrowers. The MBSs also were mainly issued by the GSEs for loans confirmed by the underwriting standard. However, non-agency private label loans and issuances expanded greatly from 2001 to 2006. As we see in table 2 (see also Figures 2 and 3), non-agency issuances of MBSs surpassed agency issuance in 2005. That is, while the share of agency issuance of MBSs fell from 81.9% in 2001 to 46.6% in 2006, the share of non-agency issuances increased almost threefold from 18.1% to 53.4%. Among the non-agency issuances, subprime MBSs grew most rapidly in recent years. The rapid growth of the issuance of subprime MBSs led to the great increases of origination of subprime mortgages.

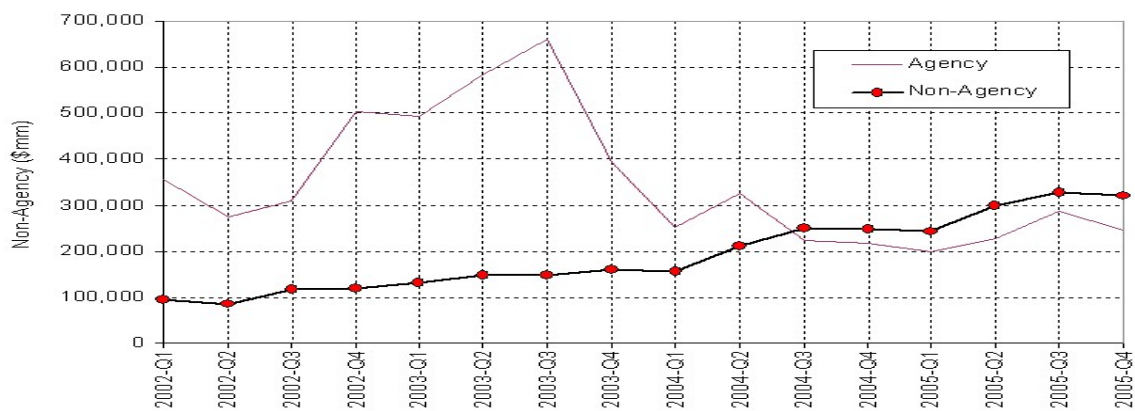
Table 2. Origination and Issuance of Non-agency Loans (in billions of dollars, %)

Subprime			Alt-A			Jumbo			Agency		
Origination	Issuance	Ratio	Origination	Issuance	Ratio	Origination	Issuance	Ratio	Origination	Issuance	Ratio

01	190	87.1	46	60	11.4	19	430	142.2	33	1,433	1087	76
02	231	122.7	53	68	53.5	79	576	171.5	30	1,898	1442	76
03	335	195.0	58	85	74.1	87	655	237.5	36	2690	2130	79
04	540	362.6	67	200	158.6	79	515	233.4	45	1345	1018	76
05	625	465.0	74	380	332.3	87	570	280.7	49	1180	964	82
06	600	448.6	75	400	365.7	91	480	219.0	46	1040	904	87

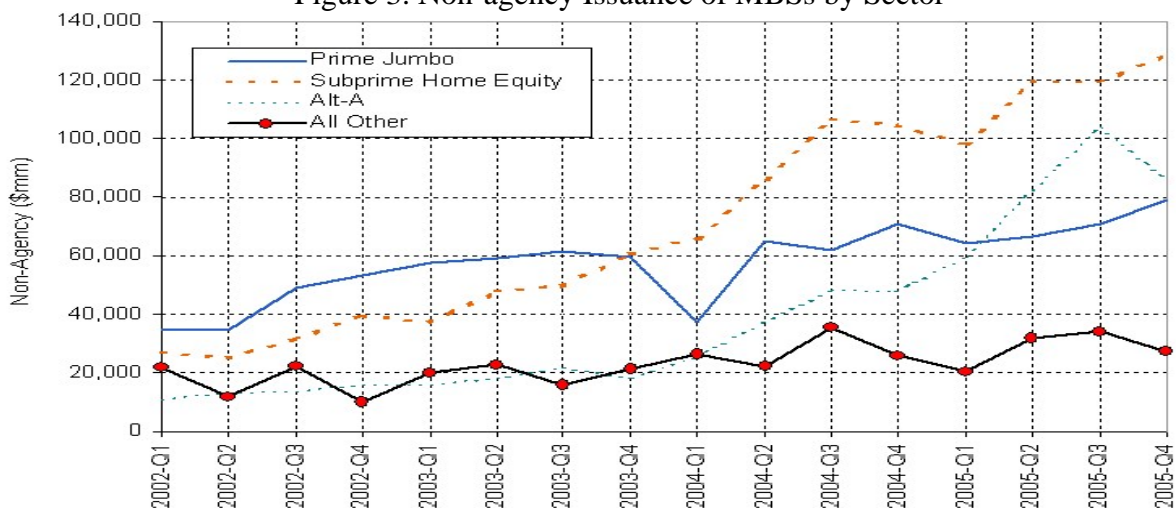
Source: Inside Mortgage Finance (taken from Ashcraft and Schuermann, 2008)

