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# DIPLOMARBEIT

Titel der Diplomarbeit

## A review of the subprime crisis

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# Abstract

The objective of this thesis is to give an overview of the subprime crisis along with various conditions that altogether brought forth the crisis. First, the real estate market in the USA is described in terms of the different markets and the solvency of the debtors. The process of the securitization of credits as a financial instrument is explained in detail and at the same time is identified as the root cause having led to an expansion of credit allowances and to the extension of risks. Subsequently, the roles the different actors play in the crisis are presented. For a better understanding of the crisis, the background of the subprime crisis is illustrated based on the Federal Reserve's policy on interest rates and the performance of prices in the real estate market. The events in the markets are outlined, based on the chronicle by Stroisch, Karge, and Brück (2008). Those responsible for as well as the effects of the current crisis are analyzed and compared to crises in the past.

# Zusammenfassung

Das Ziel dieser Arbeit ist es, einen Überblick über die Subprime-Krise in den USA zu geben. Dabei werden verschiedene Umstände beschrieben, die in ihrem Zusammenhang die Krise hervorgebracht haben. Zu Beginn wird ein Überblick über den Immobilienmarkt in den USA gegeben. Untersuchungsgegenstand sind dabei die Märkte und die Bonität der Schuldner. Mit der Verbriefung von Krediten wird jenes Instrument erklärt, das zu einer vermehrten Kreditvergabe und zur Erhöhung von Risiken geführt hat. Anschließend werden die Rollen der verschiedenen Akteure in der Krise betrachtet. Um die Folgen der Krise besser zu verstehen, werden die Hintergründe der Subprime-Krise anhand der Zinspolitik der Federal Reserve und der Preisentwicklung auf dem US-Immobilienmarkt dargestellt. Die Geschehnisse auf den Märkten werden in Anlehnung an die Chronik von Stroisch, Karge und Brück (2008) ausführlich erörtert. Die Verantwortlichen für die Krise sowie deren Auswirkungen werden untersucht, um anschließend Vergleiche zu vergangenen Krisen zu ziehen.

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# 1 Introduction

In the 1990s, the US American government pursued a restrictive fiscal policy in order to reduce the high state indebtedness dating back to the Reagan era. From 1998 on, even budget surpluses could be obtained. In contrast to this development, the private households spent more than they earned and the rate of saving sank from 6% of the Gross Domestic Product to minus 6%. This private consumption was the drive behind the expansion of the US economy in the 1990s. However, private consumption noticeably decreased in 2001 as a reaction to the retreat in share quotations caused by the dot.com crisis, indicating an imminent recession.

At the beginning of 2001, the US American government changed its fiscal policy and decided stimulate the economy. Between 2000 and 2003, an additional 700 million US dollars were invested in the country's economy. The central bank lowered the key interests from 6.5% (2001) to less than 1% (2003). Due to this economic stimulus package in the early 2000s, the USA were characterized by a high budget deficit. Private households likewise continued their credit financed consumption promoted by low interest rates. A substantial part of the credits issued to private households was used for real estate acquisition. As a consequence of the continuous demand for real estates, the prices continued to rise. As the households used the real estate acquired as a security for consumption credits, it was possible for private consumption to remain on a high level.

Voices warning against a bubble in the property market were ignored. In order to secure the growth of the property market, even more people had to be tempted to buy houses, which is why banks eventually issued credits to customers with bad or no soil quality. They were glad to finance purchases of houses as they were looking for new investment opportunities after the dot.com crisis. As long as there were new buyers in the market and the prices of the real estate were on the rise, poor solvency was not a problem. The high risk of default connected to these credits was reduced by the creation of new instruments for the banks. Credits were securitized, i.e. credits were converted into financial titles by dividing them into smaller parts, which were again bundled depending on risk and then

resold to other institutions, such as hedge funds or foreign banks. In this system, there are no incentives for banks to ascertain the creditworthiness of their customers, as they are only interested in selling the financial titles created by issuing credits to let the credit disappear from their books and to shift the risk. By means of securitization and the resale of risky credits, the banks were able to bend their own capital funds regulations and to increase the number of credits they granted. Nevertheless, the risks had not disappeared, but were born by other financial institutions, often even by the bank's own unit trust fund.

In order to resell the financial titles created by the securitization to institutional investors, they had to be classified by rating agencies of which most had classified the financial products very positively. When the crisis broke out, even more voices could be heard, asking why and how such false evaluations could be made. One of the answers was the difficulty to evaluate such new and complex products objectively. Furthermore, the rating agencies faced a conflict of interests, since they were paid by the financial institutions they were to evaluate. As many debtors were no longer able to pay their installments due to increases in interest rates and, therefore, were forced to sell their real estate properties, the real estate prices started to stagnate.

In June 2007, the first major banks withdrew capital from the US mortgage market. The imminent danger of a worldwide "credit crunch" was soon perceivable: banks had to correct their valuations and had to set aside reserves which entailed a decrease in the credit business. The banks were no longer willing to lend money to each other. The American FED, the European Central Bank, and other central banks stimulated the money market with billions of dollars and, thus, were able to repel the credit bottleneck. Additionally, the American central bank repetitively reduced the interest rates. The depreciation of US American mortgage securities did not only release the share quotations of the involved enterprises; it triggered a sharp global drop in prices as banks and institutional investors bought the financial titles worldwide.

The crisis did not come as a surprise though. A bubble appeared in the markets, yet it still "made sense" to go with the flow as long as the prices rose and profits could be generated. If the danger of a system crisis should eventually arise, public stakeholders would be called

upon. As a last resort, the state as a lender would intervene and save the stakeholders in the financial market. Therefore, faith is only put in the "open market" in sunshine phases.

# 2 Property Market in the USA

## 2.1 Mortgage banks in the USA

A mortgage bank is a bank that is licensed by the state to issue mortgages directly to customers. Mortgage banks in the USA are not investment institutes, meaning that they do not generate yields from issuing mortgages. Therefore, mortgage banks are in need of funds from the secondary mortgage market as for instance from Fannie Mae or Freddie Mac. The source of revenue of mortgage banks is credit fees and credit administration fees. Many mortgage banks decide not to edit and manage the credits they issue. By selling the credits shortly after their acceptance and payment, they receive a bonus.

In general, a mortgage bank operates according to various banking laws which, however, vary from state to state. They have to adjust their bank laws to state laws of the respective state. In order to administrate the mortgage business, they commission affiliates. 30% of the subprime loans are issued by such affiliates, which are not observed as strictly as the holding company, and 50% of the loans are allocated by independent mortgage companies, which hold a state license, but are not subject to federal control.

## 2.2 The US mortgage market

The US mortgage market comprises of two different segments: a low-risk (prime) and a risky (non-prime) segment. A prime has a lending limit in the amount of 417,000 USD and is provided with a government guarantee. They are extended to borrowers with a great credit score. Mortgages with a higher loan-to-value ratio are called Prime-Jumbo, with principal amounts above the common loan limit. All in all, the prime segment is made up of debtors with a flawless credit history. The non-prime segment is divided into the two subgroups Alt-A and subprime. Alt-A mortgages are issued to creditors whose credit application shows irregularities, e.g. applicants fail to fully disclose their assets or income.[1]

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[1] DiMartino, D. and Duca, J.V. (2007) The Rise and Fall of Subprime Mortgages, Federal Reserve Bank of Dallas, November 2007, Vol. 2, No. 11

Two institutions play an important role in the US mortgage market: Fannie Mae and Freddie Mac.

### 2.2.1 The history of Fannie Mae and Freddie Mac

Both Fannie Mae and Freddie Mac are large financial corporations, which together handle more than half of the US mortgages and are committed to more than five billion US dollars in the mortgage market.[2] The business practices of Fannie Mae and Freddie Mac are seen as a reason for the subprime crisis. However, even if they play a major role in this crisis, they are not solely responsible for it. "They are a prime example of the larger economic forces that really caused the banking credit crisis and bailout."[3]

Fannie Mae and Freddie Mac belong to the Government Sponsored Entities (GSE), companies established by the US government to improve specific business sectors with the help of credits.[4] Originally, the financiers had been called Federal National Mortgage Association (FNMA) and Federal Home Loan Mortgage Corporation (FHLM), whose abbreviations mutated into Fannie Mae (FNMA) and Freddie Mac (FHLM).[5]

Due to the global economic crisis at the beginning of the 1930s, many Americans could not amortize their debts and consequently lost their properties. Only the elite could get credits from the banks. The US government founded Fannie Mae in 1938, which was to provide cash to the mortgage market. Thus, Fannie Mae was a contractual partner for the mortgage banks. The system was as follows: mortgage financers bought distressed mortgage loans from banks, assumed the risks, and then refinanced themselves in the financial market. The banks, which again had capital available, could issue credits, also to debtors with a bad credit rating. In 1968, President Lyndon Johnson privatized mortgage financers. From that

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[2] Piper, N. (2008) Stunde der Wahrheit, Süddeutsche Zeitung, January 2008, http://www.sueddeutsche.de/finanzen/252/430004/text/

[3] Amadeo, K. (2008) Did Fannie and Freddie Cause the Mortgage Crisis? http://useconomy.about.com/od/criticalssues/a/Fannie_Cause.htm

[4] Fehr, B. (2008) Zwei merkwürdige Zwitter: Fannie und Freddie, Frankfurter Allgemeine Zeitung, http://www.faz.net/s/Rub4B891837ECD14082816D9E088A2D7CB4/Doc~E953D65DD40C847E8B605C5284E959822~ATpl~Ecommon~Scontent.html?rss_aktuell

[5] Eckl-Dorna, W. (2008) Welche Rolle Fannie und Freddie für die US-Wirtschaft spielen, WirtschaftsWoche, http://www.wiwo.de/finanzen/welche-rolle-fannie-und-freddie-fuer-die-us-wirtschaft-spielen-300712/

time on, Fannie Mae was a private business with special state protection. To prevent a monopolistic position of Fannie Mae, Freddie Mac was founded two years later.

Fannie and Freddie have a special status: even though they are private businesses with shareholders and profit, they are “government sponsored companies” founded on the basis of federal law, which means that they have special privileges.[6] The most important of these privileges is implicit though: capital investors believe that if Fannie and Freddie should be in danger of bankruptcy, the government would save them. This implicit guarantee means that the profit will be privatized, while the damage will be nationalized.

The business fields of Fannie Mae and Freddie Mac is divided into two categories.[7] On the one hand, they buy mortgage credits from US banks, which are then combined into a bundle and securitized as bonds. Since Fannie Mae and Freddie Mac can guarantee the interest payments and the amortization of these bonds, they can easily place the bonds in the market and mobilize capital for underlying credits. On the other hand, Fannie and Freddie issue bonds. They later reinvest the money in mortgages and mortgage bonds, with the revenue resulting from the difference between interest rates and interest earnings. An important factor of the business of Fannie and Freddie is that they can raise money for cheap.

As Fannie and Freddie are profit-oriented businesses, they used their specific advantages to absorb capital to reinvest in mortgages and mortgage bonds. This is, however, a lingering problem as many mortgages fall apart due to this crisis, resulting directly into losses and indirectly in the decline of the mortgage loans.

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[6] Krugman, P. (2008) Fannie, Freddie and You. New York Times, July 14, http://www.nytimes.com/2008/07/14/opinion/14krugman.html

[7] Jaffee, D.W. (2005) On Limiting the Retained Mortgage portfolios of Fannie Mae and Freddie Mac, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=830947

# 3 Subprime Market

In the mortgage market, the subprime market is the part which consists of debtors with insufficient solvency. Due to the higher risk of default, higher interest rates are estimated for the debtors in the subprime segment.[8] The subprime market, which today is considered as risky, was the smallest part of the mortgage market when it developed in the 90s. In 1994, only 2% of all assigned mortgages were allotted to this segment. In 2006, however, their portion already amounted to 21%, which corresponds to a total of 665 billion USD.[9] Due to the less restrictive granting of credits, more debtors with minor assets and low incomes got mortgage loans.

## 3.1 Subprime mortgage loans in the USA

Subprime mortgages were considered as financial innovations and provided home ownership opportunities to borrowers with a low creditworthiness. Since these debtors are riskier, the subprime mortgages were financed via securitization.[10] Between subprime and prime credits are alternative-A loans, commonly known as Alt-A loans with credit histories similar to prime borrowers, but not meeting other agency criteria to have a prime status, such as income documentation or property type.[11] In 2006, 25% of the assigned mortgage credits in the USA were Alt-A.[12] Yet, there is no clear definition of subprime loans or subprime debtors.[13] Rather the characteristics of the applicants designate them as subprime debtors, who typically show one or more of the following characteristics. These criteria show that the allocation of subprime loans is associated with high risks for the loan

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[8] White, B. (2006) A Short History of Subprime, Mortgage Banking Vol. 66, Issue 6:17-19

[9] Leonard, P. (2007) Testimony of Paul Leonard, Center for Responsible Lending, http://www.responsiblelending.org/pdfs/FINAL-Leonard-3-26-Testimony.pdf, p.5

[10] Gorton, G. (2008) The Subprime Panic, Yale ICF Working Paper No. 08-25:1

[11] Frankel, A. (2006) Prime or not so Prime? An exploration of US housing finance in the new century, BIS Quartely Review, March 2006, p.69

[12] Kiff, J. and Mills, P. (2007) Money for Nothing and Checks for Free: Recent Developments in U.S. Subprime Mortgage Markets, IMF Working Paper, WP/07/188: 6

[13] Hancock, D., Lehnert, A., Passmore, W., Sherlund, S. (2005) An analysis of the potential competitive impacts of Basel II Capital Standards on U.S. mortgage rates and mortgage securitization, Federal Reserve Board, April 2005, http://www.federalreserve.gov/generalinfo/Basel2/docs2005/potentialimpact.pdf, p.8

creditors. This is also the reason why subprime debtors have to pay a higher interest rate than a debtor with a good solvency and an outstanding credit history.

