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# Subprime Mortgage Crisis in the USA

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## Čestné prohlášení

Prohlašuji, že bakalářskou práci na téma „Subprime Mortgage Crisis in USA“ jsem vypracovala samostatně a veškerou použitou literaturu a další zdroje jsem řádně označila a uvedla v přiloženém seznamu.

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# Poděkování

Ráda bych touto cestou poděkovala Ing. Viktoru Šoltésovi za vstřícný přístup a pohotovou pomoc při zpracování bakalářské práce.

## Contents

# 1 Introduction

Homeownership is believed to be one of the ways, how an individual can start building his overall own wealth. Since it is quite a significant action to be taken, it can be even more complex and complicated when one actually begins to work on in the area, as it is hard to imagine that a regular citizen would easily find financial means to obtain a home outright. Here is where mortgage comes as one of the solutions. Definitely, economically and socially more developed countries have bigger experience and more possibilities to offer to their inhabitants in order to raise their standards of living. However, it must not necessarily mean that a richer and more technologically and industrially advanced country must act in the fairest way towards its civilians and moreover, it must not presume that so big mechanisms are not likely to fail.

Therefore, in my bachelor thesis I will be trying to give a detailed look at the mortgage market as it is on the territory of the USA and give reasonable merits of why mortgage came to the homeownership market, how it works, which opportunities and possible disadvantages it offers to its clients in terms of subprime lending and, indeed, what after-effects and even tragic implications it may cause as soon as it stops functioning in accordance with its primary objective.

In chapter two of this paper I provide an overview of the subprime lending as an opportunity for those who did not qualify on the market of prime lending, its main characteristics, reasons why subprime lending belongs to high-cost lending and what all processes must work and coordinate in order an individual to be given a chance to obtain his homeownership via mortgage.

The following part features the main reasons of the subprime mortgage crisis in the USA, which burst out in the spring of 2007. It shows the participation of different players in the process, what was done wrong and why some of them were interested in creating a so called "speculation bubble".

All possible results and consequences, which have occurred forthwith, are described in the last big section. Because of a great cohesion of world economies, here I was trying to show that impacts of the subprime mortgage crisis in the USA are of no chance to be a matter of local economy, even though the sharp rise of mortgage delinquencies and foreclosures caused a great deal of bankrupts, collapses and writedowns of the US financial institutions. Due to a great cooperation of most world markets, the negative trend in the development of the US economy sent its ripples through the world economy, where as Europe, Asia and Australia felt a significant feedback as soon as the USA faced the crisis.

Even though mortgage lending gave a great chance of obtaining homeownership by many people, who were earlier rejected on this particular market, and from the very beginning the rapid growth of subprime mortgage lending was cheerfully supported by both public and governmental authorities, the whole process proved that the rule of “too big to fall” has definitely not worked here. There have been made significant steps by the Federal Reserve – the US central bank, some of them in the cooperation with other world central banks, as well as many legislative regulations have been improved on all levels of state administration. However, the subprime mortgage crisis has already started and its spiral effect we can feel even today, after one and a half year of its existence. And it occurred to be much harder to stop its incidence than as if it would be to prevent the subprime mortgage crisis from the very beginning.

# 2 Background Information: Mortgage Loans in the USA

## 2.1 Understanding Mortgage

The term "mortgage" itself takes its origin from the 13th century and being literary translated from the Old French the two part of the word stand for: *mort – "dead"* and *gage – "pledge"*. This explains that from the beginning of its existence a mortgage was a conveyance of land for a fee[1], when a buyer willing to buy a land had to pay to the seller just the set (absolute) rate, on that condition the seller would sign the contract against his own title, which meant that the land continued to be his property and he was to decide what to do with it any time, while a buyer was supposed to give owing money back as soon as the land produced. However, the absolute ownership of the land by the seller caused unequal and uncompetitive conditions between the buyer and the seller, as the buyer was badly underestimated in his poor property rights. Nowadays in terms of special language of financial sphere, we associate mortgage with a legal agreement between a lender and a borrower, most often used while purchasing homes by borrowers, who do not owe the proper amount of financial means to be able to supplement the entire sum of money at the time of the purchase. As far as a lender is a financially well arranged institution, it loans the necessary funds to the borrower, registers the mortgage against the title to the property and thus secures the loan on a real estate, which in this case is that very asset (home) which the lender is willing to buy.

Exactly in the same way, a great jurist Sir Edward Coke[2] was trying to explain this exact estimation of the term "mortgage" in the middle of the 16th century, while he was insisting on the fact, that there existed a certain doubtfulness of whether the borrower (or mortgagor) will be able to keep paying back his debt on time. In case the mortgagor did not succeed, the lender (or mortgagee) was still secured from a default, as he had a right to take the property from the mortgagor forever, which meant eventually that the deal was dead. On the other hand, if the mortgagor managed to complete paying his debt avoiding any complications occurred, after the last payment the deal was dead again and the property was transferred in the ownership of the mortgagor. In both cases the lender, which was usually represented by a bank or another saving and loan institution, was secured by a property pledge from the borrower's possible fail to pay, whereas the contact was ended up anyway, no matter if the mortgagor was a successful client

[1] http://en.wikipedia.org/wiki/Mortgage
[2] http://dictionary.reference.com/browse/mortgage

fulfilling all the deal conditions or not. Therefore, generalizing the idea of mortgage, it is claimed to be a security for a lender, but not a debt as such as it happens to be often confused by the public.

The original and primitive way of taking a loan to get homes, mentioned above, had been successfully applied as long as financial associations were still disposing enough money to satisfy the demand of all potential mortgagors. However, this was not the only reason why so called *prime lending* was largely replaced by a *subprime lending* in the closing years of the 20$^{th}$ century. The other important argument for that is that there appeared a large number of customers, whose paying abilities were not meeting the conditions the banks were demanding for taking prime mortgage loans, therefore they did not fulfill criteria for lower market interest rates.

## 2.2 Subprime lending

The term *subprime lending* or as well called second-chance lending, non-prime lending is a well known financial term, used in practice referring to a higher-cost lending. As mentioned above, subprime lending has been actively used over about the last two decades, which means that comparatively it is still quite a new segment in the experience of the mortgage loaning, firstly initiated at the US mortgage market in the beginning of 90$^{th}$. However it has already been widely used and even managed to cause serious problems not only to the mortgage market in particular, but to the world financial market as well.

The main distinctive difference, which has separated the original prime lending from the consequential subprime lending, is that borrowers of non-prime loans belong to the category of clients, who, by various reasons, happened to face bad debt experience (or even had no credit history at all) and thus caused transferring their credit score[3] (record) to filling the conditions of an imperfect one or in other words potential investors were not willing to risk lending their numerous funds to those, who were not sure to be able to pay them back. Generally accepted in the USA, the credit profile which prevents a borrower from using a *prime* loan advantages may include some of the following:

- one or more loan payments past 90days due the last 36 months
- two or more loan payments paid past 30 days due in the last 12 months
- previous foreclosure, payment delinquencies, bankruptcy in the last 5 years
- high default probability given by a measured credit score.

[3] See Box 1

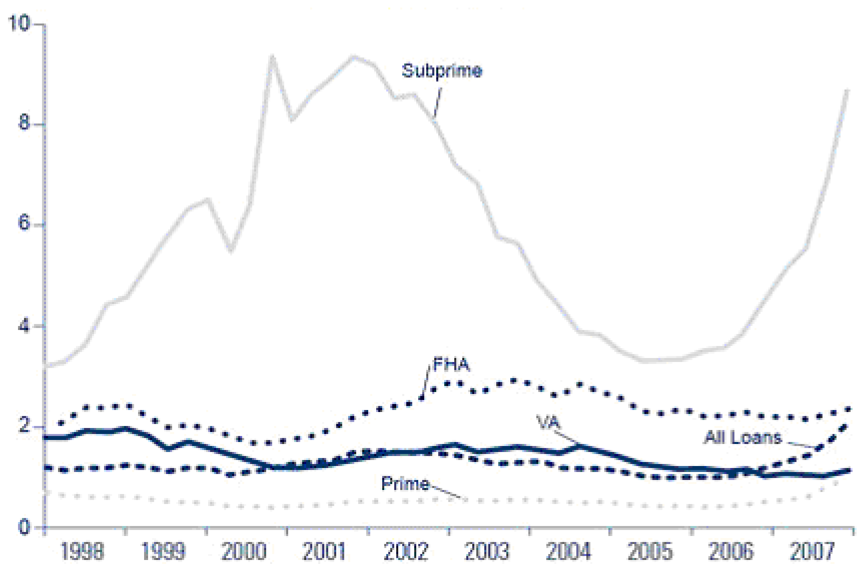
**Box 1**

**Credit score**
In order to set the likelihood that the person is be capable of paying back his debts, in the USA there has been created a credit score, which represents a number, counted using statistical models and based on client's credit report information and financial history. Usually, a borrower is being compared to other similar borrowers, e.g. those who all have similar delinquencies with payments. Although there is no standardized definition or even an integrated credit score model calculation the credit score, in the USA for the purpose of subprime loans a FICO score is most widely used in mortgage industry.
Fair Isaac Corporation (FICO) is a publicly-traded corporation, which in 1970 created the first credit scoring system, widely used by money lenders nowadays. The scale here ranges from 300 to 850 and is used for tree types of credit – mortgages, automobile loans and consumers' credit. In terms of mortgages, one is considered to be a subprime borrower as soon as his FICO score goes below 680 (sometimes 620). However, Fico credit rating of one borrower may differ, depending on what credit reporting agency the data was obtained from or which credit bureau has set the FICO score. Meanwhile, Fico score is believed to be the fairest one as it does not consider race, sex, ethnicity etc.

