

Prologue: Chronology of a Crisis

1.1 The subprime turmoil included all ingredients of a severe financial markets crisis

Every financial crisis has its own character, whether regarding the trigger event, the course of the crisis, or the impact on the financial system as a whole. There is no textbook-like financial crisis, although there are some similarities among market crises we have experienced thus far. We will discuss some interesting cases later. We now focus on the US subprime crisis, a near-perfect example of a financial market crises, as it includes all necessary features like excessive lending, excessive risk taking, excessive ignorance (regarding the sensitivities of structured investments), and excessive leverage. These are the basic ingredients of asset price inflation, which will, in general, end up in an asset price bubble. The bursting of the bubble is what we call a financial crisis. However, it is just the logical consequence of the preceding events. From a purely academic perspective, the market shake-out following a burst of a bubble is simply the adjustment towards a new equilibrium in the market. This adjustment is not a smooth one; it can be rather characterized as a jump process.

In this chapter we follow the chronology of the US subprime crisis, pointing out the major milestones and the step-by-step development from a housing market correction, initially limited to the United States, to a full-fledged liquidity and confidence crisis. It is a perfect example for studying first, second, and third-round effects, spillover mechanisms, and contagion also of financial market segments which are not linked to the US housing market at first glance. To highlight the course of the crisis, we depict the level of the iTraxx Crossover index. This synthetic index is based on Credit Default Swaps of 50 European High Yield and Crossover names and therefore reflects the most risky part of the European credit universe. This is reflected in a pretty high volatility of the index, which means that this index is a very good indicator for the systematic credit risk premium discounted even in the global credit market. In addition, the iTraxx universe is the most liquid segment in global credit markets. The Crossover was the preferred hedging tool at this time for many investors. It was used to eliminate directional risks in ABS books, to immunize complex

structured credit books against spread swings, or simply to hedge plain-vanilla financial floater books.

This turned out to be a problematic idea for many market participants, as the Crossover developed a life of its own during the crisis, partly showing a decoupling from other credit-risky instruments. The problem for many investors was that their investment book (including, for example, cash credits) remained under pressure, because the Crossover tightened strongly after the record wides we have seen during the summer, while cash credits widened further. This means that many investors got hit twice: on their long cash positions and on their short hedge positions, aggravating the situation even further.

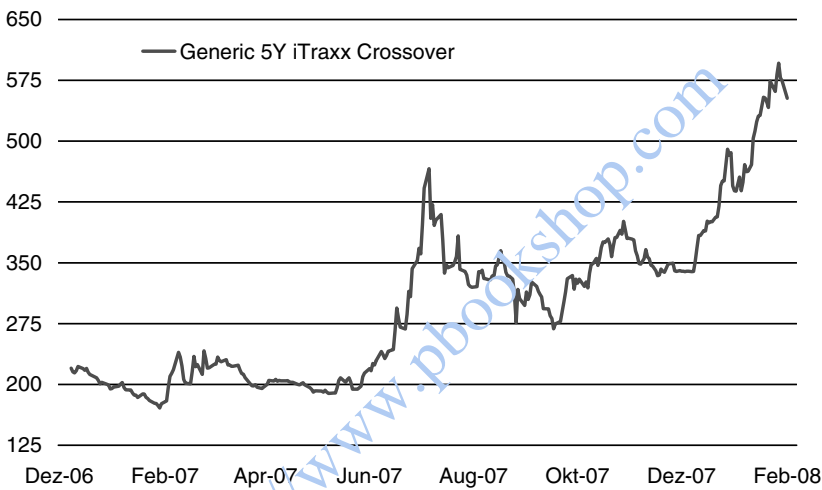


Fig. 1.1: The generic 5Y iTraxx Crossover during the crisis

1.2 An exemplary credit crisis

As stated before, we recognize some similarities among all crises we have experienced thus far. This is true for the whole spectrum of financial crises. In this section we introduce the prototype of a crisis which provides us with a template for all credit crises we discuss later in this book. It allows us to compare and contrast all historical crisis scenarios. The subprime turmoil exhibits many criteria of a typical credit crisis, for example.