- two or more payment arrears of over 30 days within the last years
- at least one payment arrear of 60 days within the last two years
- credit notices, seizing, or writings-off on its commitments in the last two years
- insolvency within the last five years
- a high financial loss probability, which is 660 or less in terms of the FICO[14] credit evaluation
- a ratio of debt payments to incomes of over 50%

Subprime credits can also be structured differently, regarding the kind of the interest payment, the repayment structure, and the granting of a credit.[15] The loan can be amortized by paid off in conventional mortgage installments at a firm interest rate, which represent a monthly load for the credit applicant, calculable over the credit period. An alternative would be an "Adjustable Rate Mortgage (ARM)". This kind of mortgage credit can again have different contract designs. About two thirds of the ARMs are marked as "2/28"[16], which means that in the first two years the interest rate is fixed, while in the remaining 28 years the interest rate of the mortgage with a 30-year duration varies.[17] If the key interests rates and the refinancing costs rise, the debtor is charged an additional margin, which is derived from the resulting higher costs. Thus, the financing bank transfers the interest rate risk by granting a credit. Likewise, the repayment structure can vary with the credits. While there are classical credits with fixed debt service, with the repayment portion rising over the time and the share of interest decreasing, there also is the "balloon mortgage" with a balloon payments callable at the end of the duration; this means that the mortgage is not amortized in common installments, but a high amount of debt remains at the end of the duration. These different credit forms are intended to keep the initial monthly payments as small as possible, by means of low interest rates and hardly any redemption payments at

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[14] Fair Isaac Corporation

[15] Schloemer, E., Li, W., Ernst, K., Keest, K. (2006) Loosing Ground: Foreclosures in the Subprime Market and Their Cost to Homeowners, http://www.responsiblelending.org/pdfs/Fclosure-exec-summary-standalone.pdf , p.21

[16] Kiff, J. and Mills, P., Ibid, p.8

[17] Gorton, G., Ibid, p.4

the beginning. Thus, the debtor has the impression of easily affordable credits. When redeeming a subprime loan, the debtor often has to pay a prepayment penalty, in case of an unscheduled repayment of the loan during the regular duration

## 3.2 Risks of the subprime loans

Today's subprime debtors show a higher failure probability than debtors who qualified themselves for credits in the past decades. The risks of a comparatively small income, which results in a high debt-to-income ratio, are also deliberately increased by the characteristics of some subprime loans. Thus, the credit structure proves to be a critical risk to the solvency of the debtor.[18] The probability of failure to pay off the mortgage keeps rising, if the debtor raises an additional mortgage in place of their own capital. With these piggyback mortgages, the probability of payment failure increases to 43 %.[19] The outstanding payments of the subprime loans are shown in figure 1.

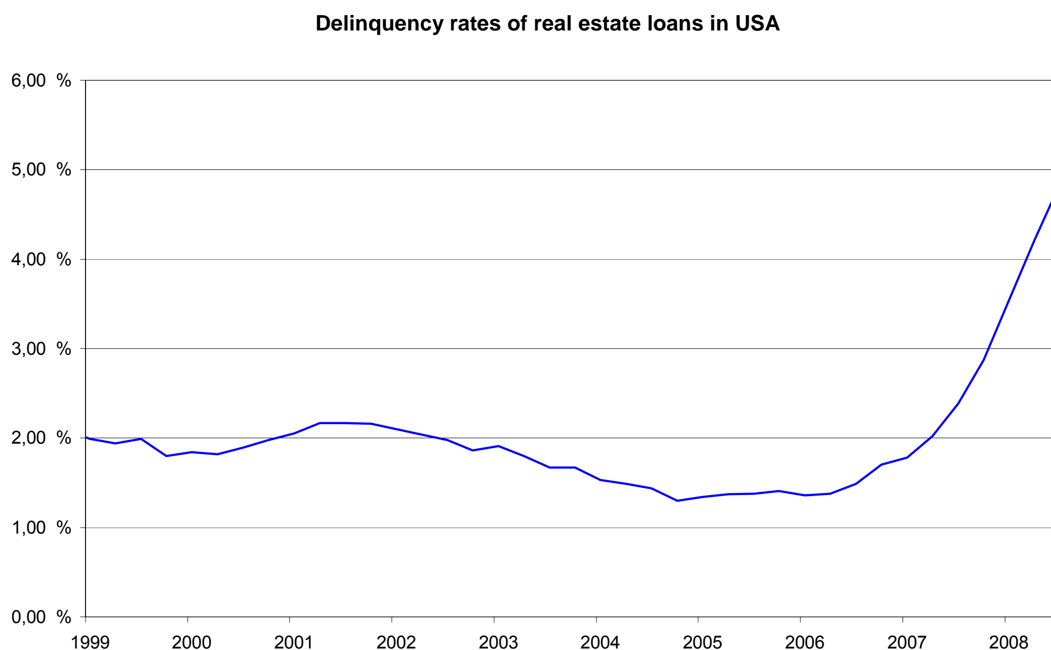


Figure 1: Delinquency rates of real estate loans in USA (Source: Federal Reserve Board; own illustration)

[18] Schloemer, E., Li, W., Ernst, K., Keest, K., Ibid, p.26

[19] Lucchetti, A. and Ng, S. (2007) Credit and blame: How calls made by ratings firms Fed subprime mess, Wall Street Journal

## 3.3 Credit history of the debtors

If a customer took out a loan for a real estate investment and could neither afford the interest nor repayment, both the debtor and the bank had a problem in the past. In order to avoid credit defaults, all parties involved made sure that the creditworthiness and the indebtedness were in balance.[20] The increase in business in the subprime category was not only stimulated by the low initial interest rates, but it is also associated with the liberalization of the allocation of mortgage loans and with low credit standing claims to the borrowers.[21] Figure 2 illustrates the new subprime business in the USA.

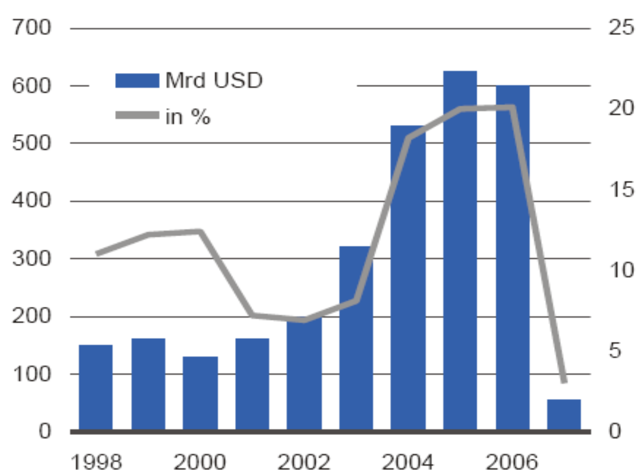


Figure 2 : New subprime business (Source: OECD in Gräf (2008), p.10)

Debtors of prime loans with fixed interest rates are usually able to make a down payment and possess an immaculate credit history. Therefore, their mortgage loans are defeated by a lower default risk. In contrast, subprime loans usually have a variable yield; they are issued to debtors with a poor creditworthiness and, therefore, have a substantial default risk. Applicants for subprime credits were for example typically subject to repossession or foreclosure in the last 24 months.[22] Alt-A applicants did not even have to disclose their income. Thus, it was possible for debtors with low reliabilities to finance their homestead. These excesses hit their peak in the "ninja loans", which were allocated to unemployed

[20] Tichy, R. (2008) Heiße Kartoffel, WirtschaftsWoche No. 18:5, http://blog.wiwo.de/chefsache/2008/04/26/heise-kartoffel/

[21] Kofner, S. (2007) Die Hypothekenkrise: Lehrstück oder Lehre? Immobilien & Finanzierung No. 17:582-585, www.hogareal.de/Hypokrise_fur_IF_Zsfssg.pdf, p.582

[22] Kiff, J. and Mills, P., Ibid, p.3

people without any securities, with ninja standing for “no income, no job, or assets”. Particularly this group of debtors with the lowest creditworthiness took up many credits with further risk-increasing elements like variable interest charges or contractual penalties for premature repayments.[23]

[23] Kofner, S., Ibid, p.582

# 4 Financial Products

## 4.1 Structured financing

While there is no clear definition of the term structured financing, Jobst (2005) is quoted: “Structured finance encompasses all advanced private and public financial arrangements that serve to efficiently refinance and hedge any profitable economic activity beyond the scope of conventional forms of on-balance sheet securities (debt, bonds, equity) in the effort to lower cost of capital and to mitigate agency costs of market impediments on liquidity. In particular, most structured investments combine traditional asset classes with contingent claims, such as risk transfer derivatives and/or derivative claims on commodities, currencies or receivables from other reference assets, or replicate traditional asset classes through synthetization. Structured finance is invoked by financial and non-financial institutions in both banking and capital markets if established forms of external finance are either unavailable (or depleted) for a particular financing need, or traditional sources of funds are too expensive for issuers to mobilize sufficient fund for what would otherwise be an unattractive investment based on the issuer’s desired cost of capital. Structured finance offers the issuers’ enormous flexibility in terms of maturity structure, security design and asset types, which allows issuers to provide enhanced return at a customized degree of diversification commensurate to an individual investor’s appetite for risk. Hence, structured finance contributes to a more complete capital market by offering any mean-variance trade-off along the efficient frontier of optimal diversification at lower transaction cost”.

## 4.2 Securitization

### 4.2.1 Securitization as a financial innovation

“Securitization is the process in which certain types of assets are polled so that they can be repackaged into interest-bearing securities. The interest and principal payments from the

assets are passed through to the purchasers of the securities."[24] The original purpose of securitization, when introduced in the late 1960s, was to refinance American investment institutes, which led to a strong US real estate financing market in the long term. Later on, other assets like credit card arrears or arrears from car loans were securitized by using the same method.[25] By means of the securitization of the assets the issuers transformed non-tradable assets into attractive products. Typical vendors for structured products are banks, insurance agencies, companies, and finance companies. The securitization process is described in more detail in the following chapters.

### 4.2.2 Outsourcing of credit risks via securitization

The crisis in the US property market led to an international financial crisis, since the risky subprime loans of American banks were shifted by means of securitization to the world capital markets among other problems. A substantial reason for credit institutes selling their loans was the capital funds guideline Basel I, according to which banks in principle have to hold eight per cent of their granted credits as their own capital. Therefore, the allocation of new credits was limited. If, however, a bank sold its demands for credit, this restriction was void and it was able to issue new credits. The desire to have a freedom of action in the credit business and rising income return requirements forced the development of securitization instruments. The driving force behind this trend is globalization and along with it the international capital in search of attractive layout possibilities.[26]

Buyers of the receivable packages subject to securitization were juridically independent purpose companies, Special Purpose Vehicles (SPVs), which were founded partly by banks, mostly, however, by investment banks. SPVs gathered the risk-afflicted receivables in a pool and securitized them in terms of financial innovations. Spangled with attractive interest rates, the bond issues were then finally sold to global investors for several millions of dollars. Consequently, the banks were able to shift the risk to the financial markets worldwide.

