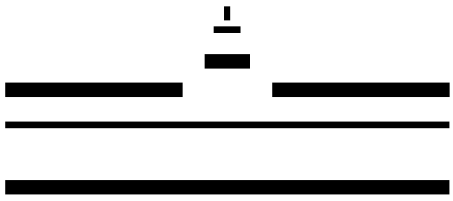

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Is the Subprime Crisis Unique?

Historical Comparison of the Subprime Crisis

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submitted September 2008
at the Institute of Political Science

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Introduction

The current subprime crisis is the fourth financial crisis in only ten years large enough to catch the eye of the global public. Unsurprisingly, the high frequency of crises arouses questions about possible flaws in the architecture of international finance, even among its architects. Horst Köhler, former managing director of the IMF, now calls the financial markets "a monster that has to be tamed"[1].

The sequence of financial crises after widespread liberalization of the financial market during the 1980s and the negligence that financial institutions often displayed in these crises questions the wisdom of deregulation. Previously fierce advocates of free market and opponents of state intervention like Chancellor Angela Merkel and Dr. Josef Ackermann, chairman of Deutsche Bank, urge for more regulation.[2]

However, do the root causes of the subprime crisis and its recent predecessors in the New Economy 2001 and Asia 1997 really lie with the basic architecture of the financial markets, namely a lack of regulation and supervision?

Is the subprime crisis only "New Wine in Old Bottles"[3] and once again "The Same Old Story"[4] as papers on the subject imply or does this crisis have distinctly different and unique features?

To explore this, I will compare the subprime crisis to a number of recent crises. These will on the one hand be the Asia crisis of 1997 and the burst of the dot.com bubble in 2001 because of their temporal proximity and on the other hand the Japanese crisis of 1990 and the US savings and loan crisis of the 1980s because of their supposed similarity. I decided against earlier crises like the Great Depression since they took place in an entirely different legal, social and economic environment which deems any comparison to be mostly arbitrary. Instead, all compared crises are from the so-called "Recent Period" starting in 1973 as defined by ALLEN & GALE (2007b)[5].

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[1] Stern (2008)
[2] Münchner Merkur (2008) and Frankfurter Allgemeine Sonntagszeitung (2008)
[3] Lim (2008)
[4] Bordo (2007)
[5] Allen & Gale (2007b), p. 3

I will first give an overview of the theoretical background on financial crises in general. Then, I will examine the subprime crisis in detail, by first scrutinizing the causes that led to the bubble and then looking at what burst the bubble and which transmission mechanisms allowed the crisis to unfold.

I am aware that the term "cause" is inappropriate in this regard as it is often impossible to construct clear chains of causation for financial crises. FURMAN & STIGLITZ (1998) point out accurately that in the context of financial crises there are merely factors that increase vulnerability or fragility rather than "causes" in the actual sense.

In a next step, the causes and transmission mechanisms of the four mentioned financial crises will also be examined and each will be shortly compared with the subprime crisis.

Finally, I will provide a conclusion of the comparisons and try to answer the question whether and in what regards the subprime crisis is unique to its predecessors.

Theories of Financial Crisis

The phenomenon of financial crises is hardly new. Studies by LAEVEN & VALENCIA (2008) who list 124 systemic banking crises since 1970, and REINHART & ROGOFF (2008) who describe hundreds of financial crises for the last 800 years show that crises are a rather regular occurrence in market economies.

However, in the neoclassical models of mainstream economics, crises are traditionally seen as the product of distortions of the market equilibrium, preferably by state interventions or regulation. As BLANCHARD & WATSON (1982) put it, bubbles and crises "present economists and econometricians with many questions to which they may have little to say"[6]. Therefore the subject of financial crises was mostly left to economic historians and only in recent years has research on the financial crises intensified.

[6] Blanchard & Watson (1982), p. 3

Types of financial crises

There is no canonical categorization for financial crises[7] but an evident and generally accepted classification is according to the affected areas of economy. Thus, I identify:

a) **Currency crisis:** Strong and sudden devaluation of the currency and losses in currency reserves.[8]
b) **Banking crisis** (also known as "trust crisis" or "financial panic"): Essentially a bank run, meaning that short-term loans are suddenly called in, even from solvent borrowers. "Banks are caught between the illiquidity of their assets (loans) and the liquidity of their liabilities (deposits)"[9] and a liquidity squeeze emerges. In the event of a system-wide panic, lending may cease altogether.[10]
c) **Stock market crisis:** PATEL & SARKAR (1998) "define a stock market crash as an event when the regional price index declines, relative to the historical maximum, more than 20 per cent for the developed markets, and more than 35 per cent for the emerging markets."[11]
d) **Asset bubble:** Strong deviations from price fundamentals, mostly due to either irrational crowd behavior, induced by irrational information processing or rational crowd behavior based on a flawed "model of the fundamental structure of the economy"[12].

A financial crisis rarely consists of only one of the types introduced above. Often, one triggers another, as in the twin crisis model by KAMINSKY & REINHART (1999) where currency and banking crisis are intertwined.

Typical sequence of a crisis

KINDLEBERGER (2005) and ALLEN & GALE (1999) argue that all crises follow roughly the same three-phase-pattern, which is described concisely by Allen & Gale:

> "The first phase starts with financial liberalization, with a conscious decision by the central bank to increase lending, or with some other similar event. The resulting expansion in credit is accompanied by an increase in the prices of assets such

[7] See Radelet & Sachs (1998), p. 3-4; Bussiére & Fratzscher (2002), p. 9
[8] Frankel & Rose (1995), p. 352-353
[9] Allen & Gale (2007b), p. 6
[10] Diamond & Dybvig (1983)
[11] Patel & Sarkar (1998), p. 51
[12] White (2006), p. 8

> as real estate and publicly traded stocks. This rise in prices continues for some time, possibly several years, as the bubble inflates.
> During the second phase the bubble bursts and asset prices collapse, often in a short period of time such as a few days or months, but sometimes over a longer period.
> The third phase is characterized by the default of many firms and other agents that have borrowed to buy assets at inflated prices. Banking and/or foreign-exchange crises may follow this wave of defaults. The difficulties associated with the defaults and banking and foreign-exchange crises often cause problems in the real sector of the economy which can last for a number of years."[13]

Approaches to explain financial crises

ALLEN & GALE (2007b) provide an extensive overview of the different models and theories developed on the topic of financial crises. With no intention to become overly technical, I will only outline the basic concepts of most important approaches.