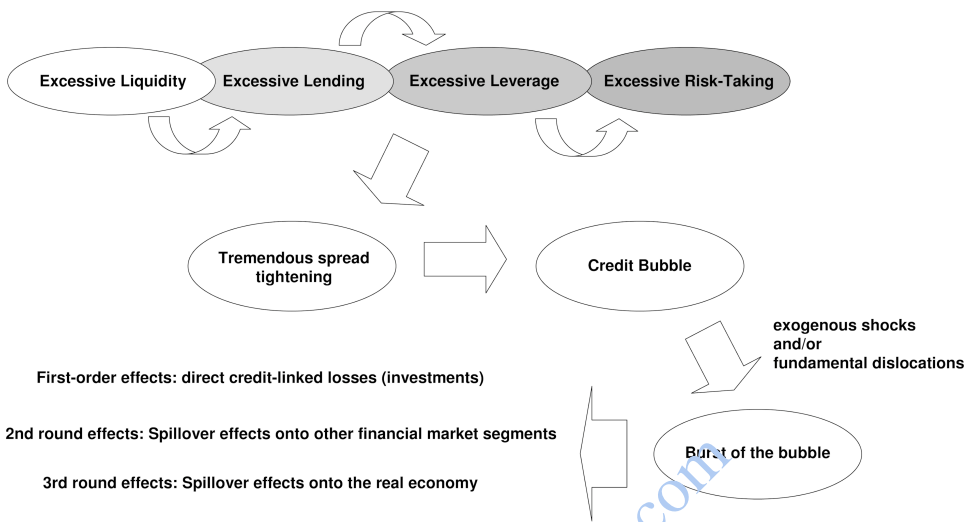


Fig. 1.2: An exemplary credit crisis: the basic template

The starting point of a credit crisis is generally a kind of “Goldilocks scenario”, which is characterized by overwhelming liquidity (not only on the investor side but also for companies), by low default (and high recovery) rates, and by subdued risk aversion among credit investors. Everything looks perfect; long carry positions on credit instruments seem to be the only appropriate strategy given the ongoing spread income (even if this is low) accompanied by the positive roll-down (pull-to-par) effect, which is – in general – even more attractive in more leveraged products like CDOs. In such a case, credit spreads tend to undershoot fundamentally fair levels (later on we analyze the credit cycle in more detail), taking longer-term cyclical aspects like the cyclical behavior of default rates into account. This scenario is accompanied by an expansive monetary policy, by excessive lending (e.g., reflected in lending standards of banks), and excessive risk taking (rising leverage in investment books; trend towards lower qualities). Asset price inflation in the form of very tight credit spreads, for example the creation of a credit bubble, are the consequence. Slowly removing the air from the bubble is, unfortunately, wishful thinking (of monetary authorities) rather than a realistic scenario. In many cases an exogenous shock, or simply the occurrence of a fundamental dislocation, triggers a repricing in the market, reflecting the search for a new equilibrium which is based on new fundamentals. This is what bubble theorists define as the burst of the bubble.

The bursting of the bubble does not hit the broad credit market at the same amplitude in many cases but often starts triggering a significant repricing (spread widening) in specific segments. All the losses directly linked to these segments are called first-round or first-order effects, also including all the losses in directly linked derivatives contracts. The more important this specific segment for the real economy is, the higher the risk of so-called second or third-round effects.

While there is no unique definition of these effects in the academic literature, we define spillover effects from a specific segment onto other parts of the financial market as second-round (order) effects, and spillover effects onto the real economy as third-round effects. Such effects occur in any case, although we often do not “feel” them, as they are negligible. The crucial question is not whether these effects appear, but only how severe they are. The markets broadly ignore a decline in consumer spending (third-round effects) of 0.1% following a credit crisis that causes tighter standards of banks in the consumer lending business (second-round effects), while a drop of 1% would be seen as a significant threat for the real economy.

From a purely academic perspective (and we do not ignore the fact that many experts would strongly disagree), the bursting of a bubble is actually only the “special case of an adjustment path towards a new equilibrium in a normal credit cycle”. The stronger the deviation from a fundamentally fair value in credit markets, the more pronounced the readjustment towards a new equilibrium. Based on the definition of credit crisis we introduced above, a crisis can be seen as a rather normal phase in a credit cycle. The most important conclusion of this theory is that it will happen again and again, and it will happen in a periodical manner, as credit crises are nothing else but cyclical events.

In the following chronological description of the US subprime crisis, the above-mentioned effects are becoming obvious. This example also highlights that transmission effects from credit markets onto the real economy can be very heterogeneous!