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[24] Jobst, A. (2005) What is Structured Finance? Working Paper, Journal of Derivatives and Hedge Funds, Vol. 13, No. 3

[25] Loutskina, E. (2005) Does Securitization Affect Bank Lending? Evidence from Bank Responses to Funding Shocks, EFA 2005 Moscow Meetings, Forthcoming, p.5

[26] Kofner, S., Ibid, p.582

### 4.2.3 Securitization methods

The investors' demand for structured products led to the continuous development of securitization products. Today, there are different securitization methods, which all share the characteristic of disposing the risks of the credits from their books. Thus, they are once again tradable and can be resold to investors. Asset Backed Securities (ABSs) have their origin in the USA, where mortgage loans were securitized in the form of Mortgage Backed Securities (MBSs) at the beginning of the 1970s. Starting in the mid-eighties, also different kinds of loans – in particular automobile installment credits as well as leasing and demand for credit cards – were securitized by this method. As figure 3 shows, there are three main categories of securitization:

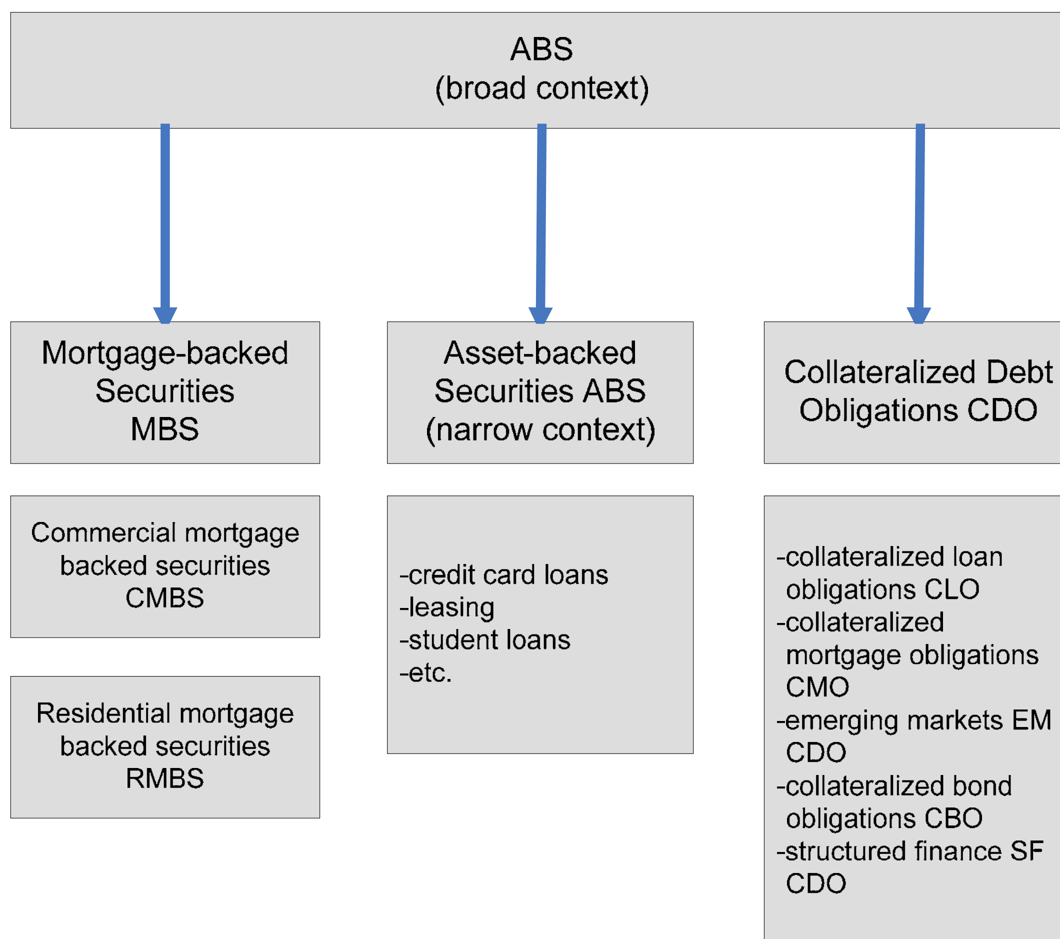


Figure 3 : Structured products at a glance (own illustration)

In the wider sense, Rudolph and Scholz (2007) use ABSs as an umbrella term for all securitization products and then divide them into unit linked securities (ABSs), mortgage collateralized securities (MBSs), and on other stock-based securities (CDOs). More specifically, ABSs are securitizations of student credits, demands for credit card, automobile installment credits, bank overdrafts, or insurance premiums. MBSs are the initial from of the securitized products and are formed out of a pool of mortgages. Due to the complexity of real estate loans and the evaluation of real estates, MBSs are more heterogeneous than ABSs. MBSs are one of the largest and most significant financial markets in the world. More than half of the residential mortgages in the USA are incorporated in MBSs.[27] The third category of ABSs in a broader sense is CDOs, which are similar to both the more specific ABSs and MBSs concerning their structural form.[28] The principle is the same. One of the main differences is that MBSs are secured with mortgages and ABSs with a certain credit claim, while the signified assets from CDOs can involve MBSs, ABSs, and other credits and debts. Therefore, they do not allegorize a unique item. Despite the differences between the securitized products, the process of securitization and the alienation of ABSs, MBSs, and CDOs are very similar.

[27] Frankel, A., Ibid, p.68

[28] Mason, J. and Rosner, J. (2007) How Resilient Are Mortgage Backed Securities to Collateralized Debt Obligation Market Disruptions? Discussion Paper, Hudson Institute, p.23

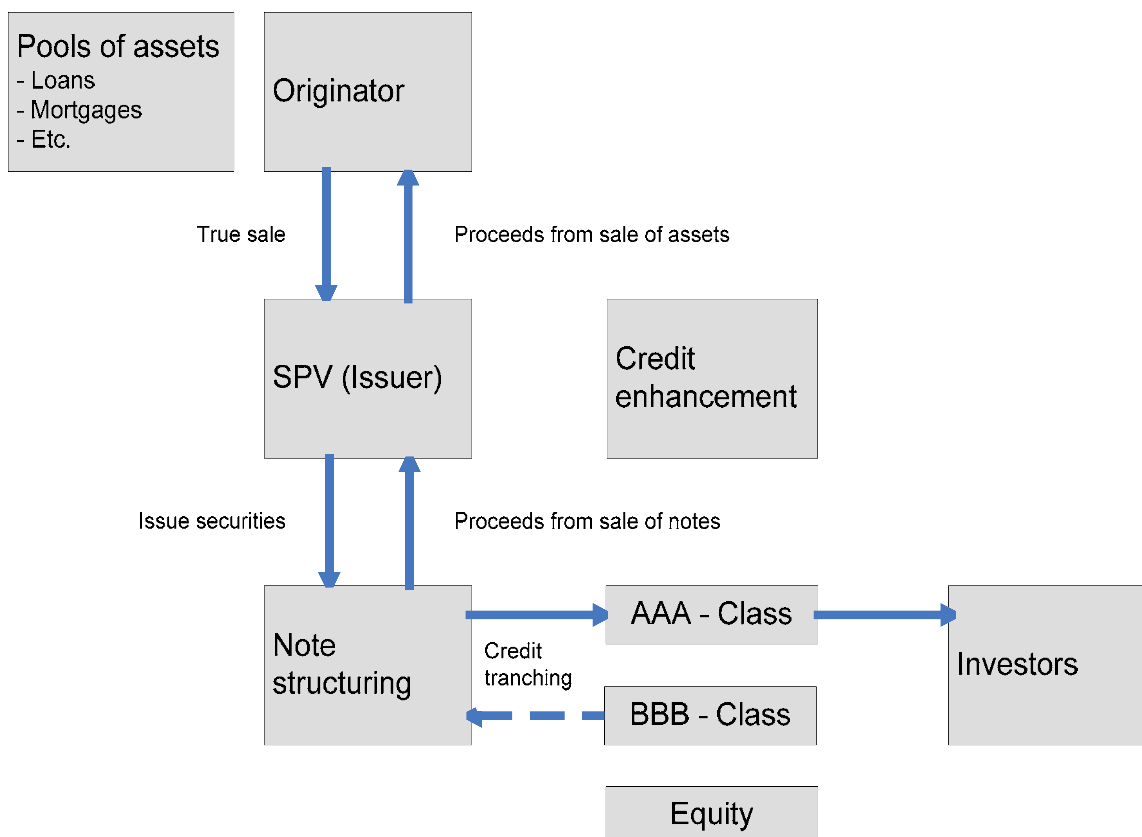


Figure 4 : Securitization process (Source: Fabozzi et al.2006; own illustration)

#### 4.2.3.1 The securitization process

The American banks summarized several thousands of real estate credits in a demand pool and sold them to a Special Purpose Vehicle, which had been created by a bank particularly for the purchase of demands and which was led as a subsidiary with very small own capital funds in relation to the balance.[29] Both debtors with good and bad solvency were affected by the demands. By selling these arrears, the banks were able to refinance themselves. The credits disappeared from their balance sheets and the risks were passed over to the Special Purpose Vehicle. The Special Purpose Vehicle refinances the purchase of the outstanding payments through the release of securities, the Asset Backed Securities (ABSs). The securities issued are covered by the net asset values and served from the cash flows of the inferior demand pool.[30] The purchase of the portfolio of the SPV was financed by

[29] Loutskina, E., Ibid, p.5

[30] Rudolph, B. and Scholz, J. (2007) Pooling and Tranching im Rahmen von ABS Transaktionen, Discussion Paper 2007 – 04, University of Munich

securitizing the bond issues (MBSs). For this purpose, they were segmented, i.e. not only one asset was emitted, but several ones with different ratings. A crucial goal of the segmentation process is to generate at least one bond class with a rating higher than the average of the basic asset pools.[31]

External rating agencies were responsible for the assessment of the different segments. They assess the segments separately in terms of their probability of payment failure. In accordance with the waterfall and subordination principle, the interest and amortization payments from the demand pool for the MBS are distributed on the single segments from top to bottom. First, they accrue to the best segment (senior segment; rating from AAA to A). When the requirements of this segment are completely satisfied, the segment with the next highest rating is chosen (mezzanine segment; rating from BBB to B), until at least also the non-rated equity segment receives entitled payments. A segment is consequently associated with less failure, if there are many secondary segments. In case of a loss from the pool of the demands, the described sequence is turned around, i.e. the first losses of the payment stream are distributed in opposite direction, beginning in the equity segment, from bottom to top. Thus, the worst credits in terms of creditworthiness do not necessarily have to be among the lower segments.

### 4.2.4 Incentives for the securitization

Banks have several motives for getting involved in the securitization market and act as sellers of ABSs, MBSs, and CDOs. The substantial motive is the maximization of the use of the economic capital.[32] Thus, securitization offers the potential to lower refinancing costs. The rating classifications of the single credits and credit portfolios are independent from the rating of the bank, which is why credits could be assessed in a better way and, therefore, can be financed in a cost-saving manner. Secondly, banks can diversify their sources of income by means of activities in the securitization market, raise more fee services, and position themselves more broadly. A third argument is based on the risk management and on the actual transfer of credit and interest rate risks for the investors.

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[31] Heinrich, M. (2006) Strukturierte Kreditprodukte im Asset Management. Portfolio Institutionell, Issue 1, http://www.rolandeller.de/de/assets/docs/Artikel3.pdf

[32] Fabozzi, F.J. and Kothari, V. (2007) Securitization – the Tool of Financial Transformation, Yale ICF Working Paper No. 07-07, Yale University 2007, p.10

The motives for selling distressed credits are distinguished from conventional credit securitization. The sale of credits means a reduction of the risk assets, with banks being able to reduce their own capital precaution. Proceeds of the sale of credits can be invested in the purchase of new credits in order to optimize the profitability and risk of the bank portfolio. Decreasing prices lead to increasing profits; thus, the investors have the possibility of rearranging their portfolio.

## 4.3 Rating agencies

Risk estimates are of great importance for financial markets. An increasingly dominating role is attributed to the rating agencies in this range. The three most important rating agencies are Moody's, Standard & Poor's and Fitch Ratings, who are entrusted with up to 90 percent of the evaluations of the solvency of the debtors. The rating assessment expresses the estimation of the rating agency concerning the creditworthiness of a bank or the probability of payment failure of a bond, or the default risk of a credit claim. It depends on the rating judgments which determine as to how states and companies will be able to refinance themselves.

Rating agencies evaluate the credit history of debtors and issuers of bonds individually by collecting information from both publicly accessible and confidential sources. The resulting credit ratings are provided to the banks and investors in the form of rating scales, which give information on the economic ability of the issuers, who are forced to pay the liabilities entirely and on time. The goal of the ratings is to eliminate information problems and to increase the transparency of assets.[33] Since the makeup of the structured assets was hardly transparent for institutional investors, they simply trusted the judgments of the rating agencies.[34]

With the subprime crisis, particular attention is paid to the rating agencies. The business of the rating agencies is not only to assign ratings; they also advise banks in such a way that even complicated financial products get a good rating. Due to the financial dependence on

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[33] Reckers, H. (2008) Bankenaufsicht und die Rolle von Ratingagenturen, Die Politische Meinung, Sankt Augustin, Mai 2008, p.1

[34] Tichy, R., Ibid, p.5

their customers, the rating agencies were too optimistic in their evaluations. Thus, the top segments for instance received an AAA rating from CDOs, even though they were based on subprime mortgages.

### 4.3.1 How did the rating agencies contribute to the financial crisis?

In the current crisis, the rating agencies have often been criticized and blamed for the extension of the subprime crisis to other segments of the financial markets, which in particular concerns structured financial instruments like subprime mortgages. Therefore, the rating agencies obviously underestimated the risk that such financial instruments were not able to furnish the payment of the interest or the principal debt. Since the highest ratings were assigned to such innovative financial instruments, many investors opted for them, without appropriately evaluating the associated risk. As, after all, the market conditions worsened, the rating agencies omitted to make this immediately clear in their ratings. Along with this, the investors blindly relied on these ratings. Credits were often issued, even if they could not be justified by the economical fundamental data. This market failure substantially contributed to the present financial crisis.