However, still the lenders were willing to let their free liquidity go to the market to get it valorized. Therefore, fulfilling the original idea of subprime mortgage lending (as well as auto loans, credit cards etc.) – to provide borrowers with less-then-ideal credit record with the opportunity of obtaining their own wealth – these clients were allowed to get mortgage loan, but at the non-prime market, therefore at higher interest rates than prime loans. Chart 1 below shows the trend in the percentage value of subprime and prime interest rates on mortgages from 1998 till 2007 at the US mortgage market.

Even though additional percentage points of interest rate did not seem to be too high over the prime lending rates, years of paying back the debt caused excessive thousands of dollars in absolute numbers.

**Chart 1.**




**Source: Mortgage Bankers Association, National Delinquency Survey, fourth quarter 2007**
**Note: FHA – Federal Housing Administration, VA – Department of Veterans Affairs**

Another factor, which contributed to the growth of subprime lending, is the fact that by the end of the 80th it became legal, as various official laws and statutes, such as the Alternative Mortgage Transaction Parity Act (1982), the Tax Reform Act (1986) etc., have created favorable conditions for developing and increasing subprime loan practice. One of these was that interest rates on consumers' credits were not allowed to be deducted from the interest rates on subprime loans, which made both even more available for a regular citizen, as in some way subprime mortgage loans have become comparatively cheaper.

Moreover, since the financial institutions which provided subprime lending[4] (numerous brokers, lenders) realized that that the process has been worked out, they began trying even harder to meet the higher and higher yields that investors were coming up with, by creating various more flexible methods of borrowing for poor-credit borrowers. For instance, an adjustable rate mortgages (ARM) became very popular, which said that the interest rate would be lower in the first years of the contract, then approximately after the second year it was to keep rising up. Another example is a so called *"no doc" loan*, when obtaining a mortgage loan the borrower was not obliged to document his level of regular income or any income at all or when a borrower was allowed to decide how big would his monthly installment be.

[4] The process of securitization: see chapter 2.3.

As a result, by the end of 1998 the Federal Trade Commission estimated that $125 billion of $859 billion total mortgage dollars were subprime, while in 1995 the number stated as for the subprime loans was $65 billion[5]. The growing trend of subprime mortgage lending continued in the following years and in 2003 reached the number of $332 billion. At the end of 2006 the figures showed that almost 92 percent of all securitized mortgages belong to either ARMs, “no doc” or other alternative borrowing possibilities[6]. Subprime mortgages totaled $600 billion in 2006, which stays for about one-fifth of the US home loan market, even bigger then Treasury bonds.

As it will be shown later in this work, in theory this seemed to be a good idea to be realized. And that included not only the benefits of the lenders in the form of interest received, but it was giving even those lower-credit borrowers to get their own intangible property. However in practice it happened to cause a burst of speculations and negative unexpected consequences, as it will be discussed in later chapter of this work.

## 2.3 Securitization

Securitization of mortgage loans is a structured financial transaction, which means actually the way of selling assets. However, selling here does not consider a direct conveyance of the whole asset from the original seller to the final buyer, but lets various players intermediate during the process, while financial assets are being combined into pools, creating asset-backed securities, and selling their shares to investors, who will to risk in order to get awarded later on.

The first player, who instigates the whole structured process, is a mortgagor or borrower. This person, as described earlier, is willing to purchase a property in order to own one, therefore he applies for a mortgage. The originator (bank or a broker on its behalf) initially owns the property, which the mortgagor looks for, and is willing to underwrite a loan. Typically originator tries to raise its capital in such a way, at the same time funding and servicing mortgage loan. As the asymmetry of information is considered to be present at any financial or fixed asset market, the borrower here can face some negative issues, which he can even not be aware of. For instance, the originator could set the selling price higher than the actual (principal) value of the property was, thus besides getting his income in a form of interest payments, he could easily receive an extra profit by simply hiding the information on the original property price. Another

[5] Inside B&C Lending, magazine (May 2007)
[6] Tackling the Mortgage Crisis: 10 Action Steps for State Government [4]

example of "discriminating" the buyer is when he is not aware of all possibilities he can be offered at the moment of making a deal and as a result he will not choose the best offer on the market. Even worse the outcome may be, if the mortgagor does know all the financial options, but because of being unsophisticated in the area, is not able to do the right choice, which will affect destructively his own best interest. This definition has been clearly set by Morgan (2007) as *predatory (excessive) lending,* which simply means that the borrower would be better off without the loan.

Unlike the liquid primary market of mortgages, the subprime lending does not consider each owner of an asset to sell his property to a particular buyer. Therefore the next step in securitization process is when an arranger arrives to participate, most often represented by a bank or another financial institution, which must meet certain capital adequacy requirements. The role of the arranger is to bring all the finals issues of the contract to the end. As long as they are in the game, arranger creates *pools* of assets.

*Pooling* means collecting assets into larger portfolios in order to maximize the benefits to the users, because the minor or lower quality investments are getting worthwhile and credit risk is being reduced by diversifying it between various assets. Hereon, the assets are called collaterals.

As soon as mortgage loans pools are prepared, arrangers having consulted all necessary deal details with Credit Rating Agencies, sell them to *special purpose vehicles* (SPV) or *special purpose entities* (SPE). SPV is a legal entity (can be in a form of US-style trust, corporation, partnership), founded to fulfill narrow, specific objectives of funding the assets. An interesting fact about a SPV in form of trust is that it can be created even by the arranger, who sells him a pool of assets. Here an SPV conducts the role of an issuer. Legally, an SPV is allowed to hold assets either on its balance sheet or place them in a separate trust. At the moment, when an issuer obtains the asset, it becomes the "bankruptcy remote", which means that even if the originator goes bankrupt, the assets of as SPV will not be distributed to the creditors of the originator. The last proves again, that the only purpose of establishing SPVs was to provide issuance of securities.

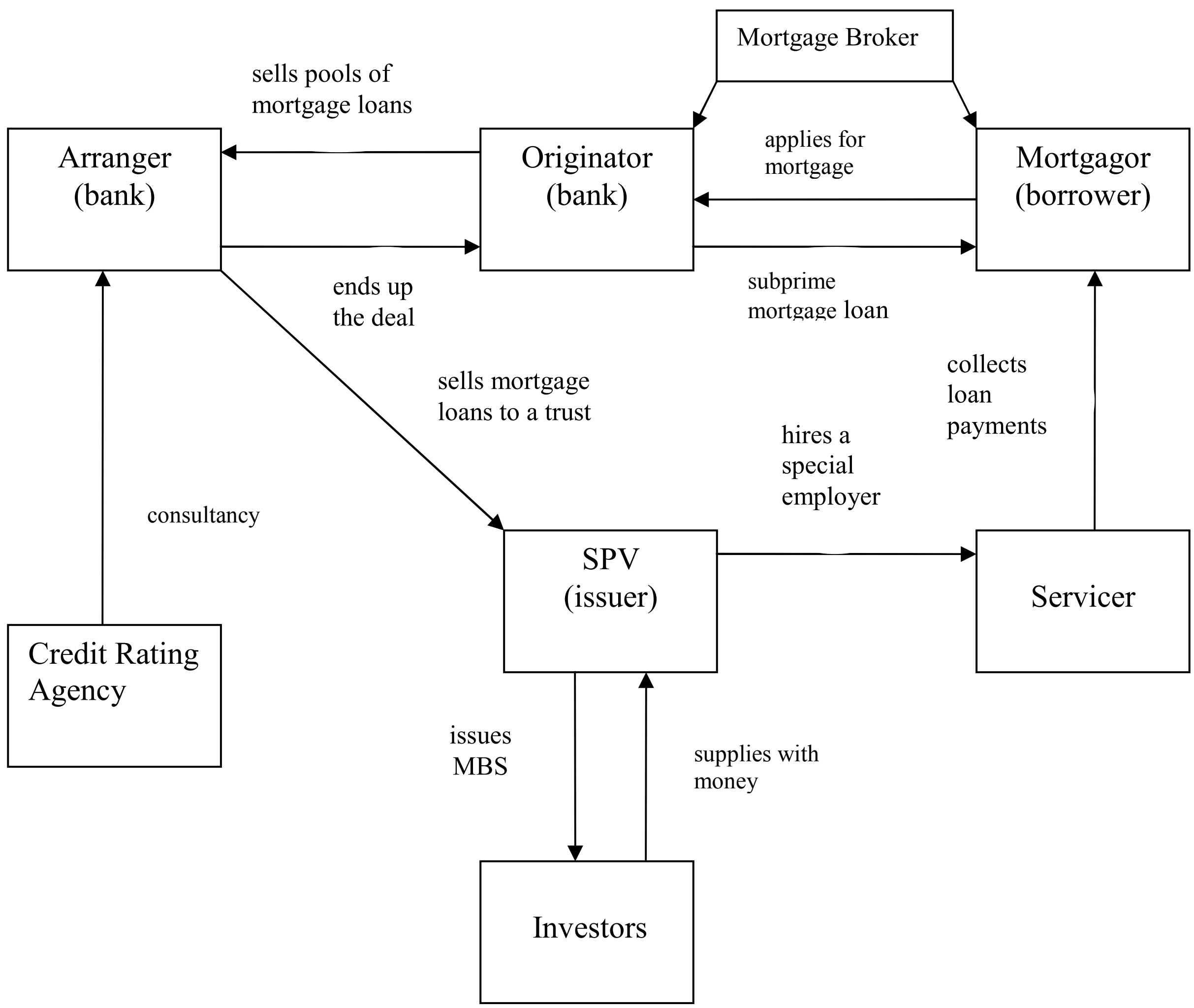
The way the securities get to investors is that SPVs issue tradable bonds (which can be further split into tranches[7]) and sell them to investors. The revenues from the bonds (proceeds) sales are given back to the originator, while SPVs get the servicing fees and the bind holders

[7] See chapter 2.3.2.

receive the cash flows from the assets. The bonds that investors buy from SPVs are called *asset-backed securities*[8] (ABS). In case of mortgage market we talk about *mortgage-backed securities* (MBS).