Minsky's "financial instability hypothesis"

This approach offers an explanation for the instability of capitalist financial systems without exogenous shocks. Minsky distinguishes three types of finance: hedge finance, speculative finance and Ponzi finance. In hedge finance schemes, the operating income is large enough to pay for both the interest and a schedules reduction in indebtedness. Speculative finance labels companies whose anticipated operating income covers interest, but to reduce their actual debt they have to take on new loans, "rolling over" their debt. Finally, companies in the category of Ponzi finance can pay neither interest nor debt reduction from their operating income and are thus force to sell assets or take on new loans.

Minsky proposes that an economic slowdown (as part of the business cycle) and the resulting reduction in operating incomes moves companies down from hedge finance to speculative finance and from speculative finance to Ponzi finance, condemning them to illiquidity as soon as conditions for new loans deteriorate. However, "over a protracted period of good times, capitalist economies tend to move to a financial structure in which there is a large weight to units engaged in speculative and Ponzi finance"[14], because in these "good

[13] Allen & Gale (1999), p. 11-12
[14] Minsky (1992), p. 9

times" refinance interest rates are low and operating incomes are high. Accordingly, he proves that capitalist financial systems can become unstable without exogenous shocks.

Information asymmetry in financial markets

MISHKIN (1990) uses the extensive literature on asymmetric information to show how information asymmetry between lenders and borrowers can cause financial crises. Uncertainty about the quality of lenders can, via the mechanism of adverse selection, heavily reduce the total amount of loans issued. On the other hand, uncertainty about the reliability of borrowers can cause a bank run. As institutions like collateral for loans and rating agencies are generally thought to diminish the influence of information asymmetry, the mechanisms of information asymmetry can merely reinforce a crisis. The subprime crisis is probably the most obvious example for this, as a complete loss in trust in rating agencies and massive uncertainty on anyone's creditworthiness completely shut down inter-bank lending.

Moral hazard of government guarantees

A thesis that became most visible when it was used by KRUGMAN (1998) and MCKINNON & PHIL (1999) to explain the Asian crisis of 1997 is that explicit government guarantees to domestic banks and indirect guarantees by banks being "too big to fail"[15] effectively incite financial institutions to act riskier as they would not have to bear the full consequences of their policies negative results. While this argument is often used in discussions about whether to save failing banks and companies during the phase of crisis resolution, it usually constitutes only a secondary factor in crisis build-up.[16]

Risk-shifting and the agency problem

Another approach is outlined by ALLEN & GALE (2000), based on previous work by JENSEN & MECKLING (1976) and STIGLITZ & WEISS (1981), which transfers the principal-agent problem to the lender-borrower relationship. They show that investors using borrowed funds act riskier, especially when the value of their own portfolio is lower than possible losses from their investment. If the borrower's investment is profitable, the lender re-

[15] Chang (2000), p. 776
[16] Allen & Gale (2001), p. 6

trieves his capital and gains a fixed interest rate, while the borrower's gains the more the riskier his investment was. In the case of the investment going bad, the borrower can simply declare bankruptcy and thus only has to pay a minor part of the losses with the remaining part hitting the lender as a defaulted loan. Hence, the risk is shifted to the lender.

Given that the first phase of financial crises usually contains substantial credit expansion, risk-taking will also expand according to the logic pointed out above.

Additionally, the resulting higher risk tolerance may also constitute a driving force behind the inflation of asset and stock market bubbles.

Subprime Crisis

Overview of the causes[17]

Collateralization and securitization

Traditionally, banks granted loans and kept them on their books, thus the credit risk was taken on by the very same institution that decided whether a loan was extended. However, in the 1980s, the collapse of the Bretton Woods system which had imposed strict regulation on financial derivates allowed the new "originate & distribute" system to emerge in the USA.[18] Now, the bank that grants a loan, the "originator", repacks the debt obligations according to risk in "Collaterized Debt Obligations" (CDOs) and sells them to other financial institutions. These institutions may repack its CDOs again and sell them on. This spreading of risk is known as "securitization" and is actually thought to reduce the possibility of a crisis.[19]

[17] For more detailed accounts see Lim (2008) and Brunnermeier (2008)
[18] Tavakoli (2003), p. 6
[19] Murray (2001)

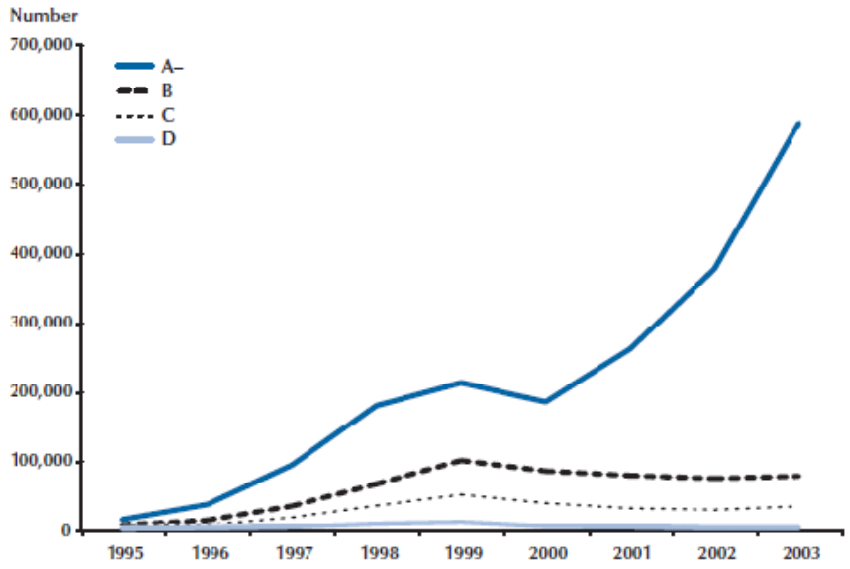

Fig. 1: Number of loans originated by grade (Source: Chomsisengphet & Pennington-Cross (2006))