## 4.4 Hedge Funds and Private Equity Funds

### 4.4.1 The extent of the problem

Hedge funds play a central role as investors in the present credit bubble. They are the predominant buyers of the highly endowed and high risk CDO segments.[35] Hedge funds and private equity funds belong to the fastest increasing participants in the financial markets. According to an estimation of the European Central Bank in 2006, approximately 1,250 hedge funds were active in the European Union and administered net assets at a value of 300 billion Euros. The number of the hedge funds worldwide is estimated to approximately 9,000.[36] The volume, which the hedge funds administer, rises continuously from year to year. The volume of the hedge funds in the USA rose from 130 billion USD

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[35] Münchau, W. (2008) Kernschmelze im Finanzsystem, Carl Hanser Verlag München, p.121

[36] Picker, R. (2008) Heuschrecken? Zähmen? - Ansätze zur Regulierung von Hedge Fonds und Private Equity Fonds in Europa, ÖGBVerlag, p.55

in 1996 to more than 1.7 trillion USD in 2006.[37] Likewise, the private equity funds performed well in the previous years. Their potential to buy up enterprises in Europe doubled to nearly 160 billion euro (with a 42% increase from 2005 to 2006).[38] When this trend reversed in 2007, the experts of the financial world regarded this as a subsequent effect of the real estate crisis which was not to persist.

The actual importance of hedge funds and private equities is due to their assigned strategies such as exerting an influence on stock exchange prices and on corporate strategies.[39] The strong spreading of hedge funds and private equities is connected to larger political developments. In the last years, more and more “institutional investors” established themselves as participants in the financial markets, including insurances, pension funds, and investment banks. These investors increasingly shift their activities to hedge funds and the private equity sector. The USA – followed by Great Britain – are still the dominant management area of hedge funds and private equity funds. From a legal perspective, the majority of the hedge funds are settled in tax havens like the Cayman Islands, the British Channel Islands, or in Luxembourg and Monaco, in order to evade tax liabilities and to minimize editions from adjustment authorities.[40]

### 4.4.2 What do private equity funds and hedge funds do?

#### 4.4.2.1 Private equity funds

Private equity funds collect funds from institutional investors and wealthy private persons and invest the money in non-stock exchange-oriented enterprises. Private participation is essentially divided into two large areas. On the one hand, they allocate investments for the establishment of enterprises. This capital enables young enterprises to expand into new divisions. The second large financing area concerns buy-outs, i.e. acquisitions of enterprises, which have expanded in the last years and became discredited.

[37] PSE – Socialist Group in the European Parliament (2007) Hedge Funds and Private Equity – A Critical Analysis, p.14, http://www.pes.org/downloads/Hedge_Funds.pdf

[38] International Finances Services, London (IFSL) (2007) Hedge Funds, City Business Series, p.1, www.ifsl.org.uk/upload/CBS_Hedge_Funds_2007.pdf

[39] International Financial Services, Ibid, p.4

[40] Picker, R., Ibid, p.57

Private equity funds are “closed funds”, which means that after the collection of the investment volume the funds are bound on a long-term basis and the managers get down to work. Since the participation is related to a strategic interest, influence is exerted on the management and the corporate strategy. Private equity funds usually pursue the goal of considerably increasing the value of an acquired enterprise within a few years in order to sell it lucratively or to deal it on the stock exchange.

#### 4.4.2.2 Present situation of private equity businesses

At first, the current financial crisis did not affect the private equity business. The turn came, when the banks affected by the subprime crisis changed their policy of granting loans, which had direct effects on the private equity business. Especially the leveraged buy-out factorings were affected. Bloss et al. (2008) describe the problems private equity societies have to face: since the banks started to issue credits extremely selectively and risk-consciously due to the subprime crisis, it has been more difficult to finance new transactions with a high capital gearing. As a consequence, the yield of the private equity societies has reduced, as they have to bring in a higher portion of the limited and expensive own capital per transaction. Leveraged buy-out factorings are risky and, therefore, the banks are reluctant to assign acquisition financings. Thus, private equity societies have difficulties with the factorings of enterprise purchases. Furthermore, it is to be feared that enterprises financed with a high capital gearing slip into a liquidity crisis. Banks and private equity societies must adapt their financing structure in order to avoid an insolvency of their investment, which leads to a decrease in the yield of private equity societies and banks.

#### 4.4.2.3 Hedge Funds

While private equity societies are specialized in financing new enterprises, hedge funds operate in several segments of the capital market. Thus, investors have a wider spectrum for the economic utilization of market efficiencies and risks. A hedge fund is an investment trust which contains a multiplicity of different investment strategies. The most important goal of a hedge fund is a positive yield, irrespective of the development of the capital markets. Hedge funds differ from traditional investment funds as they use different

investment strategies and contribute to the achievement of different objectives. They require the possibility of a bear raid and obtain a leverage effect through debt financing.[41]

Hedge funds essentially accomplish financial speculations, i.e. transactions in expectation of price adjustments in the financial markets. Therefore, they also have a strategic interest in exchange rate developments, detached from the material-economic effects of their actions. Another characteristic element of the investment strategies of hedge funds can be “shareholder activism”, which is understood as the exertion of influence of hedge funds on the management of listed companies. Aggressive funds interfere with the managerial policy in order to affect the share quotation; for instance, they urge the management to take over other companies or to distribute profits among the shareholders.

Even though forced distributions can drive up the exchange rate of an enterprise, they usually cause long-term damages, due to missing financial resources for investments or as such attacks undermine the solvency of the enterprise. Such aggressive attacks are possible because hedge funds first acquire purchase shares and then adjust arrears as common stockholders. Many of the hedge funds strategies are considered as highly risky. They do not only compromise the deposits of investors, but also jobs and national economies on a large scale. They act without considering side effects. However, the pursued speculation strategies are continuously evolving. Therefore, the increasing complexity of the financial markets and their products are seen as creative and innovative. However, they are also recognized as an incremental problem in terms of transparency, consumer protection, and adjustment possibilities.[42]

#### 4.4.2.4 The impact of the hedge funds on the crisis

The increased relevance of hedge funds can also be a danger. The imbalance situation of the hedge funds affects the efficiency of the international financial system. The risk is transferred to market participants, which could finally trigger an international crisis in the financial markets. This phenomenon can be observed in the financial crisis.[43] Furthermore,

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[41] Bloss, M., Ernst, D., Häcker, J. Eil, N. (2008) Von der Subprime-Krise zur Finanzkrise, Oldenburg Verlag München, p.197

[42] Picker, R., Ibid, p.66

[43] Bloss, M., Ernst, D., Häcker, J. Eil, N., Ibid, p.198

the simultaneous dissolution of risk positions in illiquid markets can endanger their operability. The decrease in or the failure of the market liquidity can lead to an evaluation problem and to ransom market disturbances. This phenomenon could also be observed during the subprime crisis.[44]

[44] Bloss, M., Ernst, D., Häcker, J. Eil, N., Ibid, p.199

# 5 Reasons for the Downturn

## 5.1 The structure of the real estate bubble

The outbreak of the real estate crisis in the summer of 2007 abruptly terminated the economic growth in the USA. Prior to the crisis, the employment market had grown strongly after the bursting of the internet bubble in 2001. Substantial interest rate reductions of the Fed from 6.5% to 1.0% between the beginning of 2001 and the middle of 2003 provided the banks with high liquidity. The demand continued to rise and the banks were cajoled into relaxing their credit granting guidelines. As long as the real estate value was rising, the number of assigned mortgage credits increased as well. Full financings for building homesteads were not unheard of. An owner's equity was not required. Offers with initial interest exemptions encouraged households to take out a loan.[45]

The subprime market profited most from this trend. Banks saw an opportunity to let the subprime market take part in these bargaining loans. However, an aggressive and hazardous strategy was pursued and income and income statements were neglected.[46] Assuming that the house values would rise, the US citizens took out additional loans on their homesteads for consumption purposes.[47] In July 2007, the media broadcast news on the mortgage market for the first time. At this time, the real estate bubble had already burst.

## 5.2 Interest policy of the Federal Reserve

The origin of the present crisis goes back to 2001, when the central bank of the USA – the Federal Reserve – started to lower the interest rate.[48] After the collapse of the New Economy, the distress caused by a decreasing consumption could be felt. The terrorist raid

[45] Brinkbäumer, K. (2007) Kultur der Gier, Der Spiegel No. 48:80-81

[46] Hornig, F., Pauly, C. and Reiermann, C. (2007) Das Ende der Sorglosigkeit, Der Spiegel, No. 32:56-58

[47] Riecke, T. (2007) Amerika rüstet sich für Talfahrt, Handelsblatt, http://www.handelsblatt.com/politik/konjunktur-nachrichten/amerika-ruestet-sich-fuer-die-talfahrt;1371259

[48] Federal Reserve Board (2008)

on the World Trade Center on September 11, 2001 additionally intensified the strained cyclical situation. The Chairman of the Fed at that time, Alan Greenspan, reacted with drastic interest rate reductions. The illustration shows the development of the key interest rate in the USA between the years 1999 and 2009. From January to December 2001, the key interest rate was lowered from originally 6.5% to 1.75%. On June 25, 2003 it reached a historical low of 1.0%.[49]

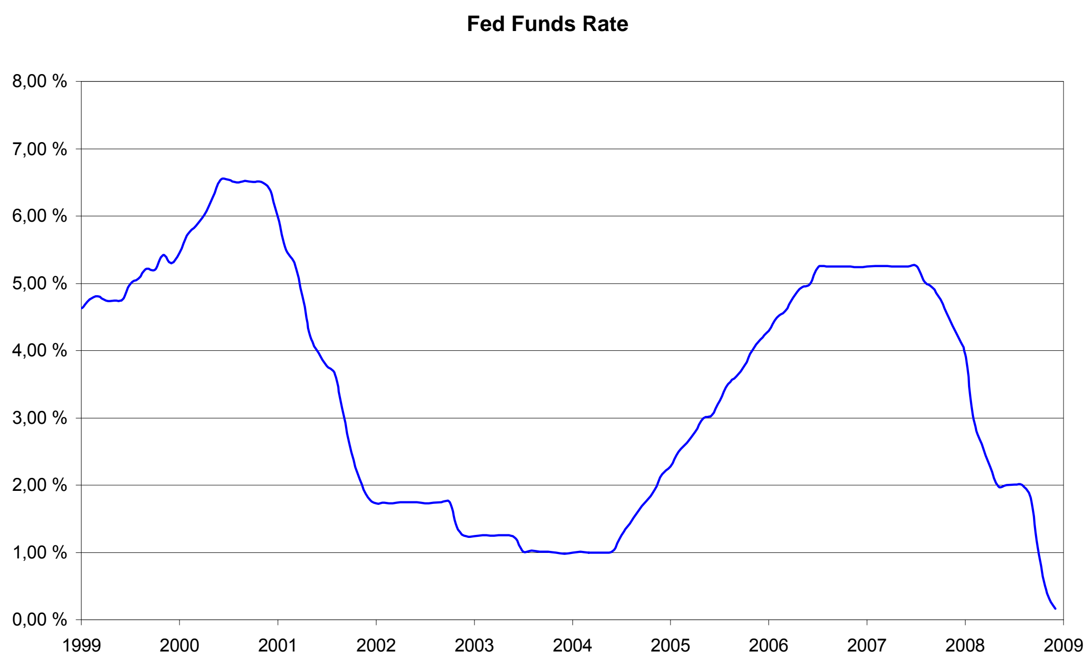


Figure 5 : Fed Funds Rate (Source: Federal Reserve Board 2009; own illustration)

The low interest rate had its desired effect. For the capital market, the low interest rate level meant very low margins in the bond market, which especially posed a problem for institutes such as banks, pension funds, or life insurances, as they had to place a larger portion of their means in the bond market due to portfolio considerations. For this reason, there was a major demand for securitization products such as Mortgage Backed Securities (MBSs), Collateral Debt Obligations (CDOs), or Asset Backed Securities (ABSs), which are all associated with a certain default risk, but in return promise higher yields than the government stocks. There was a demand for US American MBSs, since it was expected that in case of deficiencies the payments could be guaranteed by the revenues of foreclosures.

[49] Federal Reserve Board (2008)

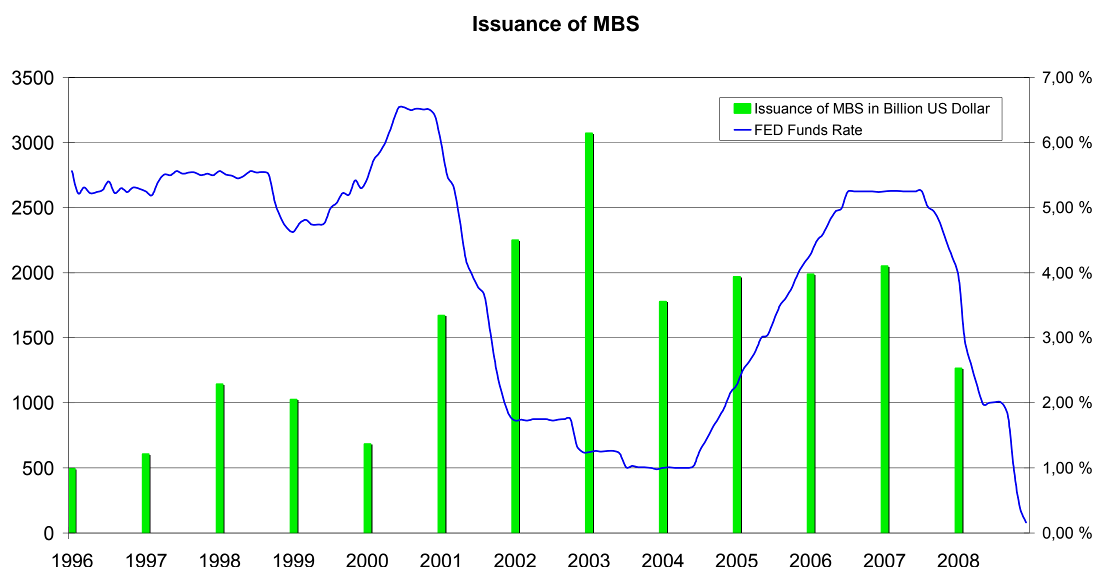


Figure 6 : Issuance of MBS (Source: Federal Reserve Board; SIFMA (own depiction)

Banks finding new customers in the retail business made this rise possible. Also the mortgage credits got cheaper, which made the purchase of residential properties affordable for many private households. The rising demand for homesteads led to an overestimation of the US real estates. When recognizing a speculative bubble and its danger, the Fed increased the key interest rate. With the rising interest rate, it became difficult for many debtors to pay off their credits.[50]

## 5.3 Price development of the US property market

The simplified and relaxed standards for granting credits led to a boom in the housing market.[51] With the belief in constantly rising real estate prices, banks lured people into signing credit contracts.[52] While in 1950, more than half of all Americans possessed a house of their own, in 2007, the rate of homeowners had risen to 69 per cent in 2007.