Meanwhile, a SPV traditionally hires a service – employees, who is responsible for collecting loan payments, accounting of the principal amount and interest, contacts those borrowers who are past due the regular payment or monitors and makes analysis of the customers' paying abilities. The ability of a servicer to collect on a delinquent debt is generally restricted under the Real Estate Settlement Procedures Act, Fair Debt Collection Practices Act and State deceptive trade practice statutes. A simplified interaction between the participants of securitization process is described in Picture 1 below:

**Picture 1**




[8] See chapter 2.3.1.

The following two tables show the list of 10 subprime mortgage backed securities originators and issuers as for 2006. One can easily notice some banks in the role of issuers buy bonds from the originators and further issue their own securities.

**Table 1: Top Subprime Mortgage Originators**

| Rank | Lender | 2006 Share (%) |
|---|---|---|
| 1 | Countrywide | 8,8% |
| 2 | New Country | 7,6% |
| 3 | Option One | 7,0% |
| 4 | Fremont | 6,6% |
| 5 | Washington Mutual | 5,4% |
| 6 | First Franklin | 6,3% |
| 7 | Residential Funding Crop | 5,8% |
| 8 | Lehman Brothers | 5,4% |
| 9 | WMC Mortgage | 4,8% |
| 10 | Ameriquest | 4,8% |

**Table 2: Top Subprime MBS Issuers**

| Rank | Lender | 2006 Share (%) |
|---|---|---|
| 1 | HSBC | 8,8% |
| 2 | New Country Financial | 8,6% |
| 3 | Countrywide | 6,8% |
| 4 | CitiGroup | 6,3% |
| 5 | WMC Mortgage | 5,5% |
| 6 | Fremont | 5,4% |
| 7 | Ameriquest Mortgage | 4,9% |
| 8 | Option One | 4,8% |
| 9 | Wells Fargo | 4,6% |
| 10 | First Franklin | 4,6% |

**Source: Inside Mortgage Finance (2007)**

### 2.3.1. Mortgage-Backed Securities and Collaterized Debt Obligations

In general financing, mortgage-backed securities (MBS) and collarerized debt obligations (CDO) are type of asset-backed securities, which represent bonds that originate from the pools of assets. According to the United States Securities and Exchange Commission promulgated Regulation AB (January 2005), the definition of Asset-Back Securities sounds the following way:

> "Definition of ABS. The term "asset-backed security" is currently defined in Form S-3 to mean a security that is primarily serviced by the cash flows of a discrete pool of receivables or other financial assets, either fixed or revolving, that by their terms convert into cash within a finite time period plus any rights or other assets designed to assure the servicing or timely distribution of proceeds to the security holders".

As one can derive from what was said above, the ABS appears as a result of securitization process by transferring assets from the issuing company to a bankruptcy remote entity. The main advantage of the ABS is that by creating assets pools, they can be easier and faster traded at the capital markets or be converted into more liquid instruments. However, investors, holding CDOs and MBSs still face several kinds of risks, where the four main are:

- Credit risk
- Asset price risk
- Liquidity risk
- Counterparty risk

CDOs consist of portfolio of various fixed-income assets, the principle of the CDO stays as it was mentioned above: hold assets as collateral and to sell packages of cash flows to investors. MBSs cash flows come from the payment of principal and interest payments on the mortgage loan[9].

There have been established few government sponsored enterprises, the biggest and most influential two are Fannie Mae-- the Federal National Mortgage Association and the Federal National Mortgage Association – Freddie Mac, which were aimed buy mortgages from banks and issue MBS and guarantee against homeowner default risk. Eventually, now they finance most of the home loans being made at the territory of the USA.

With the housing bubble burst in 2007, it has been disclosed that both CDOs and MBSs have been significantly overestimated by credit rating agencies, which has caused all the owners of their tranches to be face high credit risk.

## 2.3.2. Credit enhancement and tranching

**Credit Enhancement**

Credit enhancement is a process of reducing credit risk by requiring an agreement (collateral, insurance, letter of credit etc.) to provide a lender with reassurance, that in case of default he will be compensated[10]. Therefore it is a main part in securitization procedure and a very important factor, which credit rating agencies use while evaluating the securitization.

In economic terms, there are two basic kinds of credit enhancement – internal and external[11]. Internal credit enhancement includes excess spread (difference between the interest rate received on the underlying collateral and the coupon on the issued security), reserve account (often non-declining, to settle the issuing trust for losses up to the amount allocated for the

[9] en.wikipedia.org
[10] www.investorwords.com
[11] http://www.ny.frb.org/research/economists/ashcraft/subprime.pdf

reserve) and overcollateralization (OC). The last is most often used kind of credit enhancement, which presumes that the face value of the underlying loan portfolio is larger than the security it backs, thus the issued security is overcollateralized. In case some of the loan payments are late or never paid back, then principal value and interest payments on the asset-backed security (ABS) can still be made.

The 2007 US subprime mortgage crisis has proved that credit enhancement as a key process in securitization has failed to insure the safe outcome for its participants.

**Tranching**

Tranching[12] represents a group of related securities, which are a part of the same transaction. In those transactions, tranches are identified as classes of notes, where each classes claims cash flows generated by the collateral. Usually each tranche is identified by letter (the Class A, Class B, Class C securities), includes minimum 3 notes and has absolute priority in the cash flows over the more junior ones. Each letter also identifies the rating of a tranche, where AAA stays for the most senior tranches and BB stays for minor once. The process typically follows the scheme: a bank (arranger) sell the pool of assets to a SPV, the SPV divides the pool into tranches and sells them either to investors or buys it itself.

[12] ideas.repec.org

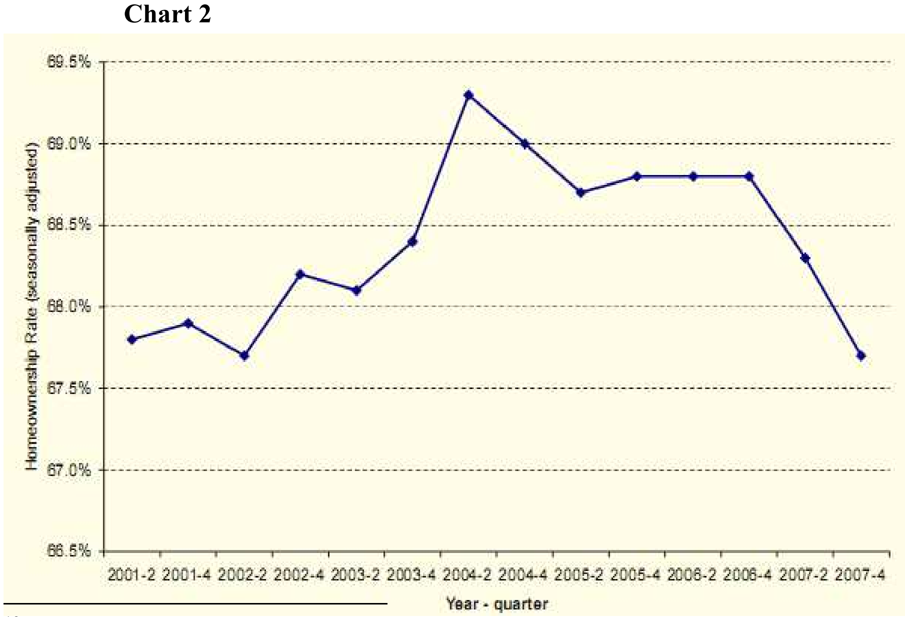
# 3 Causes of the Crisis

## 3.1 US Housing Bubble

After the real estate collapse in the USA by the end of the 1980th, when the prices of real estate declined almost twice, the partnership for affordable housing was established, relying on the legal mandates such as for example Community Reinvestment Act (CRA). First of all, it aimed at the banks to create supportive conditions so that the ownership of private property got increased in the USA. Another method or reaching its goal was support by local and national politics. This seemed to be a profitable deal for banks, as loans for living had to become approachable for clients with lower incomes. Therefore, by the end of the 80th each of the Federal Reserve Bank established a Community Affairs Office to be able to act in compliance with Community Reinvestment Act.