1.3 The chronology of a crisis – The US subprime crisis

1.3.1 What has happened so far? Prelude to the subprime turmoil

Subprime mortgage lending volumes have increased enormously since the 1990s, with the total subprime volume outstanding in 2007 estimated at USD 1.3 tn. Subprime lending became more and more popular, reflected in the fact that the subprime market volumes originated in 2005 and 2006 amounted to 20-25% of the US housing market. In mid-2007, around 6 mn US subprime borrowers could not meet their obligations. Subprime borrowers speculated on significant house price growth, using specific subprime loan features like 2/28 adjustable-rate mortgage (ARM) loans. In 2/28s, the borrowing costs remain fixed for two years at a rather moderate level. After two years the interest payment will be adjusted to a floating rate. The name of the subprime game was simply to purchase a fully-financed house and to sell it within two years at a higher price. Unfortunately, this only works if house prices are rising, although the situation gets uncomfortable if interest rates also rise significantly. From the perspective of the banks, the innovative power of the structured credit and securitization business allowed banks to originate more risk as they would have originated without these new instruments. Simply spoken, Collateralized Debt Obligations (CDOs) and US subprime Residential Mortgage- Backed Securities (RMBS) issues have been used as funding tools. A majority of subprime loans generated by banks have been transferred to non-bank portfolio managers. Hence, the banks acted as an intermediary rather than taking these risks on their own books.

In 2007, some trends in the US housing market materialized that negatively affected particularly the subprime segment and impacted all subprime-linked instruments. The declining housing price growth in the United States was accompanied by rising interest rates, stretched borrower affordability, low underwriting standards, and lax risk-control standards. About 20% of the subprime mortgages originated during 2005 and 2006 are expected to end in foreclosure, while declining housing price growth leads to lower-than-expected recovery for foreclosed properties (higher expected loss given default). US subprime RMBS tranches have been structured into CDOs, which have been purchased by institutions and funds worldwide.

1.3.2 End of 2006: First signs

Following a decade of tremendous prosperity in the US housing market, the market slowed down. In addition, we saw two years of steady increases in the Fed Funds target rate (from 1% to 5.25%) in H2 2006 which increased refinancing cost on the ARM loans. The pressure on the housing market is also reflected in rising delinquency rates on subprime loans, which increases to 13% from 10% seen in 2004 and 2005, leading to a flood of bankruptcies at subprime lenders. Spreads of Collateralized Debt Obligations (repackaged bonds and loans which included subprime mortgage debt) widened significantly in December 2006 and in January 2007. There are initial worries by investors that the problems of some small subprime mortgage originators could spill over to some of the bigger mainstream players. Nevertheless, the 5Y iTraxx Crossover index stands at 219 bp as of December 12, 2006, the tightest level since the inception of the index in June 2004.

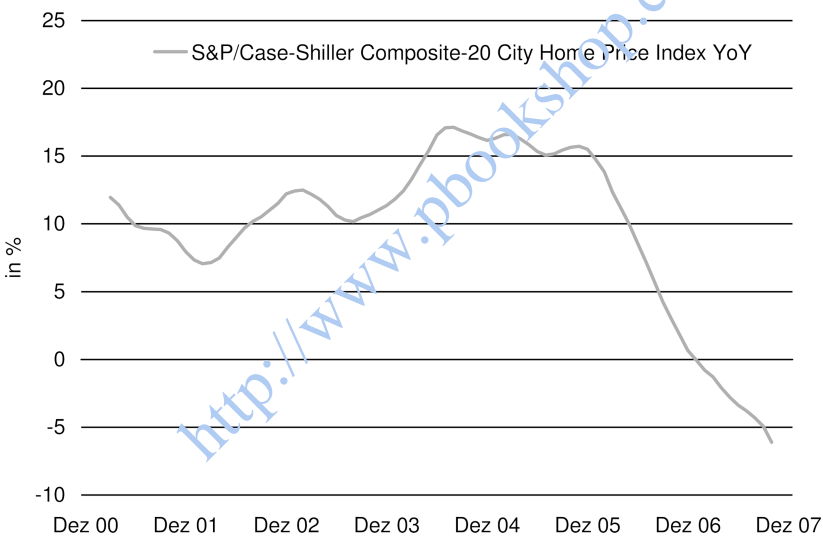


Fig. 1.3: US housing price index – back to the 1980s

1.3.3 February 2007: Microfundamentals get affected

The United States' third largest subprime lender, the California-based New Century Financial Corporation, states that it expects a loss in Q4 2006. HSBC

says that more funds will have to cover bad debts in US subprime lending portfolios, while spreads of sub-investment grade tranches of home equity CDOs widen by more than 200 bp within only two days. On February 27, Chinese stock markets tumble and shares of US securities decline significantly. The least creditworthy borrowers experience trouble repaying their loans due to rising interest rates and falling housing prices. Consequently, the risk inherent in low-rated subprime mortgage bonds jumps to a record high for an eighth consecutive day. At the end of February, the iTraxx Crossover widens towards 210 bp, which is 40 bp wider than the absolute low we saw on February 22, when the index traded down to 170 bp.