[50] Krüger, A. (2008) Fragen und Antworten zur Immobilienkrise, Tagesschau, http://www.tagesschau.de/wirtschaft/immobilienkrise16.html

[51] Shiller, R. (2007b) Understanding recent trends in house prices and homeownership, Cowles Foundation Discussion Paper No. 1630; Yale Economics Department Working Paper No. 28; Yale ICF Working Paper No. 07-1

[52] Henry, A. (2008) Die Geier kommen, WirtschaftsWoche No. 18:130-134, http://www.wiwo.de/finanzen/die-geier-kommen-274363/

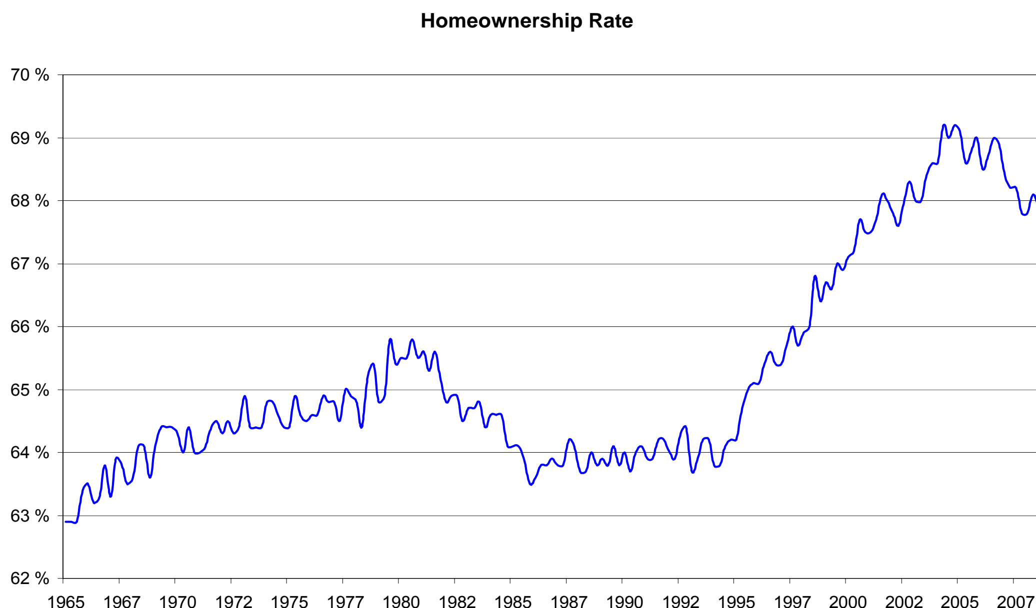


Figure 7 : Homeownership Rate (Source: U.S. Census Bureau; own illustration)

The strong demand drove up the prices of houses. Standard & Poor's/Case-Shiller US National Home Price Index in figure 8 shows the development of the homestead prices in the USA. This monthly determined index chronicles the nominal price history of the resale of homesteads.

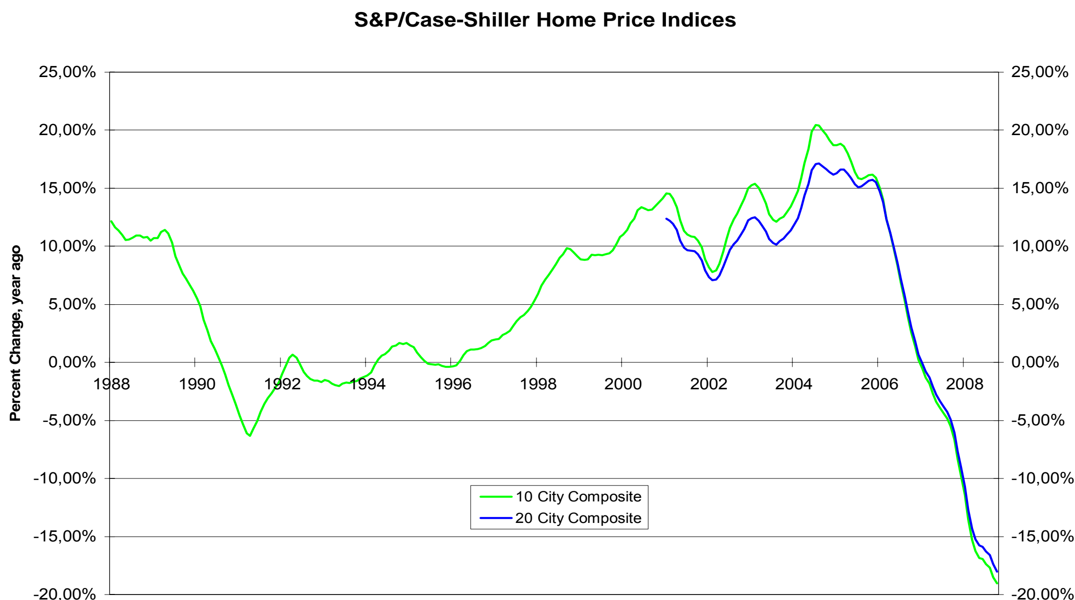


Figure 8: S&P/Case-Shiller Home Price Indices (Source: OFHEO; own illustration)

Goodman and Thibodeau (2008) give the following reasons for the increase in homeownership: (1) historically low nominal interest rates; (2) shifts in preferences concerning homeownership in single households; (3) the virtual elimination of the wealth constraint for homeownership; (4) a sequential development of the subprime mortgage market; (5) the development of the home equity mortgage market.

## 5.4 Effects of the interest rate policy and price development

The unregulated practice of granting credits should not remain without consequences. It turned out that financial institutes had issued credits which were too high, which particularly concerned the subprime market. Brokers had deftly hidden the certainty that the interest rate increases after one or two years. As the Fed started to raise the key interest rate in June 2004, the problem could no longer be hidden. Many indebted US consumers were unable to meet their monthly payments any longer. The banks, which had been so generous and indulgent a few years before, made the loans due for payment. In order to limit the losses, they tried to acquire new owners, which led to a foreclosure boom on the markets.[53]

An excessive bull market, as it is called on the stock exchange, with exaggerated yield expectations led to a speculative bubble, while there was no appropriate equivalent price for the real estates. Moreover, no one had any experience with the securitization of mortgage loans. The fact that the mortgage loans of the subprime market varied was ignored by the rating agencies as well as by the banks. Therefore, an increase in the US key interest rate caused a rise of mortgage interests. An investigation of the US investment bank Goldman Sachs revealed that in 2005 nearly 60% of the loans with variable interest rate were assigned to customers without any own capital.[54] Likewise, the real estate boom was not substantially considered by the rating agencies either. The credits for households with a low creditworthiness again got more expensive. As a result, the demand for real estate and mortgage loans decreased and the market lost its dynamics.[55] The consequence of the property oversupply was a fall in prices. In addition, the pulling depreciation of the

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[53] Henry, A., Ibid.

[54] Lange, K. (2007) Eine Seuche namens Subprime, http://www.manager-magazin.de/geld/artikel/0,2828,493825,00.html

[55] Balzli, B., Hornig, F. and Pauly, C. (2007) Amerikanischer Albtraum, Der Spiegel No. 34: 62-66

credit collateral enforced the loss of the credits. Many private debtors were in the offing of insolvency.

## 5.5 Perils of the financial market

High yield expectations of the financial market, which are not to be obtained by regular businesses, cajoled the market participants into investing in credits of lower quality, as higher risks lead to higher interest rates; even though the dangers associated such credits are well-known. However, these dangers are neglected as long as everyone gets their yield. The financial market is not interested in whether a single debtor can reimburse their credit. The securitization market with its structured products was relatively unknown. Many young bankers did not have enough experience and they had never witnessed a crisis or a recession. The ambition of the top managers to earn salaries as high as possible promotes inconsiderate actions, which only support the increase of yields.[56]

[56] Bayer, T. (2007) Gierig, zynisch, selbstgerecht, Financial Times Deutschland, http://www.uibk.ac.at/fakultaeten/volkswirtschaft_und_statistik/forschung/dokumente/schwarze_ftd_18122007.pdf

# 6 The Victims of the Subprime Crisis

## 6.1 Commencement of the proceedings

The boom in the housing market, which had been kindled by cheap credits, began to stagnate in 2006. At this time, there were still no dramatic retracements though. However, the prices did not rise any longer. In December, the Center for Responsible Lending published a study according to which more than two million homeowners with doubtful solvency could lose their houses in the coming years; each fifth subprime mortgage, which had been taken out in the years 2005 and 2006, was concerned. For the authors of the study, the most important factors, which would lead to loan defaults, included “mortgages with variable interest rates, increasing interest rates, prepayment compensations and constrained income documentation”.[57]

The price decline accelerated at the beginning of 2007, with the first shock waves surging at the end of February 2007. The problem was not the general mortgage market, but mainly the subprime sector. In February 2007, New Century, the second largest subprime creditor, suddenly announced high losses in the subprime business in the USA. At the same time, HSBC, Europe’s largest bank, published a profit warning due to its US mortgage business. The public started to be wary, while the US finance minister, Henry Paulson, expressed his optimism: “There are credit problems, but they are limited”. In April, the mortgage bank New Century Financial became insolvent with a proven loss of 450 million dollars. The bank was strongly positioned in the sector of poorly collateralized real estate loans in the USA.

In June 2007, two hedge funds of the US bank Bear Stearns – the High Grade Structured Credit Strategies Enhanced Leverage Fund and the High Grade Structured Credit Strategies Fund – announced to have serious pecuniary difficulties due to the subprime mortgage crisis. In order to avoid a crisis, Bear Stearns saves the funds with the help of

[57] Schloemer, E., Li, W., Ernst, K., Keest, K., Ibid, p.4

cash infusions worth billions of dollars. Many banks and funds tried to reduce substantial positions in the securitization market after the announcement of the inclination of the hedge funds. Subsequently, the courses of all mortgage collateralized securities broke in. On July 18, 2007, the investors of Bear Stearns informed the investors that the hedge funds were practically worthless. In August 2007, the situation in the US mortgage markets became serious. After New Century, which announced losses in February and opened insolvency proceedings in April, suddenly the entire subprime industry stumbled. The decline of the house prices accelerated. The bang on the property market meant the ruin of debtors in the subprime segment. The homeowners were suddenly confronted with a situation, in which they were neither able to amortize their credits nor to sell their houses.

On August 9, 2007, a strike of the salesmen hit the interbank markets. The market interest rate for daily allowance suddenly jumped up which is an indication for the money in the market having become scarce. Banks were suddenly no longer willing to lend money to each other. The European Central Bank provided liquidity worth 95 billion Euros in the shortest possible time. The interventions took several weeks, however, without causing a successful stabilization of the money market. Everywhere in the world, the money market rates lay half a percent point over the key interest rates. Markets worldwide were involved in this liquidity problem. The message of the European money market crisis also extends to the USA, where the Federal Reserve stimulated the market with a cash injection in the amount of 24 billion dollars. The crisis reached the German banking sector in August 2007. The first victims were the IKB and the Sachsen LB. Not only these two European banks, but banks everywhere in Europe possessed securities which promised yields up to 20 percent, without the investors considering the fact that they were investing in markets whose liquidity was not secured.

At the beginning of 2008, the markets were still rather optimistic. However, in the second week of March, rumors were spreading about the insolvency of the investment bank Bear Stearns. High write-down fears triggered a classic bank run. Bear Stearns is not a common bank with customers, who have a current account or savings account. All of a sudden, Bear Stearns was no longer able to refinance itself. On March 17, 2008, the Federal Reserve explained that the bank JP Morgan Chase had bought the investment bank Bear Stearns at

a very low price at two dollars per share. Bear Stearns was one of the biggest participants in the market for Credit Default Swaps. At the same time, The Citibank admitted a loss of 5.1 billion dollar in the second quarter. At the beginning of July, the crisis had reached Fannie Mae and Freddie Mac, which were unable to pay. The business of Fannie and Freddie consisted of securitizing mortgages which fulfilled certain minimum requirements. Nearly half of all the US mortgages were securitized by Fannie Mae and Freddie Mac. The US government announced to spare no effort to save Fannie Mae and Freddie Mac. The second largest banking crash in the US history took place a couple of days later: the mortgage bank IndyMac closed down.