Moral hazard in securitization

There is an underlying moral hazard in securitization as the loan-granting institution does not suffer the consequences of loans going bad. This process, called "risk-shifting", can cause lending standards to deteriorate as it is an incentive for investors to act riskier.[20] This effect was reinforced by the fact that the credit-issuing institutions now did not draw their profits from the actual credit business but rather from CDO sales.[21] As could be expected, lending increased on massive scale and originators eventually also moved strongly into the subprime mortgage market (see fig. 1).

Entering the subprime mortgage market and the US housing bubble

Against the backdrop of almost seventy years of quite constant growth in real estate prices (see fig. 2) real estate seemed a safe business. Additionally, the collapse of the New Economy redirected money that had been used to speculate in technology stocks into real estate, which was further driven by low short-term interest rates which the US Federal Reserve's used to smooth the economic aftermath of the internet bubble.

[20] Allen & Gale (2007), S. 237
[21] Bernanke (2007)

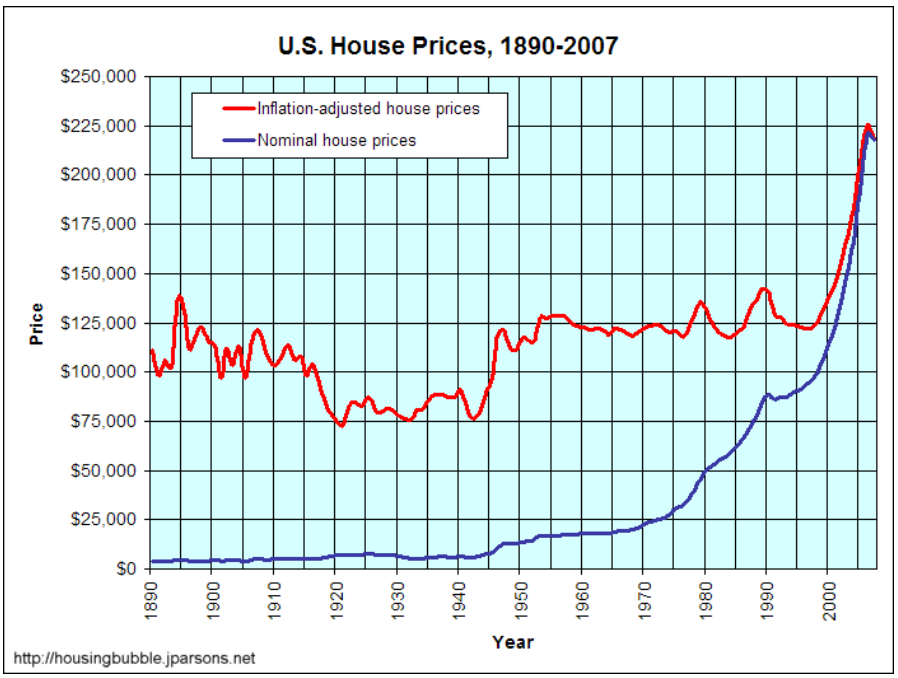

Fig. 2: Nominal and inflation-adjusted house prices in the USA, 1890-2007 (based on Shiller (2005))

With real estate booming, even NINJA loans (i.e. loans to people with "No Income, No Job (and no) Assets") were extended to increase the volume of tradable CDOs. "All these mortgages were granted under the premise that house prices could only rise, making any background check unnecessary since the lender could always refinance using the value of the house."[22] Mortgage-lending and real estate prices thus started to interact in an autocatalysis, further inflating the US housing bubble.

CDO trade, SPVs and maturity mismatch

Meanwhile, trade in CDOs and related products thrived (see fig. 3) and created a credit bubble.

The banks set up special-purpose vehicles (SPVs), preferably in tax havens, which did not have to comply with the strict Basel II rules on capital charges for banks. These SPVs bought the banks' long-term credit obligations and financed themselves by issuing short-term commercial papers. As a convenient side effect, they moved the loans off the bank's balance sheets and out of the regulator's sight.

[22] Brunnermeier (2008), p. 8

The maturity mismatch resulting from the SPVs' financing structure forces them to roll over their short-term debt constantly and renders them extremely vulnerable to liquidity squeezes. Additionally, to give their SPVs access to favorable short-term funding, their associated banks signed guarantees, hence exposing themselves to the same risks.[23]

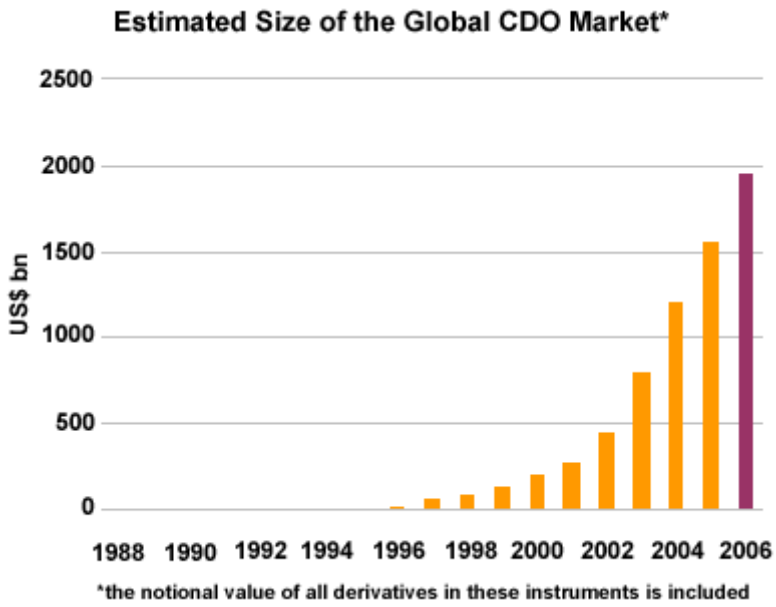

Fig. 3: Estimated Size of the Global CDO Market (Source: Celent (2005))