However, in 1995 as a result of a newly accepted regulation of CRA, which was encouraged by the community groups, Fannie Mae allowed program, which is sometimes called Low Income Housing Tax Credit, which actually meant affordable housing credits via subprime lending. As a result, the partnership for affordable housing secceded and significant structural changes housing industry were seen. Statistics said, that home ownership rates in the US between the early 1990 and the end of 2005 has reached its peak, rising from 63% to 69% relatively, while in 2007 the level fell almost till the rates of 2001[13]. Chart 2 below shows the US homeownership rate, as it developed from 2001 till 2007.

**Chart 2**




**Source: US Census Bureau**

[13] US Census Bureau (26.10.2007)

Another factor, which highly influenced the housing mania in the US and can belong rather to phycological factors is a well known American love of their homes. That time President Bush's motto of "the ownership society" has affected the whole subprime ledning mania even stronger, in the same way demotivating people against renting flats. This could sound quite like a contadictions, because the US median monthly mortgage payment is $1.687, where as the national median monthly rent payment is almost twice smaller - $868[14]. Nevertheless, as the survey has shown, the real number of renters has increased by more than 1.5 million people, while during the year 2007 the number of American homeowners dropped by 600 000 and, paradoxly, the new households increased by extra 1 000 000[15].

In 1999 Fannie Mae issues a regulation, which states that bank must ease the credit requirements for those individuals, whose income level or other characteristics did not let them qualify taking mortgage loans from conventional banks, as well as documentation requirements and mortgage insurance requirement reduced significantly. It seemed that while governmental institutions supported the trend of "could not have enough housing", they were closing their eyes to the fact that the majority of new clients were not able to pay back their mortgage loan, as their income level usually qualified for a much cheaper house or moreover these people were not the first-time-borrowers on the market. Another thing is that there exists an idea between most homeowners that investing in tangible long-time assets is a good investment, as assets values are supposed to grow over time. This definitely is true, but only in case if economy is developing, unlike the USA economy, which belongs to one of the most stable and well developed in the world, therefore it is natural for its house prices to move both ways up and down. One more mistaken opinion as for investing into real assets is that there is a big difference between an investment into your own shelter (house) or investment with the profit motive. As an economist Robert Shiller[16] has proved, in terms of long period from 1890 until 2004 the home prices on the US market kept increasing merely by 0.4% per year, which can be reasonably explained that investors prefer to place there funds into stocks and bonds, rather then real assets. If the trend is believed to keep working as the time passes, it is logical that there won't be a great increase in home prices, the only slight impact can be as inflation rate growth over years.

The next big even which was a clear influence on the upcoming housing bubble was the I.T. bubble in the beginning of the year 2000, which caused Fannie Mae to commit purchasing

[14] "For some, renting makes more sense", USA Today (10.80.2006)
[15] Alan Mallach : "Tackling the Mortgage Crisis: 10 Action Steps for State Government" (May 2008)
[16] Shiller, Robert: "Irrational Exuberance" (2005) [14]

and securitizing $2 billion of Community Investment Act-eligible loans[17]. This time the early warnings on the upcoming speculative mortgage bubble started appearing and were coming mainly from people, who were or used to be at high positions in Federal Banks or highly qualified economist, but almost no attention was paid as the subprime mortgage sector worked well so far and both banks and borrower were satisfied.

As a result of purchasing the Community Investment Act-eligible loans, US Federal Reserve had to lower its Federal funds rate by times in a row, which caused its shift from 6.5% to 1.75%[18]. This grounded the decrease in short term interest rates and as a result a 2002 national average price appreciation, following the 2003 Federal Reserve failure in its supervisory and regulatory authority over banks, mortgage underwriters and other lenders, who refused accepting existing loan standards (employment history, income, down payments, credit rating, assets, property loan-to-value ratio and debt-servicing ability) and insisted on taking into consideration first of all lender's ability to securitize and repackage subprime loans.

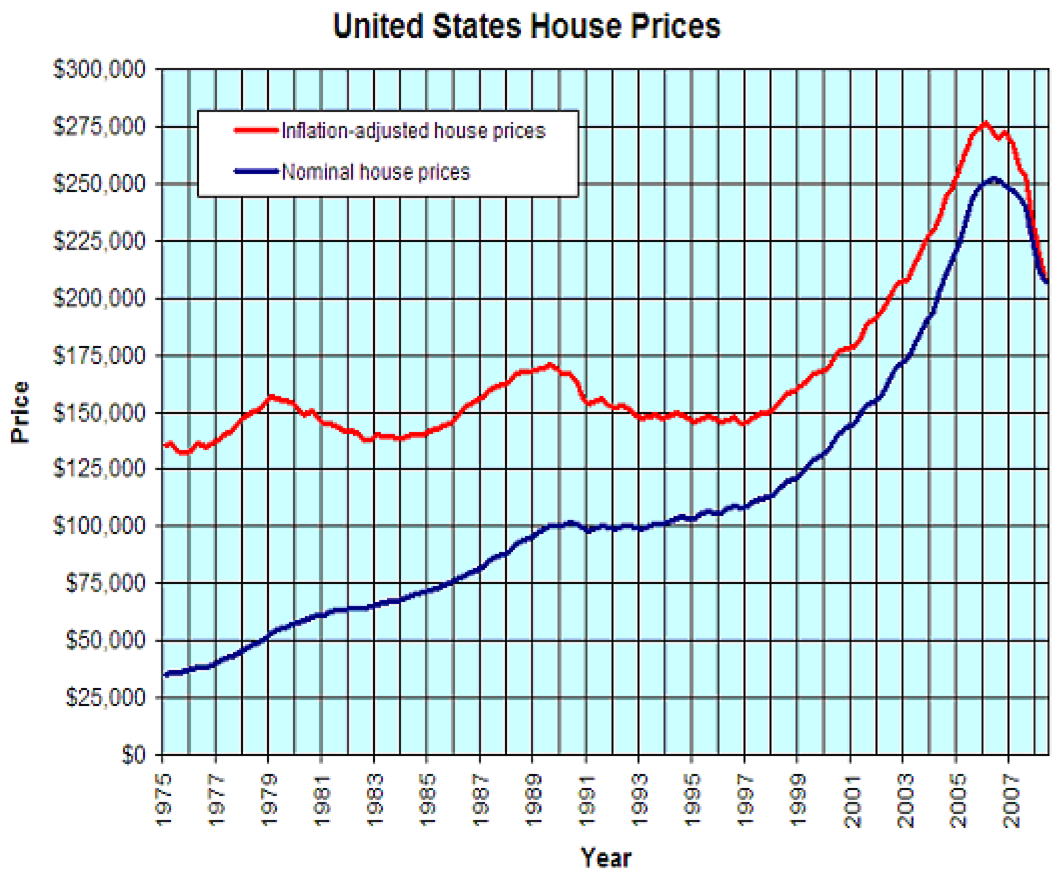
Since the homes price growing trend continued and was quite sharp from the beginning of 2005 as it is depicted in Chart 3, while the interest rates on existing and newly coming subprime mortgage loans notified a heightening trend as well from average 3% in 2005 up to almost 9% in 2008 (see Chart 1), is became suddenly clear that most householders who easily obtained their mortgage loans, where far from being able to pay the debt installments on time or even pay them at all, as their low introductory subprime mortgage rates have converged with regular interest rates.

(As it is clearly noticeable from the Chart 3, the prices on households stayed roughly the same since from 1975 till almost 1999, with moderate deviation around the average of $150 000. However, since the beginning of the year 2000 the real house prices have risen dramatically, reaching the average price of approximately $210 000 in the middle of 2008. This is 21% higher than the previous housing boom peak of an *inflation-adjusted* $170,900 in 1989)[19].

Therefore it seems to be very doubtful, that those who preferred renting a flat instead of buying one few years ago did the wrong decision, as the happened to be around 2.2 million of foreclosure fillings and approximately 1.3 million properties involved by the end of 2007.

[17] “Fannie Mae Announces Pilot to Purchase $2 billion of “MyCommunityMortgage” Loans” “, Corporate Responsibility News (30 October 2000)
[18] es.wikipedia.org
[19] mysite.verizon.net/vodkajim/housingbubble/

**Chart 3**




**Source: mysite.verizon.net/vodkajim/housingbubble/**

## 3.2. Role of Mortgage Brokers, Mortgage Underwriters and CRAs

### Mortgage Brokers

Mortgage brokers, who act like middlemen between borrowers and originators, sells mortgage loans on the behalf of companies or individuals[20]. The aim of mortgage broker is to sign up as many mortgage contracts as possible, as their income depend on the sales. In well developed industrial areas of the USA people had easier approach to the mortgage market, therefore the key role the mortgage brokers played in the housing boom was aiming at people of working class and persuade them that subprime mortgage loan was a profitable investment in their own homeownership.

[20] investopedia.com

As a clear example of that, a great number of mortgage brokers focused on the city of Cleveland[21], which was quite a poor working class community, often suffering from race . They managed to pursuade those, who did not own any asset, to apply for mortgage loans which, according to them, were not bearing any risk and were not of the high costs. At the same time, the told the homeowners that they could easily refinance their properties, without noticing that new subprime mortgages assumed almost a double rise in interest rates in a few years. However, brokers were successful in this area and for many years Cleveland was the subprime capital of America. In the end of the day, a huge number of borrowers realized that they were not able to refund their debts. The number of foreclosures accounted 70 000 by the end of 2007, causing the population shrunk in order of searching new working places almost twice from 950 000 citizens to 450 000 citizens[22]. As a result, numerous mortgage brokers were blamed of predatory lending and mortgage frauds.