## 6.2 The peak of the crisis

The crisis reached its peak in September and October 2008, beginning with the national rescue operation of Fannie and Freddie. On September 7, the US Government decided to officially place the mortgage companies under the direction of the Federal Housing Finance Agency. The losses of Fannie and Freddie amounted to 14.9 billion dollars. The US government promised a cash infusion worth 20 billion dollars in the form of credits and fresh capital. Fannie and Freddie rested on securities and credits worth 5,000 billion dollars, which is about half of the annual gross national product of the USA. An indefinite part of this sum was endangered by the real estate crisis. It was the first considerable acquisition of financial institutions by the state in the crisis. From September 8 to September 14, the crisis intensified again, despite the rescue of Fannie Mae and Freddie Mac. At this time, Lehman Brothers was as well as Goldman Sachs, Morgan Stanley, and Merrill Lynch still one of the four largest independent investment banks. The investment banks were the main participants in the financial crisis and they were the most important link to hedge funds, of which Lehman was one of the most important ones.

One of the basic problems of the investment banks was their small equity capital in relation to the risks they had to bear. Their assets only consisted of doubtful securities, for which there was no liquid market at this time. More and more write-downs were necessary and the capital cover became thinner. First, these companies tried, like Lehman Brothers, to procure more capital. On September 11, the share quotation of Lehman crashed after the publication of very bad quarter figures. The losses amounted to 3.9 billion after writing-

offs. The share had lost almost 90 percent within the last twelve months.[58] At this time it was clear that the bank had no more future as independent institution. Different banks were acted in the press as possible rescuers of Lehman. Hank Paulson met the Federal Reserve, in order to put up a rescue plan for Lehman Brothers.

At this time, it was clear that the bank had no future as an independent institution. In the media, different banks were considered as possible rescuers of Lehman. Hank Paulson met the Federal Reserve in order to concoct a rescue plan for Lehman Brothers. At the same time, the shares of the insurance company American International Group (AIG) suddenly lost 30 percent. The AIG is the world's second largest insurance group after the German Allianz, but contrary to the Allianz, the AIG was one of the main participants in the credit markets. They were the leading insurers of Credit Default Swaps. A failure of AIG would have entailed the total collapse of this market.

The AIG is an American institution, which was founded in 1919 and became the most prominent insurance company in the USA and later in the world. In the past, the AIG took part in the lucrative but dangerous short term CDS business. In September 2008, the risks appeared to be very high. AIG made a classical insurance mistake: it had systematically underestimated the total risk. On September 13, 2008, the AIG announced to buy assets worth 20 billion dollars in order to improve its financial position. Then, Lehman Brothers announced bankruptcy, the investment bank Merrill Lynch was sold to the Bank of America for 44 billion dollars, and suspicions of a possible insolvency of the Washington Mutual substantiated. Suddenly, the US government was ready to stand in for the AIG. The government assumed that a bankruptcy of the AIG would release a systematic crisis of the entire financial system. The capital increase of the AIG cost 85 billion dollars which effectively equals the nationalization of the insurance company.

Rumors spread that the finance minister, Hank Paulson, was working on a master plan. Then the details emerged. The plan included an amount of 700 billion dollars, with which the US Treasury wanted to revive the market. The idea was to buy assets from the banks at

[58] Kaiser, A. (2008) Rettungsversuch ohne Retter, http://www.manager-magazin.de/unternehmen/artikel/0,2828,577483,00.html

increased prices in order to overcome the evaluation crisis. The plan was criticized by economists as fundamentally wrong as it did not solve the problem of a structurally undercapitalized banking industry. Paulson's plan only indirectly recapitalized the banks. On September 29, 2008, the House of Representatives voted against the American rescue plan, and the economist and *New York Times* columnist Paul Krugman commented: "Okay, we are a banana republic."[59] The following days, the plan was discussed and revised. On October 3, 2008, the congress agreed to the plan and President George W. Bush signed the legizlation of the 700 billion dollar package.

## 6.3 The crisis reaches Europe

The exchange losses of credit derivatives, MBSs, and CDOs as a result of falling real estate prices, rising failure rates of mortgages, and the pressure of selling among investors did not only affect American investors, as the securitization of credits enables investors to purchase credit packages and credit risks worldwide. As a consequence, credit losses and exchange rate fluctuations of the American MBSs affect global investment companies. Thus, not only US banks were among the victims, when the system of the US mortgage financing collapsed.

Nevertheless, the German finance minister, Peer Steinbrück, considered it a good idea to declare that the supremacy of the USA as an economic superpower was over. The financial crisis was primarily an American affair.[60] Shortly after the din from Berlin, the crisis hit Europe. The stock price of the Belgian-Dutch Bank Fortis crashed. The reason was the same. An adjustment of the values entailed a poor capital cover and, therefore, the bank was in urgent need of new capital. The finance ministers of Belgium, the Netherlands, and Luxembourg assembled to tie up a rescue package for Fortis. They raised capital in the amount of 11.2 billion Euros. Thus, the Belgian government held 49% of shares of Fortis.
Steinbrück's statement of the crisis being predominantly an American problem was now falsified in Germany within a few hours. The Munich Hypo Real Estate, a real estate financing company, announced an acute liquidity bottleneck. The reason was problems

[59] Krugman, P. (2008) "OK, we are a banana republic." New York Times, September 2008, http://krugman.blogs.nytimes.com/2008/09/29/ok-we-are-a-banana-republic/

[60] Faigle, P. (2008) Ende der Arroganz, Die Zeit, http://www.zeit.de/online/2008/40/steinbrueck-hypo-real-estate

with its Irish subsidiary, Depfa, whose business was encumbering itself with debts for a short time in the money markets in order to finance property projects. The collapse of the market created an acute liquidity bottleneck. As a consequence, Steinbrück, the managers of the German Bank and the Commerzbank as well as Jochen Sanio from the state supervision of the banks issued a credit worth 35 billion Euros.

Shortly after that, the next bank crisis of the Dexia, a French-Belgian bank, stirred up Europe. Again, bankers and finance ministers met to negotiate a refinancing. The French president, Nicholas Sarkozy, arranged a meeting with the German chancellor Angela Merkel, the Italian Prime Minister Silvio Berlusconi, and the British Prime Minister Gordon Brown in order to discuss the situation. The summit culminated in a scandal. Germany blocked the French efforts to work out a plan for Europe. They came to an understanding that each country should save its own banks. In the third week of October, the situation in Britain worsened, as large banks were threatened by bankruptcy. Gordon Brown, the British prime minister, released a package to recapitalize the eight largest and most important banks in the country in the amount of approximately 100 billion Euros.

Another hotspot of the crisis was Iceland, one of the richest countries in the world. The country has three large banks, Kaupthing, Landsbanki, and Glitnir, which gambled in such a manner that the instability in the markets threatened the entire country, employing a relatively small bank capital and taking enormous profits. In 2008, this small country had to deal with speculative attacks for several times, which out pressure on the currency of the country, the Icelandic krona. When the global market froze, the collapse threatened the three Icelandic banks. The government passed an emergency law and nationalized all three banks.

At the beginning of October, Sarkozy held a special summit with the heads of all countries in the European area, at which the following agreement was accomplished. Firstly, a temporally limited full warranty was offered for all rescue missions of the banks, which could again encumber with debts in the capital market in the medium term. The governments guarantee the repayments for five years. This is valid for all 8,000 banks in the European area. Secondly, banks should be recapitalized, since the capital cover is

usually too low, which especially was the case in Germany and the United Kingdom. Thirdly, the bookkeeping rules will be changed in such a manner that banks and insurances would no longer book their assets according to their market value, but according to other methods.

## 6.4 Banks beyond control

The banking crisis is a challenge for the economic policy. The expansion of the mortgage market to customers with a low creditworthiness was caused by the demand for subprime loans against the backdrop of the low interest periphery. Nevertheless, many banks who concentrated on risk identification and risk regulation were surprised by the development in the mortgage market. Münchau (2008) has determined two types of causes for the present crisis. On the one hand, there are macro-economic causes, of which the low material interest and global disequilibrium are the most important ones. On the other hand, the crisis also has micro-economic causes. The equity regulations of Basel I are seen as a reason for the creation of wrong incentive structures, which tempted banks to furnish special purpose vehicles in which they hid and securitized credits.

The market-to-market balance rules, which had been introduced in the early 1990s, now turned out to be another problem. In good years, the banks booked additional profits as the capital increased, while they incurred losses in bad years. In this sense, these rules work per-cyclically. If the balancing rules had not been relaxed at short notice during the stock crash in October 2008, many banks and insurances would have had to announce insolvency.

Due to the lack of transparency of the CDOs as well as of other products, investors did not have all the information necessary for a correct evaluation of these products. A variety of institutions entered the market, which eventually enhanced the confusion in the market. The finance intermediaries lost the accustomed accuracy.[61] The investors could not recognize the risks due to the opacity of the products or they did not want to see them as

[61] Keys, B.J., Mukherjee, T., Seru, A., Vig, V. (2008) Did Securitization Lead to Lax Screening? Evidence from Subprime Loans (December 25, 2008). EFA 2008 Athens Meetings Paper.

for them the price development of the houses was too favorable. The missing adjustment in the shade insurance market of the Credit Default Swaps represented a significant problem. There was no supervision which guaranteed that the insurance companies could render the achievement in an insured event.

Moreover, the rating agencies were considered as triggers of the banking crisis. It was, however, not a problem of missing adjustment, but a problem of dependencies. Central banks and governments should no longer consider the evaluations of rating agencies as a reliable source of information and the validation of securities should no longer depend on the evaluations of these rating agencies. The following figure shows the write-downs and credit losses of the biggest banks and securities firms.

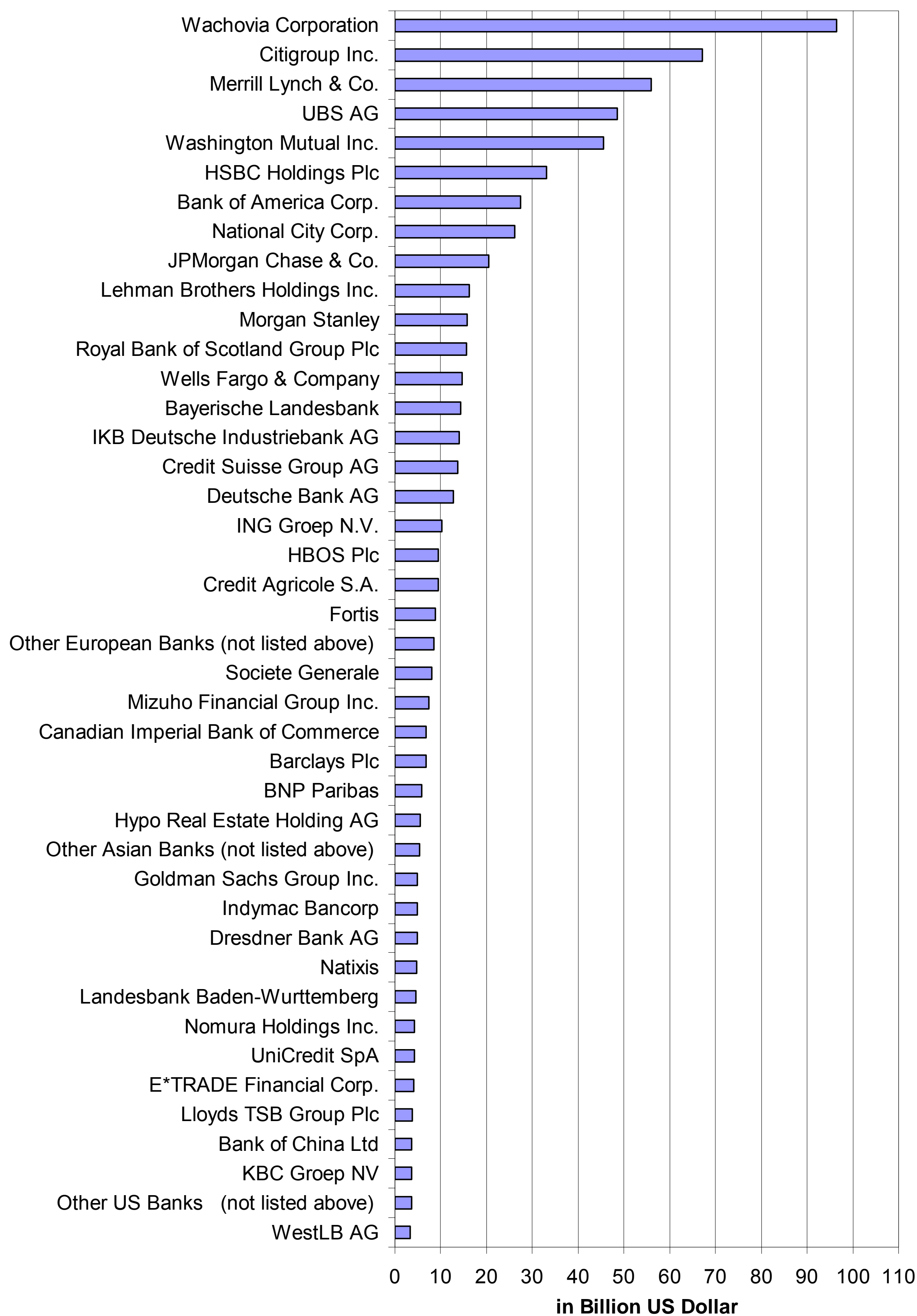


Figure 9: Write-downs and credit losses (Source: Bloomberg December 2008; own illustration)

## 6.5 Parties responsible for the crisis

Did really no one see the crisis coming? In January 2007, the World Economic Forum presented the "Global Risks 2007" report[62], in which acute and latent risks were listed and described, with which the world would have to deal in the upcoming years. Among the designated risks was a "blow up in asset prices/excessive indebtedness". In the report, it was explained that the prices for single family houses had doubled in the last years and that the relation between prices and income had reached a historical high. The experts, who had compiled this report, also stressed the amount of damages of different risks, but nobody took their statements seriously. Over the course of many years, most people have only experienced a constant increase in prices for net assets such as real estates and equities and no one wanted to see what was going on in the American and European property markets.