Rating agencies

As CDOs and their derivatives were repacked again and again, they became increasingly intransparent. Therefore, banks had to rely heavily on the instruments' ratings by the rating agencies. However, those were not as reliable as expected:

> "While a AAA-rated bond might have a zero default risk or might have just made it into the AAA-rated group, tranches were always sliced in such a way that they just made the AAA rating. Indeed, issuers of CDOs worked very closely in conjunction with rating agencies to determine the 'tranching attachment points' of the tranches."[24]

Further, the rating agencies' models seem to have been flawed.[25] Shortly after the crisis hit, Moody's found an "an error in its computer coding"[26], modeling risk for early CDOs too low. Also, the models assessed a housing market bust as extremely unlikely after almost seventy years of constant growth,

[23] Spaventa (2007), p. 50
[24] Brunnermeier (2008), p. 6
[25] Brunnermeier (2008), p. 6
[26] Davies et al. (2008)

Bursting the bubble and transmission mechanisms

The credit bubble created by the thriving trade in essentially overrated CDOs began to burst in mid-2007, when default in subprime mortgages became more significant and the first CDOs were downgraded by the rating agencies. As a consequence, not only trust in CDOs began to sink, but investors lost confidence in the rating of structured finance in general. Unfortunately, this includes the asset-backed commercial papers which the SPVs used to refinance themselves. As asset-backed securities and similar instruments were also used in repo-financing, their deterioration in value eventually caused a liquidity squeeze. Financial institutions incurred losses as they had to roll over their debt but were unable to refinance at favorable conditions. News about several struggling SPVs (beginning with Bear Stearns) further lowered inter-bank trust and eventually led to a classic banking run.

At the same time, the US housing bubble began to burst when growth in home sales turned negative.[27] House prices plummeted all over the US, rendering the collateral for subprime mortgages worthless. Consequently, an increasing number of subprime borrowers defaulted and the real estate market was flooded with supply as the banks tried to liquidate the collateral to their loans. This inevitably led to even more pressure on the real estate market and further worsened the situation.

As the financial market is essentially global, the liquidity squeeze due to the loss in inter-bank-trust affected banks all around the world. Additionally, financial institutions world-wide had participated in CDO trade and thus were hit by their loss in value.

Significant features

Summarizing the above, following significant features become apparent as causes for the subprime crisis:

a) risk-shifting ("originate and distribute") and the associated loosening of lending standards
b) maturity mismatch in SPVs, leading to strong vulnerability to liquidity shortages
c) deficits in risk management (internal and rating agencies)

[27] Brunnermeier (2008), p. 8

d) active circumvention of financial regulation (SPVs, 'tranching on target')
e) simultaneous housing bubble and credit bubble

Transmission mechanisms that amplified the crisis were:

a) trust crisis, drying up inter-bank lending and repo-finance
b) guarantees for SPVs that transmitted their losses to their mother banks

New Economy Crash 2001

In the late 1990s, the rise of telecommunications, especially the internet, opened up entirely new business opportunities and caused a gold rush-like euphoria among investors.[28] Countless start-ups sought to exploit the new market with more or less convincing business models. The start-up philosophy was "Get Big Fast", which emphasized growth and the gain of market shares over profits, based on the theory of network effects and first mover advantage.[29]

Overview of the causes

Start-ups following the "Get Big Fast"-approach needed a lot of capital in an early phase to secure market shares. Since most of the time, their only asset was their business plan, this money was provided by venture capitalists who benefited from the US Federal Reserve's easy money policy after the Asia Crisis and the LTCM debacle.

IPOs and "price pops"

It was initially thought that after a few years of competition, with a sufficiently large market share, some of these start-ups would become profitable. However, it was soon discovered that there was much more money to be made in the "price pops"[30] of these companies' shares on their first day, week or month of public trading.

[28] Howcroft (2001)
[29] Goldfarb et al. (2006), pp. 9
[30] Kindleberger (2005), p. 160

So, although hardly any of these companies ever became profitable, a huge stock market bubble developed based on speculation in technology-related stocks.

> "The United States seemed to have its own perpetual motion machine, one designed to enrich the fortunes of hundreds of thousands of families.
> The larger the price pop on the first day of trading, the greater the number of investors that were attracted to IPOs. The stronger the demand for IPOs, the larger the number of venture capitalists that were willing to back the entrepreneurs. The more capital the entrepreneurs were willing to put into play, the larger the number of entrepreneurs that would seek their fortunes by breaking away from the established firms."[31]

Actors' motivations

KINDLEBERGER (2005) argues that this bubble evolved because it was beneficial to all involved actors:

> "entrepreneurs were attracted to the immense wealth they might earn with a successful innovation, the VCs were attracted to the large profits they could gain by identifying the entrepreneurs that were likely to be successful, and the investment bankers wanted the fees from bringing a large number of forms to the public."

VALLIERE & PETERSON (2004) add that venture capitalists are especially prone to speculative hypes since it is part of their business model to create such hype, although usually not on market-wide scale.