**Mortgage Underwriters and Investors**

Many believe that the main blame shoul lie on the loan underwriters, which means lenders or originators of mortgages. The main reason to think so is that these were the underwriters who created unreasonable, but at the same time attractive conditions for obtaining mortgage loans even by people, whose credit score was so far from receiving such a kind of loan at prime market. But as soon as markets were flooded with capital liquidity from the central banks, lenders began giving massive loans to all kinds of borrowers and not willing to hesitate undertaking great credit risk. The product, which originators offered at the subprime mortgage market, appeared to be widely demanded. Plus thet the housing price increase was expected, as the interest rates first went down. All this caused a substantial growth in the amount of subprime mortgage originations, making an overall growth of nearly 300% from 2001 till 2005, which stays for $173 billion and $665 billion, respectively, as it is shown in Chart 4.

As it comes from the logics of the whole process, it would never be functioning unless investors decided to lend their free funds. If the borrowers were enormously attracted by the favorable conditions of payments and low interest rates, investors were attracted to buy CDOs at ridiculously low premiums comparing to Treasury bonds23. Therefore investors failed by taking the 'AAA' CDO ratings at face value.

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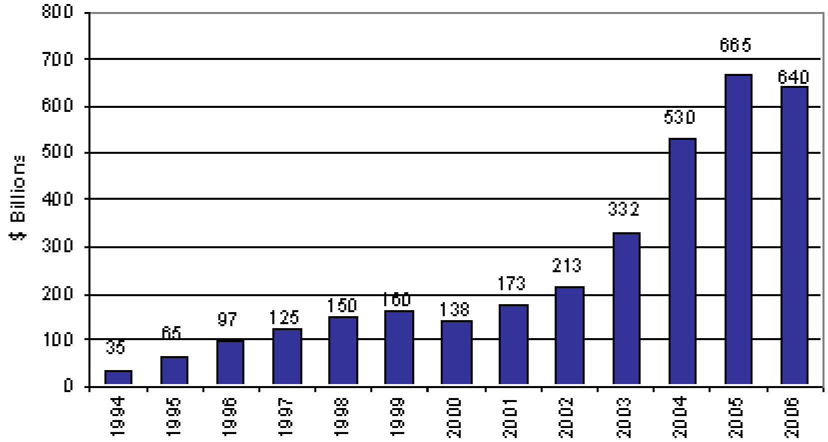
[21] http://news.bbc.co.uk/2/hi/business/7073131.stm
[22] http://www.telegraph.co.uk/news/worldnews/1576851/Subprime-crisis-makes-Cleveland-a-ghost-town.html
[23] http://www.investopedia.com/articles/07/subprime-blame.asp.

**Chart 4**




**Source: Credit Suisse, Hammond Associates Institutional Fund Consultants**

## Credit Rating Agencies

The role and the main reason of blaming the CRAs (the biggest three in the USA are Moody's, S&P and Fitch) in supporting the subprime mortgage crisis is that during the US housing bubble they were in purpose understating the risks the MBSs and CDOs were carrying and that misled the investors while considering of buying the ABSs.

As the main task of CRAs is to evaluate the debt and estimate its rating before an issuer (usually SPVs) will buy it from an arranger (bank) in the public credit market, their fees as the income of a servicing company depends on the sale, which in case of subprime mortgage lending is the price of an asset. Therefore, it is a simple conflict of interests, where CRAs are rather motivated to estimate higher ratings of assets (very often even the best rating of AAA) so that it would be traded for a better price, instead of giving the true value of it to the investors.

After the CRAs frauds have been disclosed, they tried to justify higher credit ratings by various facts, which according to them, did not seem to be encouraging the upcoming crisis, as the last was hidden in credit enhancements and overcollateralization, credit default insurance and creating a great amount of ratings in 2006, which is believed to be the top of the housing boom. Certain rules have been improved in the area of CRAs activities, including increase in transparency of their actions and elimination of potential conflicts of interests. One of the direct regulations was that CRAs had to lower credit ratings of approximately $1.9 trillion MBSs by the end of 2008[24]. However, this regulation has caused side effects, as since the MBSs prices will be set down, financial institutions (banks in particular) will need additional capital to keep the required ratios stable over time.

## 3.3. Role of Borrowers

While talking about the false of lenders in the occurred mortgage crisis, one should not forget that the borrowers themselves played one of the key roles in the whole process, because they were the ones who agreed to buy risky assets. Even though, the primary motive of the majority of borrowers was just to provide themselves with shelters, the circumstances under which they were approving on contracts were clear to most of them to be risky. Just the fact that many of them were buying houses they could barely afford, and in addition purchasing them in non-traditional ways, which included lowered introductory interest rates and minimal initial costs (down payment), only approves that most of them were simply playing a risky game, hoping that house prices would rise in the nearest future and they would be able to refinance their assets at more favorable rates.

As a result of housing bubble burst, the reset of most mortgage rates did not let them refinance their homes at lower rates, because there was no equity created after the housing prices dropped. Their houses had to be reset at a higher rate, which many of them could not afford to pay back and had to undergo foreclosure process.

## 3.4. Role of Central Banks and Governments

The main mistake that central banks have done was that they let the speculative bubble burst again, just like in the case with the I.T. bubble, and only after that reacted in order to minimize collateral damage to the economy. Another reason to support the idea of late interaction is that accepting the right monetary policy would take economists quite a long time to decide on. What made the situation even worse is that the Federal Reserve has decreased interest rates on the subprime mortgage loans by 2003, which caused an abrupt rise in house prices, which people were not able to pay back.

Similar actions were pursued by the governmental authorities. Aiming to increase homeownership by all means, establishing government sponsored enterprises such as Fannie Mae and Freddie Mac to purchase and securitize mortgages only added the fuel to the upcoming fire

[24] http://money.cnn.com/2008/08/04/magazines/fortune/whitney_feature.fortune/index.htm

of the mortgage and soon financial world crisis, next to the actions of the US Department of Housing and Urban Development, allowing local housing authorities to open up more public housing to the sell to the middle class. The only mistake of the investors in this case was expecting that if Fannie Mae and Freddie Mac are threatened to fail, the government will come to their rescue.

# 4 Effects and consequences

## 4.1. Defaults in the Financial Institutions

When the financial sector of one country gets damaged, all economy will get damaged. Subprime mortgage crisis effects were widely spread out to financial sectors not only in the US but also all around the world: on banks, other financial institutions, stock markets and even on most households. Effects of the crisis on financial sector stroke out in the beginning of 2007. The first biggest losses were seen by the world's largest banks, such as HSBC, UBS AG, Citigroup, Merrill Lynch, and Bank of America. HSBC has written down $3.2 billion in the first quarter of 2008. Citigroup had $40.7 billion, UBS $38 billion, Merrill Lynch $31.7 billion, Bank of America $14.9 billion, Morgan Stanley $12.6 billion, Royal Bank of Scotland $12 billion, JP Morgan Chase $9.7 billion, Washington Mutual $8.3 billion, Deutsche Bank $ 7.5 billion[25] credit losses so far.

By August 2008, banks saw around $500 billion loss by the result of crisis as writedowns, credit losses and bankruptcy[26]. According to IMF' April 2008 report $510 billion banks' loss was estimated and about $1 trillion total from all companies[27].

Tables 3 and 4 below show the writedowns of the US banks (first) and foreign banks (next) by the result of the crisis.

As the crisis got deeper and deeper, financial institutions were facing more losses, some of them declared bankruptcy, several banks tried to merge in order to survive and eventually it caused an ongoing (2008-2009) global financial crisis. Several biggest financial institutions shocked the world by their failure in 2008. For instance, Bear Stearns Companies, one of the largest investment banks and securities trading and brokerage firms, was badly hurt by the crisis, collapsed in March 2008 and was sold to JP Morgan Chase. Lehman Brothers Holdings, one of the largest investment banks, financial-services firm went bankrupt with its over $600 billion in

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[25] Source: Bloomberg report and "HSBC in new sub-prime writedown." Monday, 12 May 2008 10:05 UK, BBC News http://news.bbc.co.uk/2/hi/business/7395425.stm

[26] Source: Banks' Subprime Losses Top $500 Billion on Writedowns http://www.bloomberg.com/apps/news?pid=20601087&sid=a8sW0n1Cs1tY&refer=home

[27] Source: IMF Sees Heightened Risks to Global Financial Stability and Urges Comprehensive Action Press Release No. 08/235, October 7, 2008 http://www.imf.org/external/np/sec/pr/2008/pr08235.htm

assets.