Also Nouriel Roubini, professor for economics and CEO of a consulting company named after him, tried to warn his colleagues, but nobody took his warnings seriously. One year before the outbreak of the crisis, Roubini warned: "The real estate bubble in the USA contains serious risks for the financial system. We could get a banking crisis, which will simulate the crises from 1980's and 1990's harmless."[63] The European Central Bank gave an all-clear signal in its financial stability report in December 2006. Financial innovations like the increasing securitization of mortgage debts were depicted as decreasing factors for the risks in the banking sector.[64] Today, we know that exactly these securitizations turned the US real estate crisis into a global financial crisis.

The market only reacted, when it was already too late. Within a few weeks, global financial crises broke out. Who is responsible for the crises cannot be said, as many different factors contributed to the crisis. The unconstrained and aggressive granting of credits by US banks got the crisis started. If the banks had kept their risky credit claims in their own books instead of transferring them to the worldwide financial markets, the

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[62] World Economic Forum (2007) Global Risks 2007, A Global Risk Network Report, http://www.weforum.org/pdf/CSI/Global_Risks_2007.pdf

[63] Häring, N. (2008) Wenig Ahnung von der Krise, Handelsblatt, http://www.handelsblatt.com/unternehmen/handelsblatt-kommentar/wenig-ahnung-von-der-krise;2090283

[64] Häring, N., Ibid.

problems would have remained within the relationship between subprime, market, and bank. However, not only the banks are to blame of the global dimension of the crisis. Market players who endorsed the securitization market and catered for new and complicated financial products also bear a certain responsibility, as the risks became more and more complex and overstrained the risk management of financial institutes. Nevertheless, financial investors were not discouraged from buying these securities and selling them post haste with business break-downs.[65]

Rating agencies could not fulfill their requirements. Many credits were rated too positively and the liquidity of the salesman was not sufficiently considered. The opacity and disclosure of rating decisions as well as possible conflicts of interests of agencies contributed to the outbreak of the crisis.[66] Furthermore, the regulatory system Basel I with its idle inspectorates failed. The allocation of risky credits was emboldened, since they did not have to be attuned to the equity capital. The reduction of the interest rate to the all-time low of one percent in June 2003 provided the financial market with liquidity and encouraged it to pursue an expansive market policy. All in all, the crisis was created by the financial system itself.

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[65] Narat, I. (2007) Finanzkrise fordert Tribut, Handelsblatt, http://www.handelsblatt.com/finanzen/fondsnachrichten/finanzkrise-fordert-tribut;1348828

[66] Reckers, H., Ibid, p.33

# 7 Effects and Measures

## 7.1 Effects on the real economy

According to the forecasts of the Center for Responsible Lending, 20% of the subprime mortgage credits will result in the loss of the real estate. Therefore, the lost real estates are put up for compulsory sales and families face pecuniary difficulties, which might have an influence on the economic development: private consumption in the USA will decrease and production likewise will be driven down. This again could lead to redundancies, particularly in the building sector. Due to foreclosures, families have to move out of their houses, which lead to a depreciation of the neighboring properties.

## 7.2 Effects on the banking sector

The real estate credits are no longer a risk-free business for banks. So far, the banks have not been afraid that several loan losses could be the consequence of subprime mortgage credits. If a debtor was insolvent, the house was sold via court order. Due to the rising real estate prices, the resulting payment was sufficient to amortize the credit. However, this principle does no longer apply due to falling property prices. The result is losses for the banks.

## 7.3 Effects on the concerned markets

After the burst of the stock market bubble, the value of the concerned bank collaterals in the USA decreased with the real estate price decline and the pecuniary difficulties of the debtors. The banks had to undertake depreciations in the amount of billions, which led to a load of the own capital cover. In return, financial institutions issued fewer credits and the conditions for them rose. Apart from the private sector, the trade and the service sector likewise suffered from the strict credit processes. Due to this downward trend, market participants avoid the risk connected to uncertain financial products and rather concentrate

on safe and liquid assets. Banks do not trust each other. Thus, the short term interest rate for the interbank trade increases. [67]

## 7.4 Measures by the Federal Reserve

Central banks have the possibility to intervene in the money market. By reducing interest rates, they can encourage the granting of credits and, thus, rebuild confidence in the financial markets.[68] However, the measures they take do not always lead to the desired success. The banks did not use the preceding interest rate reductions of the Fed to increase credit assignments as intended, but to cover their forthcoming loan defaults. The head of the US issuing bank reduced the key interests in view of the deterioration of the economic situation to a historic low. The issuing bank considers this step necessary as the situation in the job market worsens and private consumption, investments, and industrial production are declining. The margin of interest is between zero and 0.25% by now, the lowest value since the first determination of the Fed Funds rate in 1971. The issuing bank further announced to buy up a large extent of mortgage supported securities in the upcoming months. Thus, the focus will remain on the stabilization of the financial markets.

Yale economist Robert Shiller approves of this step: “The problems of the banks have to be solved, there is no way out. If the financial houses have more clearance again, they can more easily finance problematic mortgage contracts, and this also helps indebted home-owners”.[69] “The price at which the state buys up mortgage securities becomes crucial”, says economic historian Irwin Collier. “If it is too low, it will not help the banks at all. If it is too high, then it is a gift to the Wall Street.”[70] The Fed also considers a more strict adjustment of the financing practices of banks with the goal of more responsibly assessing and granting mortgage credits.

[67] Steltzner, H. (2008) Die Vertrauenskrise, Frankfurter Allgemeine Zeitung, http://www.faz.net/print/Politik/Die-Vertrauenskrise

[68] Häring, N. (2007) Notenbanken springen in die Bresche, Handelsblatt, http://www.handelsblatt.com/politik/konjunktur-nachrichten/notenbanken-springen-in-die-bresche;1365391

[69] Hornig, F. (2008) „Auf einem sinkenden Schiff“, Der Spiegel No. 41/2008, p. 58

[70] Kaiser, A. (2008) Chancen und Risiken der 700 – Milliarden- Dollar- Pille, Spiegel Online, September 2008, http://www.spiegel.de/wirtschaft/0,1518,579987,00.html

## 7.5 Measures of the American government

In great haste, the US Government tied up a 700-billion dollar package for the buying up of putrid credits. However, after an extensive research and a series of interviews with numerous economists and financial analysts, the Bloomberg press agency comes to the conclusion that the actual risks the USA are assuming will by far exceed the 700-billion dollar rescue package.[71] However, not all endorse the rescue package. The billion dollar assistance on the part of the government is “socialism for the rich” for Roubini from the New York University: “a corrupt system, where profits are privatized and losses are nationalized.”[72]

Last minute government assistance was also offered to private households. In order to reduce the number of enforcements and to stop the price decline in the real estate market, the US government announced the launching of the program “Hope now”, which allows particularly distressed debtors to receive new mortgage contracts.[73] Still, the auxiliary package does not seem to appease the American mortgage market. John Dugan, the highest ranking bank supervisor in the US Treasury, stated that more than half of the debtors, who have been granted special conditions by their banks, again show default in payments within a six-month period.

In the third quarter, the number of foreclosure auctions rose to a record high of three percent. The portion of foreclosure auctions and distressed credits in mortgagers with low solvency from the subprime segment even exceeded 20%. The large number of compulsory auctions enhances the excess supply of real estates and accelerates the price decline. Since many homeowners only had little equity capital, the number of owners with debts higher than the actual value of the house rises. As a consequence, many cease to pay their installments and leave their house to the bank. Since the high in June 2007, real estate prices have given way by 22%, based on the Case-Shiller Index for the 20 largest city regions.

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[71] Hoose, A. (2008) Was uns die Krise lehrt, www.godmode-trader.de/front/?p=news&ida=1051731&idc=563&ruled=idp=2&idp=1

[72] Balzli, B., Hornig, F., Pauly, C., Turna, T. (2008) Der amerikanische Patient, Der Spiegel No. 30, p.76

[73] Kopecki, D. and Christie, R. (2008) Fannie, Freddie Boost Effort to Minimize Foreclosures, Bloomberg, http://www.bloomberg.com/apps/news?pid=20601087&sid=aXh_NhG7OLoY&refer=home

# 8 Basic Pattern of Financial Crises

Since the financial markets of international capital movements were liberalized, the world economy has systematically been afflicted by financial crises. They have become a structural characteristic of the markets. At first, financial crises seemed to solely break out in developing countries: for example Mexico in 1994, Southeast Asia in 1997, Russia in 1998, or Brazil in 1999. However, as the burst of the dot.com bubble in March 2000 has shown and as the current real estate crisis is experienced, even the highly developed financial sectors of the West are not immune to crises. Despite enormous rescue packages on the part of the central banks, negative effects on the real economy cannot be avoided.

In principle, each financial crisis is unique. They differ with regards to their cause, duration, and intensity and concerning their effects on the real economy. Each sector of the financial markets can be affected by crises. Crises can expand to the entire financial sector, including the banking sector, as is the case in the current crisis, and are capable of precipitating the economy into a recession. Despite their differences, every financial crisis has an underlying model[74], consisting of the following substantial stages, which have been derived by Charles Kindleberger from the analyses of financial crises in the last four centuries:

Phase 1: An event causes a change in the predominating expectations in a market concerning the price development of a tradable object of value, for instance due to changes in fundamental economic data, information on strategic management decisions, price adjustments in other areas, or interest variations. With the change of expectations new profit perspectives are opened.

Phase 2: Investors start to invest in an object of value with the performance of shares expected to rise. The prices eventually rise, as the high demand and the expectations come true. A herd-like behavior occurs among investors. A rush lets the courses rise further. In

[74] Kindleberger, C.P. and Aliber, R.Z. (2005) Maniacs, Panics and Crashes. A History of Financial Crisis. Fifth Edition, Palgavre MacMillan, Houndmills/Basingstoke, p.21 ff

this phase, also net assets are bought on credit. The prospect of high profits leads to ever more daring financings.

Phase 3: The real economic data do not follow the boom. The first speculators sell and take their profits. The prices do not rise any longer, which forces a part of the investors to sell in order to be able to amortize their credits.

Phase 4: The securities begin to decrease. There is nervousness on the markets which causes waves of panic sales. Investors escape into other values or currencies to secure the last profits. The prices fall and many enterprises and investors cannot pay off their credits any longer, which they had got at very good conditions in the boom phase. Banks are faced with liquidity problems, since they are left with lazy credits and all of a sudden have to provide a lot of money to customers want to withdraw their money, as they fear for their savings.

Approaches towards explaining financial crises can be found in two different variations.[75] One of the explanatory approaches originates from the Keynesian theory and deals with the tendency to establish increasingly speculative financing forms in a boom phase. Thus, it stresses the endogeneity of financial instability. The other explanation goes back to the Marxist tradition and identifies the cause of financial crises in “the exhaustion of the productive accumulation dynamics together with high profits and the avoidance of financial accumulation”.[76] The deregulation and liberalization of financial markets promote the structure of both crisis types. All in all, the causes of financial crises are complex. Nevertheless, all crises have structural causes. Even if there is misdemeanor, it is causally not the consequence thereof. Crises are not the consequence of human malpractice, even if it has occurred, but they always are the consequence of a number of structural factors.

[75] Huffschmied, J. (2002) Politische Ökonomie der Finanzmärkte, VSA –Verlag, p.168
[76] Huffschmied, J., Ibid, p.169

# 9 Economical Explanations of the Subprime Crisis

Basic economic conditions play an important role in understanding the subprime crisis. In the following, economical aspects in the context of the economic situation theory by Hayek will be discussed. When taking Hayek's business cycle theory as a frame of reference to explain the subprime crisis, it is to be considered that all economic cycles have specific characteristics and that Hayek's materials and institutional arrangement originate from the 1920s. However, the phenomenon of the process Hayek described is timeless, as the interest as a relative price for the steering of the overall economic structure of production is not bound to space and time or to certain institutional arrangements. Hayek's economic situation theory can be divided into the following five phases:[77]

1. A higher desire to invest leads to a rise in the demand for capital rise.
2. Banks are ready to satisfy this additional demand for continuous interest rates. This is what Hayek calls the perverse elasticity of the loan offer.
3. Too low a price for capital leads to a wrong structure of production.
4. The interest tightening in the course of the upward business trend uncovers the misdirected structure of production.
5. The settlement of clearing the production structure turns into an aggravating economic crisis.