Another category of actors, financial analysts, were not only swept along by the bubble euphoria but may have deliberately heated up the market due to a conflict of interest arising from their employers investments in dot com stocks.[32]

Generally, the typical psychology of bubble economics could be witnessed in the internet bubble: Extraordinary gains in the technology market attracted more investors, driving prices and thus profits even further up. However, due to the belief that the internet and related technologies would bring about a new economic era, there was little concern that the apparent changes in stock market behavior might constitute a bubble.[33]

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[31] Kindleberger (2005), p. 160
[32] Liu & Song (2001)
[33] Greenspan (1998)

Bursting the bubble and transmission mechanisms

At the dawn of the new century, it became increasingly apparent that most of the traded companies would never be profitable and euphoria ebbed away.[34] Capital flow into the bubble was also reduced because the Federal Reserve adapted a more contractive monetary policy in 1999/2000.

Subsequently, NASDAQ stock market values declined by 80 percent and investors that did not retreat in time faced heavy losses. However, bank failures and larger macroeconomic distortions held off as the Federal Reserve came to the market's aid with lower interest rates and liquidity injections.

Comparison to the subprime crisis

The New Economy bubble seems like a typical example for Hyman Minsky's "endogenous instability"[35] of financial markets.

However, when compared to the subprime crisis, it is striking that both are based on speculative bubbles that were induced by financial innovations which were thought to defy conventional wisdom. In the New Economy, information technology was the innovation that not only promised large profits but seemed to revolutionize the rules of the stock market, thus rendering fears of a bubble obsolete. Similarly, in the build-up of the subprime crisis, collateralization and securitization, although not new, were discovered as profitable financial innovations that supposedly revolutionized the system of lending and averted the danger of systemic crises.

Another interesting similarity is that in both cases, gains did not depend on the profitability of the actual investment, internet start-ups and real estate mortgages, but were realized in derived activities, IPO price pops and CDO trade, drastically reducing the attention given to the fundamental objects of investment.

[34] Goldfarb et al. (2006), p. 2
[35] Schnyder (2002), p. 70

Asia Crisis 1997

Until 1997, the South East Asian "tigers" (Indonesia, Malaysia, the Philippines, and Thailand) and "dragons" (Hong Kong, Singapore, South Korea, and Taiwan) were seen as models for successful economic development. With growth rates up to 8-12 percent and continuous growth since the 1970s, they coined the term "emerging markets".

> "Until the [1997] crisis, Asia attracted almost half of total capital inflows to developing countries—nearly $100 billion in 1996. In [1987-1997], the share of developing and emerging market economies of Asia in world exports has almost doubled to almost one fifth of the total."[36]

Overview of the causes[37]

Two explanatory approaches emerged from the scientific debate following the Asian Crisis: One, most prominently represented by RADELET & SACHS (1998), proposes that the crisis was caused by a typical self-fulfilling financial panic among domestic and international investors and amplified by the unsound debt structures that financial liberalization had permitted, which I will elaborate on later.

The other hypothesis, argued for by CORSETTI ET AL. (1999) among others, identifies weaknesses in the Asian economies like lax lending standards, crony capitalism, strong governmental influence in the economy, skills shortages etc. as the main reason for the crisis.

However, since evidence for the second hypothesis as the main factor is weak,[38] I will present the causes of the Asian crisis from the perspective of the first hypothesis.

Financial liberalization

Vast financial liberalization in the decade before the crisis in all involved countries allowed direct and unrestricted interaction with international capital markets[39] but without the development of adequate regulation and supervision.[40]

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[36] Fischer (1998), p. 167
[37] For more detailed accounts, see Wade (1998) or Kaminsky & Schmukler (1999) among many others
[38] Furman & Stiglitz (1998)
[39] Weisbrot (2007), pp. 2-3
[40] Furman & Stiglitz (1998), p. 4

> "High profits for those with access to much cheaper foreign credit was the chief reason firms and banks, both national and international, pressured governments to undertake financial deregulation, their pressure converging with that of the IMF and the World Bank."[41]

Capital inflow and asset bubbles

Their unprecedented economic development caused investors to direct their capital flows towards the Asian tigers and dragons, and due to expansionary monetary policy but low growth in Europe and Japan in the early 1990s, there was "excess liquidity in the world system at large"[42] Possible doubts about their economies robustness were dispelled by affirmative IMF reviews[43] and Korea's recent accession to the OECD. Additionally, macroeconomic indicators did not show typical signs of an oncoming crisis.[44] A massive capital push into South East and East Asia ensued, mostly in the shape of carry trades, meaning that investors borrowed yen and dollars and bought short-term papers in Asia.[45] Further, "[t]he deregulated financial systems enabled inexperienced private domestic banks and firms to take out large, dollar-denominated loans from foreign lenders and on-lend with generous spreads"[46], exposing themselves to the additional danger of exchange rate changes.

As a consequence of the strong capital inflow, prices for real estate and other nontradables soared and the stock markets boomed, attracting even more investments and eventually creating asset bubbles of different kinds in almost all concerned countries.[47]

Debt and the currency and maturity mismatch

One particularity of the affected Asian countries is a high savings rate, which in turn means high domestic debt. After financial liberalization, domestic lending extended and lending standards deteriorated, partly due to measures to avoid regulatory requirements, such as the formation of consumer finance companies in Thailand.[48]

[41] Wade (1998), p. 1539
[42] Wade (1998), p. 1539
[43] International Monetary Fund (1997)
[44] Furman & Stiglitz (1998), p. 7
[45] Fischer (1998), p. 168
[46] Wade (1998), p. 1539
[47] Kindleberger (2005), p. 156
[48] Kindleberger (2005), p. 157

By the behavior of Asian companies and foreign investors described above, foreign debt had risen dramatically.[49] However, "the ability to repay the short-term foreign-currency-denominated debt was largely tied to the long-term performance of the nontraded sector: a situation of serious currency and maturity mismatch"[50].