**Table 3**

**Write-downs of US Financial Institutions due to Subprime Mortgage Crisis**

| Company | Business type | Loss (in USD billion) |
|---|---|---|
| **Wells Fargo** | Bank | $2.9 bln |
| **Washington Mutual** | savings and loan | $2.4 bln |
| **Wachovia** | Bank | $11.1 bln |
| **Morgan Stanley** | investment bank | $11.5 bln |
| **Merrill Lynch** | investment bank | $29.1 bln |
| **MBIA** | bond insurance | $3.3 bln |
| **Lehman Brothers** | investment bank | $3.93 bln |
| **JP Morgan Chase** | Bank | $5.5 bln |
| **Goldman Sachs** | investment bank | $1.5 bln |
| **Freddie Mac** | mortgage GSE | $4.3 bln |
| **Fannie Mae** | mortgage GSE | $0.896 bln |
| **Countrywide** | mortgage bank | $4.0 bln |
| **Citigroup** | Bank | $39.1 bln |
| **Bear Stearns** | investment bank | $2.6 bln |
| **Bank of America** | Bank | $7.95 bln |
| **Ambac Financial Group** | bond insurance | $3.5 bln |
| **American International Group** | Insurance | $11.1 bln |

**Source: Wikipedia, the free encyclopedia**

**Table 4**

**Write-downs of World Financial Institutions due to Subprime Mortgage Crisis**

| Company | Country | Business type | Loss (in USD billion) |
|---|---|---|---|
| **WestLB** | Germany | Bank | $2.74 bln |
| **UBS AG** | Switzerland | Bank | $37.7 bln |
| **Swiss Re** | Switzerland | re-insurance | $2.04 bln |
| **Société Générale** | France | Bank | $3.0 bln |
| **Royal Bank of Scotland** | United Kingdom | Bank | $15.2 bln |
| **RBC** | Canada | Bank | $1.2 bln |
| **Natixis** | France | Bank | $1.75 bln |
| **Mizuho Financial Group** | Japan | Bank | $5.5 bln |
| **Lloyds TSB** | United Kingdom | bank | $1.32 bln |
| **LBBW** | Germany | bank | $1.1 bln |
| **IKB Deutsche Industriebank** | Germany | bank | $3.45 bln |
| **ICICI Bank** | India | bank | $0.264 bln |
| **ICBC** | China | bank | $0.448 bln |
| **Hypo Real Estate** | Germany | bank | $0.580 bln |
| **HSBC** | United Kingdom | bank | $20.4 bln |
| **HBOS** | United Kingdom | bank | $7.06 bln |
| **Fortis** | Belgium | bank | $2.3 bln |
| **DZ Bank** | Germany | bank | $2.1 bln |

**Source: Wikipedia, the free encyclopedia**

During the crisis so many commercial and investment banks, building societies and insurance companies are either merged with another financial institutions or nationalized by government or liquidated or went bankrupt at all. As examples of acquisitions we can see many American, British, Belgian, Icelandic, Irish financial institutions: in 2008 British Northern Rock retail and mortgage bank, was nationalized by Her Majesty Government(UK government), Catholic Building Society was acquired by Chelsea Building Society, HBOS diversified financial services was acquired by Lloyds TSB at amount $ 21 850 000 000,[28] Alliance & Leicester by Spanish Banco Santander, Derbyshire and Cheshire Building Societies by Nationwide Building Society; American Bear Stearns investment bank and Washington Mutual saving and loan association were acquired by JPMorgan Chase, Countrywide Financial Calabasas subprime mortgage lender and Merrill Lynch investment bank by Bank of America, Lehman Brothers by Barclays plc, American International Group was nationalized by United States Federal Government, part of Lehman Brothers was acquired by Japanese Nomura Holdings; Danish Roskilde Bank was nationalized by Danmarks Nationalbank; Belgian Dexia public finance and retail institution was nationalized by the Belgian, French and Luxemburg governments, Icelandic Landsbanki, Glitnir, Kauphing Banks were acquired by Icelandic Finacial Supervisory Authority; Australian Bank West was acquired by Commonwealth Bank of Australia; Irish Anglo Irish Bank was nationalized by Government of the Republic of Ireland and so on... On October 13, 2008 British Government acquired Royal Bank of Scotland's up to 63% part at the value £20 billion, HBOS bank's up to 43.5% at the value £13 billion and Lloyds TSB's up to 43.5% part at the value £4 billion[29].

And during 2007-2008 tens of financial institutions in US declared bankruptcy and closed. To the list of bankrupted US financial intuitions due to the crisis belong Metropolitan Saving Banks, NetBank, Miami Valley Bank, Douglass National Bank, Hume Bank, ANB Financial, First Integrity Bank, IndyMac Bank, First National Bank of Nevada, First Priority Bank, The Columbian Bank and Trust Company, Integrity Bank, Silver State Bank, Lehman

[28] UK PM had role in massive banking takeover , The Associated Press [September 18, 2008]

[29] Mortgage chiefs snub PM's demand that bailed-out banks give homeowners and businesses a break, By Niall Firth, Paul Waugh and Nicholas Cecil , [13th October 2008], Dailymail.co.uk

Brothers, AmeriBank, Washington Mutual, Main Street Bank, Meridian Bank, Alpha Bank & Trust, Freedom Bank, Security Pacific Bank, The Community Bank, Downey Savings and Loan, PF Bank and Trust, First Georgia Community Bank, Haven Trust Bank, Sanderson State Bank and still going on bankruptcy, not far from today, on 16 January 2009 two more banks, National Bank of Commerce and Bank of Clark County[30] were finished[31].

## 4.2. Effect on Stock Market

Subprime mortgage crisis effect on stock market was also vulnerable. On July 19, 2007 the Dow Jones index set its the record finishing above 14 000 for the first time in the history[32]. In August 15, 2007 the Dow Jones industrial average decreased below 13 000 and S&P 500 dropped even to negative numbers. This crisis made investors panic; they tried to take their money from risky mortgaging investments and put in commodities instead.

In the beginning and mid of 2008 the Dow Jones Industrial Average, NASDAQ, and the S&P 500 indexes declined rapidly. On 15 September 2008, the Dow Jones industrial average (INDU) lost 777.68, the Standard & Poor's 500 (SPX) index lost 8.8%, the NASDAQ composite (COMP) fell by 9.1%. The day's loss was about $1.2 trillion in market value.[33] That day brought Lehman Brothers to bankruptcy and joining Merrill Lynch to Bank of America.

In the beginning of October 2008 Dow Jones Industrial Average fell over 1 874 points or 18%. The S&P 500 fell by more than 20%. The Dow Jones suffered its biggest fall since Black Monday in October 1987[34]. During September-November 2008 almost all world stock exchange indexes declined. In the Chart 5 below we can see the movement of indexes during a year as a snapshot; decline is marked with the red line.

[30] Republic Bank of Chicago Acquires All the Deposits of National Bank of Commerce, Berkeley, IL, [16 January 2009], FDIC: Press Releases

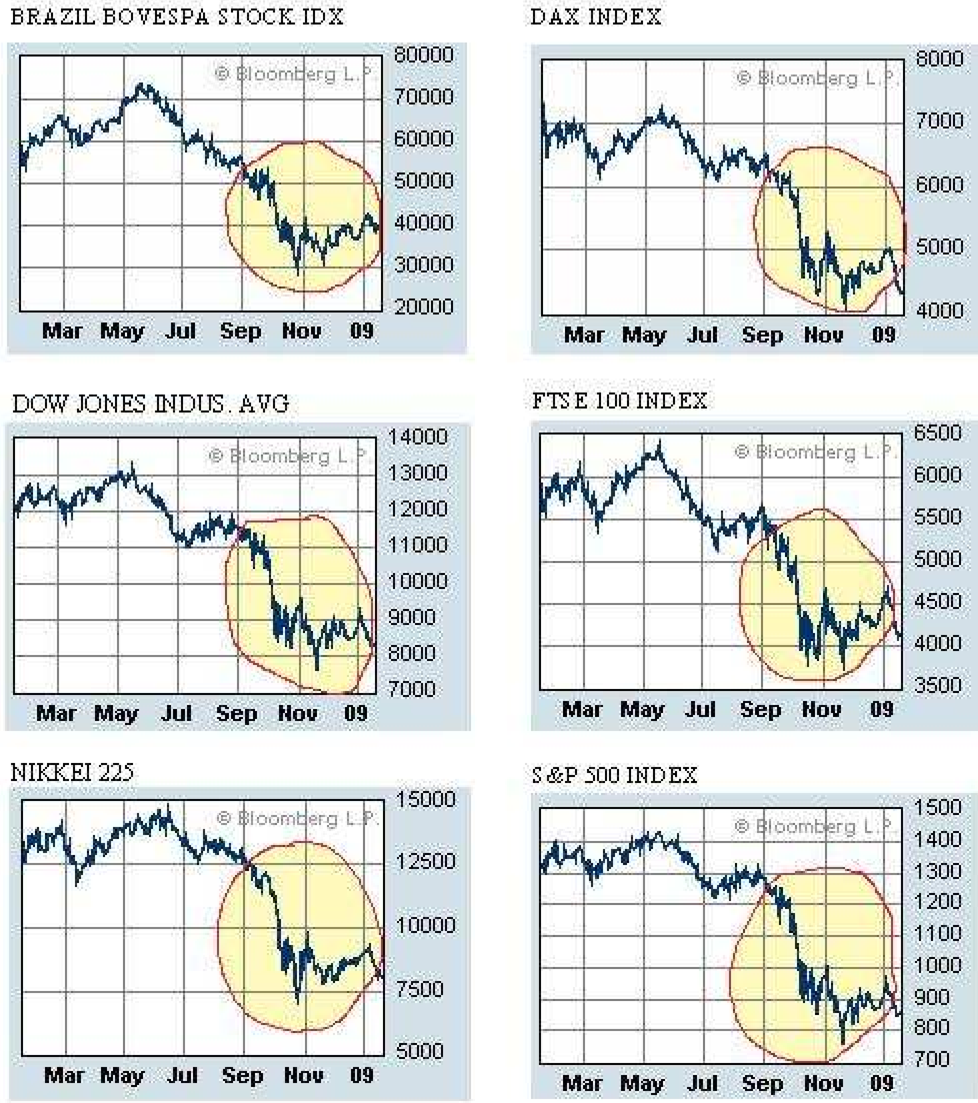
[31] List of acquired or bankrupt banks in the late 2000s financial crisis, from Wikipedia, the free encyclopedia