Based on Hayek's phase pattern, Starbatty (2008) describes the emergence of the subprime crisis as follows. In the first phase, the central banks crucial for the world economy reduced the refinancing interest after the crash on the stock exchanges in 2000 to such a low level that this measure has to be regarded as a releasing moment of the last cycle. In the second phase, the low interest was seen as an invitation of the banks to provide the real economy with liquidity via refinancing in order to work against the consequences of the blow-out of the bubble on the stock markets. At the same time, the Fed lowered the refinancing set beyond the roster twice, which is anything but considerable in terms of an

[77] Starbatty J (2007) F.A. von Hayek und die „Bubble Economy", Hayek Vorlesung, Freibung/Br, http://wirtschaft.wiweb.at/wp-content/plugins/downloads-manager/upload/001_Starbatty_Vortrag_12_2007.pdf

interest rate reduction; however, it is a signal to the markets, as the Fed is seen as an insurance against overall economic liquidity bottlenecks and, thus, as a security against a drop on the stock exchange. The liquidity-moderate flow as a steering instrument abrogated the interest in the third phase. The specialized investment funds had liquidity power at most favorable conditions and thereby also initiated projects in which the purchase prices differed from reality. The banks involved finally had to take the credits into their own books. The single credit segments could no longer be accommodated in the market. According to Hayek, a rising interest rate for endogenous reasons reveals a wrong production structure in the fourth phase. The adjustment processes used cause a reversal in market conditions. In the USA and also in Europe, the central banks have – in steps of 25 base points each – finally realized an interest rate level, which the heads of the central banks have probably classified as economically neutral. If such steps follow in a certain rhythm and if the interested public is adjusted accordingly, the increases in interest rates are “priced in” and the absorbing effect is missing. On the contrary, the central bank suggests that further steps will follow. Phase five deals with the effects of the subprime crisis on the real economy which cannot be forecast in detail though. The flooding of the markets with liquidity is to prevent an extension to the real economy, which the reactions on the stock exchanges clearly show. It is a fact that the building industry and the private consumption in the USA are missing as relevant economy drivers. Should the rise of the consumer prices in the USA not diminish, due to rising prices of raw materials, rallying import prices caused by the devaluation of the dollar, and increasingly expensive import goods from China (also because of the country’s price adjustment), a scenario characterized by stagnation and inflation (stagflation) is quite realistic. In case of this scenario, a reduction of the global economic demand will have an impact on the world economy.

# 10 The Subprime Crisis as a Consequence of Wrong Incentives

## 10.1 Inflation and bubbles

Inflation can be described as the difference between a commercial credit and a circulation credit. If economic agents make their savings available to other agents against payment for a certain time, this is a mere shift in purchasing power, while the total demand remains unchanged. If, by contrast, the crediting is associated with an expansion of the money, the situation is called inflation since the total monetary demand exceeds the overall economic production capacity.

In a bubble economy, the prices for investments and consumer goods do not increase as much as the prices for real assets (enterprise, shares, real estate). A rise beyond long term comparative figures such as dividend yield, profit on exchange relation, and rentals for each square meter seems to be innocuous as long as economy subjects believe in the durability of the changed relations and further invest in these assets, like a self-fulfilling prophecy. Such bubbles are fed with liquidity which originates from circulation credits. If this liquidity is suddenly absent or if the price for liquidity rises, such bubbles can burst over night and drag the entire national economy into a recession.[78]

## 10.2 Speculative bubbles

Stock market bubbles are not a new phenomenon on stock exchanges, but their underlying mechanisms remain unclear. What is renowned is that prices rise rapidly and thus the shares noted on the stock exchange are substantially overestimated.[79] Shiller (2007a) states: "The venerable notion of a speculative bubble can be described as a feedback mechanism operating through public observations of price increases and public

[78] Starbatty, J., Ibid, p.4

[79] Kaliva, K. and Koskinen, L. (2008) Stock market bubbles, inflation and investment risk, International Review of Financial Analysis 17:592-603

expectations of future price increases. The feedback can also be described as a social epidemic, where certain public conceptions and ideas lead to emotional speculative interest in the markets and, therefore, to price increases; these, then, serve to reproduce those public conceptions and ideas in more people. This process repeats again and again, driving prices higher and higher, for a while. But the feedback cannot go on forever, and when prices stop increasing, the public interest in the investment may drop sharply: the bubble bursts."

According to Soros (2008), a bubble is a trend that prevails in reality and at the same time it is a misconception of this very trend. The occurrence of real estate bubbles, including the current housing bubble, can be explained with this phenomenon. In the current crisis, the trend is the increased willingness to issue credits and rising prices and the misconception is that the value of properties is independent of the willingness to issue credits. Thus, as prices rose, the lending practices of the banks became less strict and defaults on mortgage payments diminished. As shown by the current crisis, bubbles involve the expansion and contradiction of loans and they tend to have disastrous consequences.

# 11 A Historical Comparison

None of the past crises can be compared to the current crisis, yet still certain similarities can be found. The first similarity is virulent euphoria. People who would not invest under normal circumstances get under the spell of the bubble. Another similarity is the attempt to rationalize the high prices with illusory arguments, for which New Economy theories around the year 2000 are an example. The third characteristic of a bubble is a sudden and strong increase in credits. Investors do not only speculate with their own fortune, but they take out loans to finance their speculative gambling.

In economic history, interesting information on past crises can be found. In his book "Manias, Panics and Crashes", the economic historian Charles Kindleberger elaborates on economic crises in the past. Throughout the centuries, there have been speculative exaggerations and crises every now and then. The first well documented stock market bubble in the past was the "tulip mania" in Holland in 1636/1637, which already exhibited many characteristics of modern bubbles.

**Tulip Bulb Mania**

Until the 16th century, the tulip was unknown. Around that time, the first tulip bulbs from the family of the Liliaceae were imported from Konstantinopel (modern-day Istanbul) to Amsterdam. In the following years, the tulip became a symbol of prosperity and cultivated life. In the early 17th century, the entire Netherlands speculated with tulips. Galbraith writes: "No person with only the smallest religious feeling wanted to stand in the offside. Prices were extravagant. In the year 1636 a bulb, which before had no obvious value, was suddenly exchanged for one car and two horses." 1637 is the year of the end of the tulip boom. However, there is no evidence of the reasons why this boom finally came to an end. Some well-known speculators sold their tulips for unknown reasons and withdrew from the market. This move caused a mass panic. Many speculators bought their tulips by means of credits, in the hope that the increase in value would pay the interest. The rich became poor and the country suffered from a depression, which persisted several years.

From today’s perspective, the tulip bubble may seem irrational, but at that time the rapidly increasing value of tulip bulbs seemed absolutely rational. Euphoria develops inevitably and brings along a certain willingness to take irrational risks. While banks were not allowed to exercise the business of trusts, they were allowed to possess them.

Another bubble which shows a structural parallel to today’s situation is the panic of 1907. Just like today, panic emerged from the banking system. It started with the attempt of a speculator to manipulate the market for copper. The crash in the year 1907 helps to better understand today’s problems.

**The panic of 1907**

Around the year 1900, American banks accepted savings from the public, but they were not allowed to administer assets. For this purpose, trusts existed. Objects of speculation were railway shares, housing estates, channels, foreign currency, gold, and new technologies. The difference to today is that there was no central bank at the time. The Clearing House Association redeemed checks of the banks and guaranteed the liquidity in the market. Another responsibility of this institute was regulation.

The crisis began with a bad speculation. Augustus Heinze, a well-known speculator from the copper business, tried to drive up the price for copper by purchasing shares of United Copper. His plan did not work out and Heinze lost the large amount of 50 million dollars. Not only was Heinze a banker, but he also was the president of the Mercantile National Bank. His loss had negative effects on the market, as savers thought that the bank was involved in Heinze’s business, causing a run on the Mercantile National Bank, which was eventually stopped by the Clearing House Association. At the same time, there was a run on the Knickerbocker Trust Company, caused by the close friendship between Heinze and the president of the Knickerbocker Trust Company, Charles Barney. As a consequence, the bank crisis expanded and the investors pulled their money from the bank system. In addition, the banks now distrusted each other and no longer lend money to each other. The crisis ended with the assistance of J. P. Morgan, the most legendary American banker of all times. The government stepped in as well and promised financial assistance.

If bubbles burst, panic prevails. In such times, the government intervenes and intensifies regulations, which is what happened in 1907, as the Federal Reserve System, today's American central bank, was established. After the Crash of 1929, the famous Glass Steagall act came into effect, barring banks from being active in several states and prescribing a strict separation of common banks and investment banks. Regulations, however, do not help to prevent future bubbles. In the course of time, legislators discard their conservative attitude and may even get pulled into the bubble as well.

# 12 Lessons from the Subprime crisis

Jäger and Voigtländer (2008) suggest the following measures to avoid future crises and to create an efficient financial market system. Primary focus is on the securitization market with the main aims of solving problems associated with an asymmetrical flow of information and restoring confidence. Financers have to simplify the structures and offer detailed information on demands and securities. The better banks and other creditors are able to explain their products, the more willing are investors to accept the risks. More transparency might be playing a key role in the reactivation of the securitization market.

Risk adhesion is another important aspect. Creditors are expected to keep the risky segment of ABSs in their own books, at least to a certain extent, which reduces the advantages of securitization for the banks, since they cannot set their own capital funds completely free. Furthermore, it is to be assumed that there will be more standardization concerning the quality of the retrieval of information in order to reduce complexity. In the future, rating agencies will have to determine risks more carefully and conservatively. Since they are paid by the creditors, they will never be entirely neutral. Thus, the investors are requested to assess and evaluate the risks themselves as comprehensively as possible.

# 13 Concluding remarks

The term “subprime crisis” will be the keyword by which the current financial crisis will enter the history books. This thesis showed that the current real estate crisis had already loomed ahead for years. The US American crisis in the real estate market has assumed global proportions. In the last half year, worldwide stock exchanges have experienced a massive break in prices. Many financial institutes have descended into the maelstrom of the financial crisis. Real estate financers issued credits without reassessing the creditworthiness of their customers, rating agencies carelessly published evaluations, and banks administered risks worth billions of dollars outside their own balance sheets. Greed of gain and power prevented the parties involved from taking countermeasures. The crisis has penetrated the real economy. If the central banks assume their role as lenders as a last resort and provide the financial markets – in particular banks – with liquidity, the effects of the crisis on the real economy can be alleviated. Nevertheless, the banks are reluctant to issue new credits. Banks facing pecuniary difficulties have problems to get credits in order to remain liquid. Hundreds of thousands of US Americans have lost their jobs. Thousands of people will lose their jobs all over the world.

In theory, the economy is meant to provide people with goods and services, with financial markets taking over the following basic and important function: they put up capital for investments in such a manner that new and better goods and services can be offered. As discussed in this thesis as well, today’s financial markets are far from assuming this role any longer. Instead of supporting the real economy, they open up possibilities to achieve high yields. The boundaries between the traditional market sectors are blurring and the classic roles of the stakeholders disappear. Banks issue credits only to sell them, funds buy in on enterprises, and hedge funds take out loans to be able to finance these acquisitions. In the meantime, they even go public and are engaged in the business of issuing credits.

However, this is not the first time that international financial markets are in the spotlight. The current financial crisis is not an isolated case. Since the liberalization of the financial markets and the deregulation of the international capital flows in the past thirty years,

different economic sectors have been systematically afflicted with financial crises. The underlying principle of these crises is simple: when a market is about to crash, international investors withdraw their speculative capital, bag the profits, and invest in new markets, in which the development of another bubble leads to yet another increase in prices.

In the wake of the crisis in the real estate market, the voices of those who used to advocate the efficiency of liberalized financial markets have become subdued all of a sudden. The confidence of the investors has been shaken by the crisis. To restore their trust, substantial improvements in the entire financial system are required, especially in terms of transparency, risk management, and bank regulations. The leaders of the G8 countries require hedge funds to be more transparent in their business activities. They call for sanity and ask financial institutes to refrain from risky speculations. Others seem to have discovered public authorities for themselves and call for vehement state interventions to rescue troubled financial institutes.

However, the interests behind such calls are easy to see through: the losses incurred by speculations are to be compensated by the public, whereas the previously made profits remain private. Reform proposals are hypocritical or insufficient. They are aimed at damage limitation, yet foreclose any substantial change in the structure of the international financial markets, as large financial institutes, enterprises, and wealthy individuals are interested in maintaining the status quo. Likewise, the question whether people have learned their lesson and are able to prevent future bubbles still remains. It is a question of time.

*“This is a world inhabited not by people who have been persuaded to believe, but by people who want an excuse to believe.”*

J.K. Galbraith, The great Crash of 1929

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