Bursting the bubble and transmission mechanisms

The Thai baht was pegged to the US dollar and its exchange rate had remained practically unaltered for about 13 years. When said consumer finance companies in Thailand reported large losses from bad loans, a capital flight took its course, draining Thailand's central bank of foreign currency reserves. Weakened in such manner, the baht depreciated in early July 1997, instigating panic and causing even more investors to withdraw their capital.

Massive capital flight sent stock markets, real estate prices and currencies into free fall.

Given the maturity mismatch in the Asian debt structure, the inability to refinance themselves doomed many investors to bankruptcy. The currency mismatch of Asian debt increased the effective cost of debt service as domestic currencies depreciated.

An interesting aspect of this panic is stressed by FERRI ET AL. (1999) who argue that rating agencies worsened the crisis by adjusting their ratings too late and excessively conservatively. Prohibitively low ratings then obstructed the solution of the liquidity squeeze.

Comparison to the subprime crisis

The Asian crisis of 1997 and the subprime crisis of 2007/2008 differ fundamentally at first glance. The Asian crisis clearly reminds of a typical twin crisis with a currency crisis inducing a banking crisis, while the subprime crisis was caused by a credit bubble.

Both crises incorporate asset bubbles fuelled by credit expansion and share the condition of lax lending standards that ultimately led to a trust and liquidity crisis. However, the reason for the credit expansion in Asia prior to 1997 was an excess of money in the international financial system and the motivation to profit from the "East Asian Miracle". Here, similarities to the "originate & distribute" credit model that is at the core of the subprime crisis can only be found at very abstract levels.

[49] Asian Development Bank (2003)
[50] Furman & Stiglitz (1998), p. 24

Of course, in both cases the credits' maturity mismatch made the crisis inevitable once the miraculous growth of the "tigers and dragons" and the real estate and CDO markets slowed. But since this maturity mismatch is a basic feature of all banks' business model, this is hardly surprising.

Summing up, the crises share only few parallels apart from features found in every financial crisis. However, both share the root cause of low lending standards.

Japanese Asset Bubble 1990

Liberalization of the financial markets and a monetary policy with low interest rates, aimed at supporting the US dollar, fuelled spectacular growth in asset and stock markets. "For example, the Nikkei 225 index was around 10,000 in 1985. On December 19, 1989 it reached a peak of 38,916."[51] This bubble burst in 1990 when a new governor of the Japanese central bank increased interest rates to tighten monetary policy. The afterglow of the crash lasted more than ten years with growth rates for Japan fluctuating around 0 percent, bestowing the 1990s in Japan with the nickname "lost decade" and ending the era of stunning economic growth that Japan experience after World War II.

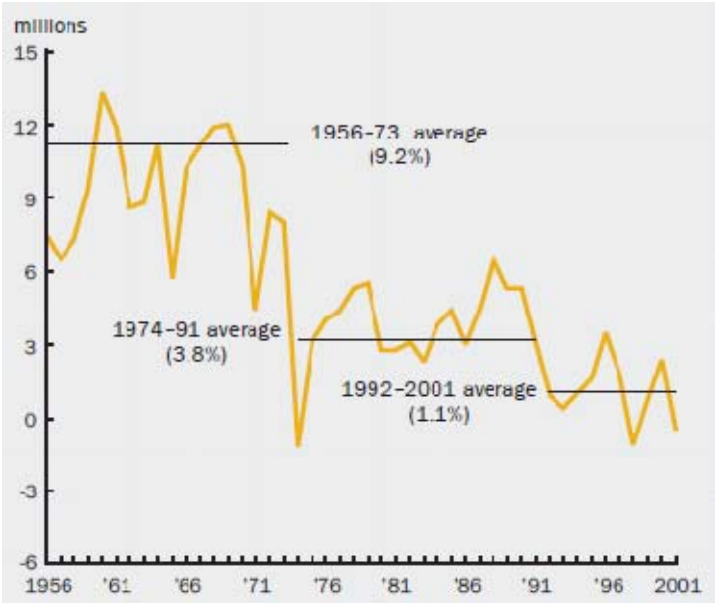

Fig. 4: Japanese GDP growth 1956-2001 (Source: Kashyap (2002))

[51] Allen & Gale (2000), p. 237

Overview of the causes[52]

Aggressive lending behavior

A slow process of financial deregulation had begun in the early 1980s, gradually opening alternative sources of financing for companies and decreasing the profitability of traditional credit business. Japan's banks responded with aggressive lending behavior, defending their market share by partially giving up their loans profitability and moving strongly into property loans and property-backed loans. Therefore, the capital base of Japanese banks increased strongly. For example, in the time from September 1988 to September 1989, the capital base rose from ¥ 35 trillion to ¥ 46 trillion.[53] This delivered the credit expansion that is typically the starting point for financial bubbles. However, a side effect was the erosion of the banks internal reserves and thus their ability to withstand financial shocks.[54]

Monetary easing

In order to comply with its pledges from the Plaza and Louvre Agreements and to prevent a deflation due to the appreciating yen, "the Bank of Japan lowered the official discount rate to 2.5% [in February 1987] and kept it at that level until May 1989. This excessively loose monetary policy drastically increased financial liquidity, stimulating a rapid increase in the price of land and stocks."[55] While this loose monetary policy cannot explain the Japanese asset bubble on its own, the resulting growth in money supply of about 10 percent per year[56] was definitely an important factor in pushing credit expansion and fostering speculation.

Stock market speculation

As a reaction to a slump in prices of government bonds in 1979, a number of new rules concerning accounting and tax benefits were introduced. Among them was a procedure which allowed companies to save income taxes by buying securities with *boka bunri,* "cash

[52] see Okina et al. (2001) for a thorough examination of the crisis
[53] Okina et al. (2001), p. 412
[54] Shiratsuka (2003), p. 7
[55] Kamikawa (2003), p. 1-2
[56] Miller (1996)

in trust"[57], which made corporate investment funds increasingly popular. As only 30 percent of all stocks were publicly traded due to Japan's corporate culture, the strong capital influx from the corporate investment funds quickly turned the stock market into a speculative market. Adding the element of moral hazard by government guarantees, a series of government interventions in 1987 "made the markets believe that the Ministry of Finance never would let stock prices drop"[58], resolving possible doubts about a possible stock market crash and thence sending stock prices soaring even higher.