[32] "Finally! Dow finishes above 14,000" By David Ellis, CNNMoney.com

[33] "Stocks crushed: Approximately $1.2 trillion in market value is gone after the House rejects the $700 billion bank bailout plan". CNNMoney.com
http://money.cnn.com/2008/09/29/markets/markets_newyork/index.htm?cnn=yes

[34] "Financial crisis: US stock markets suffer worst week on record", By Jonathan Sibun
http://www.telegraph.co.uk/finance/financetopics/financialcrisis/3174151/Financial-crisis-US-stock-markets-suffer-worst-week-on-record.html

**Chart 5**




**Source: charts are from Bloomberg.com**

## 4.3. Foreclosure Activities and Effect on Home Owners

In 2007, the crisis brought to push subprime mortgage foreclosures to record levels. As foreclosures rose and price of houses fell, more than 200 mortgage lenders gave up their business[35]. However, even more than investment banks or mortgage lenders, homeowners were damaged.

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[35] Source The Mortgage Lender Implode-o-Meter, http://ml-implode.com

In fact:

- 1 out 33 homeowners is were in foreclosure on their home as a result of their high-cost loan
- 26 percent of all loans made in 2005-2006 were subprime
- 43.5 percent of all homeowners will likely feel the ripple effects of foreclosures from subprime loans
- affected homeowners are expected lose $8,771 on average from property values
- the U.S. is projected to lose $356 billion from its state and local tax base[36]

It had become very easy to take mortgage loan and many people got it without counting if they would able to pay and less than one in ten subprime loans were to first-time homebuyers. As the result of foreclosure, people are forced to leave their home, they lost their money. Middle and modest class of society suffered more. Among states, crisis level was high in the old industrial states and cities as: Ohio, Michigan, Indiana, New York and Pennsylvania. Within people crisis was high on blacks and Latinos who are mostly belong to working class.

Below in the table, there's complete information about projected foreclosures and ripple effects by states. We can see that number of projected foreclosures per homeowners was very high in the states: Nevada, Arizona, California, Colorado, and Maryland. In Nevada every 11th homeowner lost was in foreclosure what is tragic.

Defaults and foreclosure activity increased dramatically as easy initial terms expired, home prices failed to go up as anticipated, and ARM interest rates reset higher. Foreclosures accelerated in the United States in late 2006 and triggered a global financial crisis through 2007 and 2008. During 2007, nearly 1.3 million U.S. housing properties were subject to foreclosure activity, up 79% from 2006[37].

Homeowners were estimated to lose $356 billion, because of troubling foreclosures in home value which approximately equals to 40 million homes[38]. According to Moody's Economy.com's economist Mark Zandi, in 2007 and 2008 about 3.3 million home mortgages may default through all US. The table in the Appendix shows foreclosures estimates in separate states as for 2008.

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[36] Source: www.pewtrust.org

[37] news.egypt.com

[38] States battle mortgage foreclosure threat; see chart, By Stephanie Armour, 7/18/2008 USA TODAY

## 4.4 Effects on Labor Market

Subprime mortgage crisis affected and has been affecting on labor market of USA and world. Companies which had credit losses and writedowns had cut job places at significant amount. Wall Street banks cut 34 000 jobs during second half of 2007 and first quarter of 2008. Job reductions were followed by big banks as Citigroup, Lehman Brothers and Morgan Stanley. Between July and December of 2007, nearly 17 000 jobs were lost. According to Bloomberg.com's report on March of 2008, Citigroup reduced its workforces by 1.7%, Lehman by 18% (before bankruptcy), Morgan Stanley 6.2% and Merrill by 4.5%.

In the following table, reduction of jobs by biggest financial institutions from the beginning of subprime mortgage crisis is shown:

| Firm | Positions Cut |
|---|---|
| **Citigroup** | 6,200 |
| **Lehman Brothers** | 4,990 |
| **Bank of America** | 3,650 |
| **Morgan Stanley** | 2,940 |
| **Washington Mutual** | 2,600 |
| **Merrill Lynch** | 2,220 |
| **HSBC** | 1,650 |
| **Bear Stearns** | 1,550 |
| **WestLB** | 1,530 |
| **UBS** | 1,500 |
| **Goldman Sachs** | 1,500 |
| **National City** | 900 |
| **Credit Suisse** | 820 |
| **Royal Bank of Canada** | 500 |
| **Fortis** | 500 |
| **Wells Fargo** | 500 |
| **Wachovia** | 443 |
| **Deutsche Bank** | 370 |
| **JPMorgan Chase** | 100 |
| **TOTAL** | 34,463 |

**Source: http://www.bloomberg.com/apps/news?pid=20601087&sid=aTARUhP3w5xE&refer=home**

Indeed, job loses were not only at financial sectors, as all businesses have relation with finance everywhere followed job cuts. By the September 2008, in United States number of lost jobs reached up to 65 400 in absolute numbers, causing the unemployment rate to reach the highest level of 6.5% over the last ten years![39]

## 4.5. Effect on World Economy

The crisis has hit the European, Asian as well as the Australian markets. The effect on the European market is nominal. The US Subprime Mortgage crisis has sent ripples all over the world. Here are some few effects of the crisis on foreign countries' economy given below[40]:

Asia:

- The Asian market has witnessed a massive sell off.
- The Nikkei stock average in Japan has decreased by more than 2%.
- South Korea's key index has dropped by 4%.
- The First State Investment has withdrawn its entire share from the Asian financial market.

Europe:

- In the Great Britain, the stock market experts have failed to realize the underlying faults
- In Germany, France and Britain major indexes have fallen down, but by less than 2%.
- The IKB Deutsche Industriebank, a small Bank in Germany, have got a hit by reason of the mortgage crisis.

Australia:

- Australian, German and Thai stock markets have been badly damaged.
- Australia and Hong Kong's benchmark indexes have fallen down by above 3%.
- One of the giant of Australian financial service, Macquarie Bank, has declared that the investors may loose 25% of their money.

Furthermore, as US has leading economy in the world, American companies do their business all around the world and naturally, they are connected to American financial sector. Not only

[39] News.egypt.com
[40] http://www.economywatch.com/us-subprime/effects-banking-sector.html

American, but also foreign companies which do business with US were hurt by the crisis. And significant job reductions at the big companies were occurred throughout the world. Nowadays, here also we can see the companies suffering from the crisis in Czech Republic, mostly companies at automobile industry are suffering and having big losses.

## 4.6. Actions to Manage the Crisis

US government took several actions in USA and around the world to manage the effects of the subprime mortgage crisis. Regulatory actions were held as a reformation the fields of lending practices, bankruptcy protection, tax policies, affordable housing, credit counseling, education, and the licensing and qualifications of lender.

Housing and Economic Recovery Act of 2008 which was signed by President George W. Bush on July 30, 2008 is one of the regulatory responses of US government to address the subprime mortgage crisis. According to the Act, US government strengthens and modernizes the regulation of housing industry and helps at least 400 000 homeowners to prevent them from foreclosure[41]. And the government would reorder all subprime mortgage loaning system, establishes capital standards, set high penalties and officers and directors to keep the discipline. "Housing and Economic Recovery Act of 2008" includes "Federal Regulatory Reform Act of 2008", "HOPE for the Homeowners Act of 2008" and "Foreclosure Prevention Act of 2008". The program is authorized to insure up to $300 billion in mortgages. The program would continue from October 1, 2008 till September 30, 2011.

As the central subject at financial sector of US, Federal Reserve took number of actions to manage the crisis and to put monetary system on order. First actions of Fed were to increase liquidity in short-term money markets[42]. The Federal Open Market Committee lowered federal funds rate to 4-3/4 percent during September 2007 – April 2008.[43] The Federal Reserve on March 7, 2008 announced two initiatives to address heightened liquidity pressures in term funding markets and amount in the Term Auction Facility (TAF) was increased to $100 billion.[44]

The Fed also helped JPMorgan to buy Bear Stearns with providing funds and guarantees.