Figure 2. MBS Issuance by Sector



Source: Zimmerman (2006)

Figure 3. Non-agency Issuance of MBSs by Sector



Source: Zimmerman (2006)

There are several reasons why the non-agency origination of subprime mortgages expanded greatly relative to agency in recent years. First, securitization allowed mortgage originators to transform to an ‘originate and distribute’ banking model from an ‘originate and hold’ model. This transformation of banking model led to a relaxation of lending standards,

and contributed to the expansion of subprime mortgages (Brunnermeier, 2008). Second, the increased demand for private label MBSs brought about the boom of subprime mortgage originations (Demyanyk and Van Hermert, 2008). Third, conforming single-family loans were capped at \$417,000 in 2006, strict requirements were put on DTI and LTV ratios, and these loans required proof-of-income documentation. Fourth, the accounting and governance issues forced the GSEs to contract their mortgage purchase operations while innovative securitization technique provided private label originators with lower costs funding (Kiff and Mills, 2007).

This rapid growth of the originations and issuances of non-agency subprime mortgages resulted in the increase of fragility in the financial sector. That is, loans to subprime borrowers are subject to increased risk of default and related securities inherently possess higher market risks. In this situation, the prices of securities can fall abruptly. As we have seen in section 2, the rapid mortgage lending growth brought about the housing market boom, and resulted in the crash in housing prices. The crash in housing prices led to more subprime mortgage loan defaults, and brought about a sharp fall in the prices of subprime MBSs.

The securitization driven by the pursuit of liquidity, which is the nature of all financial activity, made the financial sector more fragile than usual by increasing the amount of financial contracts with illiquid high risks that were in the market. Thus, the financial sector which was developed through securitization could not help but fall into financial crisis. Thus, we can say that the pursuit of liquidity in financial activity is the root of the current U.S. financial crisis.

## V. Conclusion

The current U.S. financial crisis differs from other financial crises which occurred in many countries in the past. The current U.S. financial crisis happened in the country which has the most developed financial market and the most effective supervisory system: the crisis was brought about by neither a lack of financial sophistication nor a lack of supervisory controls on the market. Furthermore, the financial crisis is rooted in the increasing market risks in capital markets rather than in the default risk in bank loans. The current U.S. financial crisis, therefore, may be explained differently from the existing financial crisis explanations, such as the incentive problem due to asymmetric information, or an excessive money supply.

We argued that the U.S. financial crisis arises from the nature of financial activity, that is, the pursuit of liquidity in financial transactions which is a strategy for avoiding the uncertainty inherent in financial contracts. Financial contracts are usually an inter-temporal exchange between the present and the future; thus, they are accompanied by uncertainty about the possibility of repayment on maturity of the contract. The pursuit of liquidity has driven the development of the financial sector, and thus led to the financial liberalization and financial innovation seen since the 1980s. This resulted in new financial techniques such as securitization, new short-term financial commodities (CD, CP, RP, MMF), and the development of secondary capital markets.

Among innovations to increase liquidity in the past two decades, securitization may be the most distinguished innovation. Securitization, especially of subprime mortgages, is a good example of how the pursuit of liquidity functions in illiquid financial contracts. However, securitization caused the rapid growth in the origination of low quality, illiquid subprime mortgages. This led to the increase of fragility in the financial sector, and in the end, resulted in the current U. S. financial crisis.

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