Real estate speculation

MILLER (1996) identifies the following factors in the creation of the real estate bubble:

a) General economic growth and especially growth in the financial business owing to financial liberalization in the early 1980s increased real estate demand, especially in the area of Tokyo, where Japan's financial activities are concentrated and where land supply is extremely limited.
b) Loose monetary policy and the bank's aggressive lending behavior mentioned above stimulated economic growth, reinforcing a), and lowered the costs of mortgage loans, pushing demand for real estate.
c) Japanese rules on income and inheritance tax rendered real estate an attractive save haven for capital. Additionally, as taxes on holding real estate were remarkably that on real estate transactions, the incentive by rising real estate prices was to hold land if you already owned some, further limiting the supply in real estate.[59]

YOSHITOMI (1998)[60] introduces the idea that excess liquidity was not primarily caused by the central bank's monetary easing but rather in the run-up in real estate prices. As real estate rose in value, it could in turn be used as security for larger credits which, if invested in assets, further drove up real estate prices. Effectively, liabilities and assets shot up in a spiral.

[57] Kamikawa (2003), p. 5
[58] Kamikawa (2003), p. 6-7
[59] Okina et al. (2001), p. 416
[60] quoted via Kamikawa (2003) as Yoshitomi (1998) is only available in Japanese

"Japanese self-confidence"

In retrospective, it is evident that rising prices in asset and stock markets in the late 1980s in Japan constitute financial bubbles. However, at the time, it appeared as a natural development. Japan had

> "achieved the impossible: it was sustaining full employment, low inflation, high economic growth, a large trade surplus, and enormous rises in property and share values. No wonder the market was euphoric; it was difficult at this time to find a measure of economic performance that counseled caution – other than the sense that this sort of condition was too good to be true."[61]

Japan had become a major global financial actor, overseas financial institutions were flocking to open offices in Tokyo, Japan was the world's leading technology manufacturers and Japanese-style management was seen as the most successful in the world. Thence, OKINA ET AL. (2001) propose the factor "Japanese self-confidence" as the main reason that no suspicion arose about the long-term performance of the markets.

SHIRATSUKA (2003) notes that a proper risk assessment was obstructed by the possibility of a structural change in the economy, as Japan's macroeconomic performance indicated it might have entered a phase of "new economy" which defied previous risk models.

Bursting the bubble and transmission mechanisms

In 1989, the new governor of the Bank of Japan was afraid that excessively high home prices would "erode social harmony"[62] and issued a regulation that limited the rate of growth of their real estate loans to be no higher growth rate of their total loans. As the income from rents was usually too low to cover interest payments on investor's real estate loans, they needed new loans to roll over their debts to prevent monthly losses. However, the new central bank regulation on real estate loan growth made it impossible for real estate investors to roll over their debt, so instead they had to sell assets, eventually driving down real estate and stock prices. "Stock prices declined by 30 percent in 1990 and an additional 30 percent in 1991."[63]

[61] Miller (1996)
[62] Kindleberger (2005), p. 153
[63] Kindelberger (2005), p.154

Falling real estate prices drastically reduced the banks' capital and caused them to become more careful in their lending decisions. Another factor was the contractive monetary policy that the new head of the central bank implemented to prevent inflation and to support the US dollar. The credit expansion came to a halt when money became more expensive.

The declining value of Japanese stocks and a booming US stock market also redirected capital flows from Japan to the US.

Private households increased their savings rate to compensate for their losses by the burst of the bubble, reducing consumer spending and thus darkening economic forecasts. Euphoria and "Intensified Bullish Expectations"[64] had ended. The bubble had burst.

Interestingly, though many banks had a negative net value with their liabilities outweighing their loans market value and a large number even went bankrupt, no bank run took place. Although there is no formal deposit insurance, Japanese depositors firmly believed in the logic of "too big to fail". Nonetheless, the Japanese financial system had been remarkably weakened and cautious lending behavior prevented a recapitalization of the country's economy.

Comparison to the subprime crisis

The fact that the Japanese Asset bubble was foremost a real estate bubble is a first sign of similarity. Indeed, the aggressive lending behavior of Japanese banks trying to secure market shares offers parallels to the extension of subprime mortgages, which were also driven by the motivation to increase the total credit volume. However, while banks in the subprime mortgage business achieved high gains by selling their CDOs (at least initially), Japanese banks were actually sacrificing their profits to issue more loans. Also, in both cases, the rise in real estate prices seemed to be a process based on healthy growth and not on speculation. As in the other crises, caution was tossed aside by the belief in a fundamental change that was brought about by financial innovations like sophisticated CDOs in 2007/2008 and the factors on which "Japanese self-confidence" was based.

In both cases, the real estate bubble was based on kinds of Ponzi finance that multiplied the effect when the inflow of capital stopped. Whether the liquidity squeeze that ultimately weakened the Japanese financial system for a decade will also have long-term effects on the

[64] Okina et al. (2001)

financial institutions affected by the subprime crisis is to be doubted. In 2008, central banks and governments relatively quickly injected liquidity into the market and lowered central bank interest rates, while in the Japanese case, the blame for the devastating effect on the banking sector is mostly put on the retarded reaction by the bank of Japan.

In the big picture, the Japanese experience offers parallels to the subprime crisis being a real estate bubble that caused a banking crisis, but in detail, both the inflation of the bubble and the mechanisms that spread the crisis differ.

Savings and Loan Crisis 1980s

The American savings and loans associations constituted a parallel banking system separate to that of commercial banks. Since the late 19th century, these institutions were involved in traditional and conservative mortgage-loan businesses. They were constricted by tough regulations and effectively delivered a public service by supporting the creation of housing.