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[41]Summary of the "Housing and Economic Recovery Act of 2008"
http://banking.senate.gov/public/_files/HousingandEconomicRecoveryActSummary.pdf

[42] Chairman Ben S. Bernanke , At the Economic Club of New York, New York, New York, October 15, 2007
http://federalreserve.gov/newsevents/speech/bernanke20071015a.htm

[43] http://www.federalreserve.gov/newsevents/press/monetary/20070918a.htm

[44] http://www.federalreserve.gov/newsevents/press/monetary/20080307a.htm

In July 2008, the Fed finalized new rules that apply to mortgage lenders. Fed Chairman Ben Bernanke stated that the rules "prohibit lenders from making higher-priced loans without due regard for consumers' ability to make the scheduled payments and require lenders to verify the income and assets on which they rely when making the credit decision. Also, for higher-priced loans, lenders now will be required to establish escrow accounts so that property taxes and insurance costs will be included in consumers' regular monthly payments...Other measures address the coercion of appraisers, servicer practices, and other issues. We believe the new rules will help to restore confidence in the mortgage market."[45]

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[45] Testimony, Chairman Ben S. Bernanke: Semiannual Monetary Policy Report to the Congress ,Before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate. July 15, 2008
http://www.federalreserve.gov/newsevents/testimony/bernanke20080715a.htm
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# 5 Conclusion

The USA subprime mortgage crisis which takes its roots about a decade ago, but happened to burst out in the year 2007, seems to follow a classic scenario of a speculative bubble. Persuading the borrowers, that they were offered a great opportunity of gaining homeownership taking subprime mortgage loans, lenders in the face of well developed financial institutions, were hiding the great danger that subprime mortgagors, most probable, would not be able to pay their debt back Competition in the area created even more sophisticated and flexible products, which attracted more and more borrowers to undertake the risk, especially when any existing barriers of entering the subprime lending market have been maximum removed. A problem could have been detected long before the crisis and there have been clear signals, which began appearing in the beginning of year 2000, that something was going wrong, however too many participants were interested in "playing the game" as long as the US housing bubble still had area for enlargement.

The consequences have been painful. The forced liquidation of around $3 trillion in private structured assets destructively affected financial markets in both the US and world economies. The banking system, which has been badly struck by bankruptcy of such giant banks as Lehman Brothers, Washington Mutual, NetBank, IndyMac Bank and many others, can not survive and restore alone without proper governmental regulations. The European Central Bank cash assistance to other banking institutions counts up to €193.67 billion in overall tree rescue operations, while the Central Bank of Japan has provided a support of €3.6 billion. Meanwhile, borrowers have not been less affected, expecting today from three to four million families to lose their homes due to foreclosures, estimating home value loss of about $356 billion, which approximately equals to 40 million homes. And again the process of resetting subprime lending interest rates to the market level will cause damaging of even more homeowners, as the program became valid just recently, since December 2008, and has not fully detected all the homeowners whose paying ability will not make them undergo the foreclosure procedure. In that case, deeply investigating house pricing indicators, many believe that the bottom of the US housing market probably lies 2009.

Summarizing all the consequences of the US subprime mortgage crisis in the national and worldwide aspects, it would be hard to argue against a 2005 statement in The Economist magazine, which claimed: "The worldwide rise in house prices is the biggest bubble in history."

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# Appendix: Foreclosure Estimates for the USA 2008

| State | Total Estimated Number of Foreclosures, December 2007 | Projected Foreclosures and Ripple Effects (Primarily 2008-2009) | | | Projected Foreclosures Per Homeowner (Primarily 2008-2009) | |
|---|---|---|---|---|---|---|
| | | Estimated Foreclosures From Subprime Loans 2005-2006 | No. of Neighboring Homes Experiencing Devaluation | Decrease in House Value/Tax Base from Foreclosure Effect (millions) | Owner-occupied housing units, 2006 | Number of Projected Foreclosures to Homeowners |
| Alabama | 23,013 | 21,330 | 209,052 | $406 | 1,289,272 | 1 out of 60 |
| Alaska | 1,135 | 3,831 | 47,404 | $190 | 148,249 | 1 out of 39 |
| Arizona | 38,048 | 85,726 | 1,201,327 | $8,687 | 1,523,041 | 1 out of 18 |
| Arkansas | 8,452 | 11,734 | 71,351 | $131 | 753,412 | 1 out of 64 |
| California | 228,133 | 355,682 | 7,505,584 | $107,196 | 7,102,197 | 1 out of 20 |
| Colorado | 32,040 | 49,923 | 748,652 | $3,183 | 1,269,421 | 1 out of 25 |
| Connecticut | 13,808 | 18,847 | 441,018 | $2,039 | 921,382 | 1 out of 49 |
| Delaware | 5,274 | 5,551 | 90,615 | $390 | 238,194 | 1 out of 43 |
| District of Columbia | 1,966 | 4,190 | 223,797 | $4,287 | 114,586 | 1 out of 27 |
| Florida | 186,093 | 194,796 | 3,667,230 | $35,856 | 4,994,101 | 1 out of 26 |
| Georgia | 67,126 | 83,686 | 630,218 | $1,817 | 2,285,179 | 1 out of 27 |
| Hawaii | 3,204 | 8,832 | 167,942 | $4,160 | 257,599 | 1 out of 29 |
| Idaho | 4,288 | 10,035 | 97,029 | $304 | 390,982 | 1 out of 39 |
| Illinois | 69,251 | 87,918 | 2,536,938 | $27,297 | 3,301,367 | 1 out of 38 |
| Indiana | 49,069 | 48,034 | 544,991 | $959 | 1,756,328 | 1 out of 37 |
| Iowa | 10,800 | 11,190 | 178,166 | $344 | 885,969 | 1 out of 79 |
| Kansas | 9,682 | 14,347 | 200,403 | $382 | 761,022 | 1 out of 53 |
| Kentucky | 17,241 | 21,153 | 249,727 | $498 | 1,167,081 | 1 out of 55 |
| Louisiana | 19,621 | 26,306 | 400,306 | $1,032 | 1,071,667 | 1 out of 41 |
| Maine | 5,064 | 6,597 | 42,127 | $134 | 399,076 | 1 out of 60 |
| Maryland | 27,491 | 55,693 | 1,220,574 | $12,133 | 1,450,411 | 1 out of 26 |
| Massachusetts | 26,787 | 32,976 | 1,013,548 | $7,992 | 1,588,359 | 1 out of 48 |
| Michigan | 91,081 | 79,893 | 1,414,411 | $3,798 | 2,908,273 | 1 out of 36 |
| Minnesota | 31,359 | 38,991 | 545,773 | $2,254 | 1,558,206 | 1 out of 40 |
| Mississippi | 13,502 | 15,439 | 77,449 | $144 | 760,318 | 1 out of 49 |
| Missouri | 27,366 | 42,727 | 705,446 | $1,792 | 1,628,838 | 1 out of 38 |
| Montana | 2,117 | 3,225 | 16,790 | $42 | 260,137 | 1 out of 81 |
| Nebraska | 5,504 | 7,390 | 132,896 | $250 | 475,899 | 1 out of 64 |
| Nevada | 28,783 | 51,881 | 557,286 | $6,537 | 580,705 | 1 out of 11 |
| New Hampshire | 6,599 | 7,422 | 57,628 | $203 | 363,652 | 1 out of 49 |
| New Jersey | 40,074 | 57,083 | 1,781,424 | $19,573 | 2,110,308 | 1 out of 37 |
| New Mexico | 4,959 | 9,093 | 151,430 | $513 | 505,915 | 1 out of 56 |
| New York | 61,978 | 124,601 | 3,552,642 | $65,136 | 3,940,942 | 1 out of 32 |
| North Carolina | 37,062 | 53,254 | 332,375 | $861 | 2,350,798 | 1 out of 44 |
| North Dakota | 891 | 1,103 | 23,761 | $51 | 181,666 | 1 out of 165 |
| Ohio | 91,188 | 85,618 | 1,392,990 | $2,850 | 3,150,239 | 1 out of 37 |
| Oklahoma | 14,727 | 20,157 | 256,261 | $427 | 950,407 | 1 out of 47 |
| Oregon | 8,578 | 27,827 | 466,877 | $2,549 | 939,123 | 1 out of 34 |
| Pennsylvania | 52,069 | 76,055 | 1,684,475 | $6,582 | 3,475,105 | 1 out of 46 |
| Rhode Island | 5,530 | 8,170 | 244,424 | $1,713 | 255,495 | 1 out of 31 |
| South Carolina | 21,797 | 27,996 | 179,309 | $477 | 1,165,464 | 1 out of 42 |
| South Dakota | 1,564 | 1,860 | 18,982 | $38 | 216,212 | 1 out of 116 |
| Tennessee | 31,020 | 46,218 | 441,703 | $967 | 1,660,152 | 1 out of 36 |
| Texas | 99,495 | 149,661 | 2,283,390 | $4,923 | 5,291,045 | 1 out of 35 |
| Utah | 7,025 | 23,286 | 310,442 | $1,317 | 585,929 | 1 out of 25 |
| Vermont | 1,344 | 2,122 | 6,460 | $22 | 182,389 | 1 out of 86 |
| Virginia | 30,372 | 62,174 | 1,035,979 | $6,953 | 2,030,284 | 1 out of 33 |
| Washington | 16,847 | 42,036 | 846,526 | $4,893 | 1,620,052 | 1 out of 39 |
| West Virginia | 4,002 | 6,218 | 40,886 | $80 | 554,791 | 1 out of 89 |
| Wisconsin | 21,049 | 26,334 | 557,251 | $1,900 | 1,571,129 | 1 out of 60 |
| Wyoming | 964 | 2,246 | 18,630 | $46 | 144,117 | 1 out of 64 |
| US Total/average | 1,606,430 | 2,258,457 | 40,621,895 | $356,310 | 75,086,485 | 1 out of 33 |

**SOURCE: Foreclosure estimates from Pew Center on the States 2008, based on Mortgage Bankers Association, National Delinquency Survey (March 2008), Center for Responsible Lending, Subprime Spillover (Revised January 31, 2008), http://www.responsiblelending.org/issues/mortgage/research/subprime-spillover.html (accessed February 14, 2007)**