However, in the 1980s, deregulation and a whole series of unfortunate rescue attempts first initiated rapid growth of the S&L industry and ultimately led to the bankruptcy of about 1,600 banks and savings and loans associations.

Overview of the causes[65]

Ill-conceived deregulation

Unusually high general interest rates in the early 1980s shifted many S&L associations close to insolvency when they had to roll over their debts at high interest rates while their income from debt service stayed low due to the fixed interest rates on loans that had been issued years before. In the deregulatory spirit of the 1980s, S&L associations were allowed to use favorable accounting practices, capital requirements were lowered and they were instituted with the power to invest in assets beyond housing. As state and federal regulation offices fought over members to pay their salaries, they engaged in a competition of laxity, further loosening regulation.

[65] see Federal Deposit Insurance Corporation (1997) for a more detailed account of the crisis

Moral hazard of deposit insurance

One of the measures to aid the struggling S&L institutions was to lift the deposit insurance per account from $ 40,000 to $ 100,000. As was shown before, government guarantees induce moral hazard as they shift the risk of losses (partially) from the financial institution to the taxpayer. The same phenomenon could also be perceived in the S&L debacle, encouraging risky investment behavior.[66]

Capital inflow and credit expansion

The new policies regarding the S&L associations allowed them to pay competitively higher interest on deposits, thence attracting amounts of capital that were huge compared to the previous size of their business.[67] Another pull factor were the new asset powers that allowed S&L associations to engage in all kinds of lending activities but without the corresponding regulation that commercial banks had to fulfill for the same investments. Given these preconditions, some of the associations started off an aggressive expansion and others were newly founded entirely for the purpose of exploiting this gap in regulations. "By 1986, only 56 percent of total assets at savings and loan associations were in mortgage loans, compared with 78 percent in 1981"[68] S&L associations' total assets increased by 56 percent from 1982 to 1985, twice as fast as the assets of savings and commercial banks.

One interesting fact is that especially rapidly growing S&L associations used repurchase agreements to raise capital. With these repurchase agreements, an S&L institution sells its mortgages or mortgage-backed securities to investment banks, pledging to repurchase them later at a higher price. Essentially, these were the predecessors of the subprime crises' CDOs.

Risky investments and fuelling a bubble

In order to pay their depositors' high interest rates, S&L associations had to invest in higher-yielding and riskier operations. In many regions, they invested in the very sectors that were experiencing speculative bubbles, like agriculture or real estate. CASE & STRUNK

[66] Cole et al. (1995)
[67] Federal Deposit Insurance Corporation (1997), p. 178
[68] Federal Deposit Insurance Corporation (1997), p. 179

(1988) emphasize that especially construction lending was "based on the overly optimistic assumption that property values would continue to rise"[69].

In some cases, there was even fraud, related criminal activities and variations of nepotism.[70]

Bursting the bubble and transmission mechanisms

Although in some regions like Texas or California asset bubbles emerged, the savings and loans crisis has to be seen foremost as a credit bubble. After the collapse of a large savings & loans association in 1984 due to an excess of defaulted loans, regulators were finally able to limit the growth of savings and loans associations by introducing net worth requirements. This slowed asset growth, but it was only after the terrible financial conditions of the "zombie S&Ls" became generally known and they lost access to favorable interest rates that these institutions collapsed or were bought to prevent a systemic crisis.

Comparison to the subprime crisis

Although the S&L crisis was contained in size and area, far from a full-blown international financial crisis like the subprime crisis, similarities cannot be denied.

In both cases, banks moved into risky asset investments, fully aware of the risks, to finance rapid expansion. Caution was lessened by the factor of moral hazard, via securitization in the subprime crisis and by deposit insurance for the savings and loans associations. In both episodes alike, lending standards deteriorated under the pressure to exploit more and higher-yielding investment opportunities.

The most interesting parallel is probably the kinship of the 1980s' "repurchase agreements" on mortgages and mortgage-backed securities and 21st century "collateralized debt obligations". Both were used to raise funds to invest in the very assets that they were based on, multiplying possible losses in these markets.

It is most surprising that although the blame for the savings and loan crisis was almost exclusively put on US regulators, they did not react when a very similar development took place in the market they are supervising twenty years later.

[69] Case & Strunk (1988), p. 101
[70] Glasberg & Skidmore (1998)

Conclusion of the comparisons: Is the Subprime Crisis unique?

Having identified the subprime crisis' significant features and compared those to four major financial crises of the past 20 years, the answer to the question of the subprime crisis' uniqueness is differentiated.

In its basic structure, the subprime crisis follows the same pattern of more or less all financial crises. In all examined crises, credit expansions fuelled asset bubbles whose burst then induced banking crises (except for the New Economy bubble which was finance by venture capitalists).

In most crises, financial regulation failed or was successfully evaded. In the coevolution of financial regulation and the financial sector, it is a matter of interpretation whether one stresses new means to avoid regulation as idiosyncratic or acknowledges the general pattern and sees the evasion of regulation as a common trait.

In detail, the current crisis offers some true innovations: while the basic idea of CDOs was already around in the 1980s, it is probably the first time that there was a securities bubble based on a real estate bubble. This multiplies the economic damage of the basic bubbles' burst, but roughly similar structures were also evident in the Japanese asset bubble, where overvalued real estate was used as collateral for real estate loans.

The severity of the crisis thus cannot be attributed to a truly unique structural feature but much rather to financial globalization and the risk-spreading by securitization.

In sum, the answer to the question "Is the Subprime Crisis unique?" has to be no. While there are innovations and peculiarities, it is in many ways a typical financial crisis and offers a lot of parallels to its predecessors.

What may be unique is the possible initiation of a global financial supervisory organization, but this remains to be seen. And even then, from what has been laid out in this paper, it is highly unlikely that such an organization will be able to prevent future crises.

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