A closer look at the underlying markets shows that the worst is not behind us at this time; the opposite is true from a fundamental perspective. US subprime RMBS pools include 75-80% ARM loans, while distressed subprime borrowers most likely fail their credit obligation at the loan reset date (interest shock). Default events are most likely at future reset dates, as the ARM portion is significantly higher in the newest vintages. The chart below points out that ARM resets in the subprime universe will peak in Q1 2008, almost one year after the first significant losses hit subprime-linked instruments.

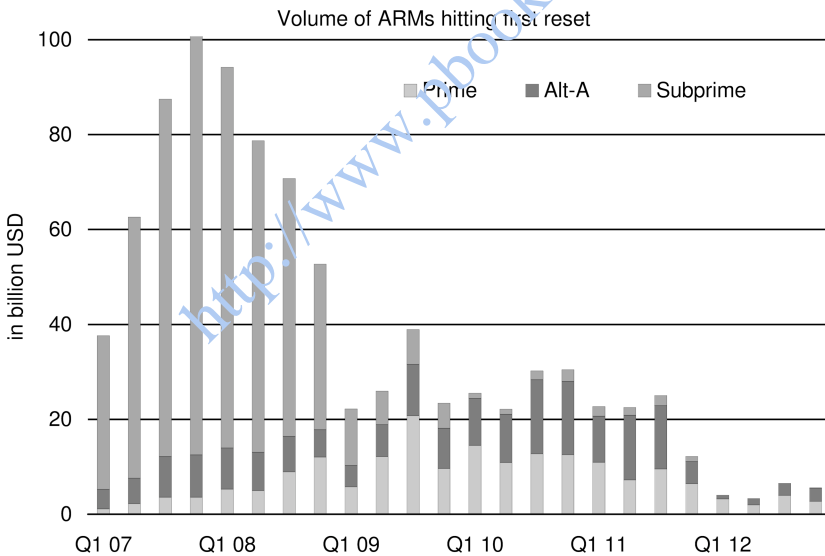


Fig. 1.4: ARM adjustments peak in Q1 2008
 Source: Loan Performance; CSFB; Credit Suisse

1.3.4 March 2007: Only a dip?

Wall Street brokerage houses surprise with excellent figures. The companies are strong enough to withstand weak stock markets and subprime woes. Although market participants do not ignore the fact that the US housing market is in real bad shape and a further worsening is in the cards, fears that spillover effects will hurt the real economy through a decline in consumption expenses and a weaker labor market almost diminish. US stock markets recover from their losses in February, while credit markets remain at more elevated levels, as investors' perception of the crisis is that it is merely a credit-related problem. In mid-March, the iTraxx Crossover widens above 240 bp, while the index ends the month at 227 bp, only 17 bp wider compared to February's closing.

Pressure from subprime woes on financial markets is still rather limited to specific segments, with the famous ABX.HE universe being the best example. ABX.HE denotes a family of synthetic ABS indices of US home equity asset-backed securities launched in January 2006. Five subtypes of the ABX.HE exist, labeled, according to the rating of the underlying assets, ABX.HE.AAA, ABX.HE.AA, ABX.HE.A, ABX.HE.BBB, and ABX.HE.BBB-. Of the total issuance volume in the United States in 2005, almost 30% were related to home equity loans (HEL), the largest sector in the US securitization market. Home equity loans also comprise subprime mortgages, which showed increasing performance problems in the past, such as rising delinquencies and foreclosure rates. In the first two months of 2007, the ABX.HE indices widened significantly, especially the riskiest part of the universe, the ABX.HE.BBB- 06-2, which widened from 380 bp (95 in price-terms) to around 1.500 bp (63 in price terms). (Note that the ABX.HE is quoted in price terms rather than in spread). This trend continues over the whole summer period.

1.3.5 April 2007: The first default

April 2: New Century Financial files for Chapter 11! New Century Financial Corp. is the largest subprime mortgage lender which ever filed for bankruptcy, as it was overwhelmed by rising defaults from borrowers with poor credit records. The company plans to sell most of its assets within forty-five days, according to the Chapter 11 filing in federal court in Wilmington, Delaware. About 3,200 people, more than half the workforce at the Irvine, California-based company, will be let go. The company rode the US housing boom to become the largest independent mortgage lender to subprime borrowers, while it generated about

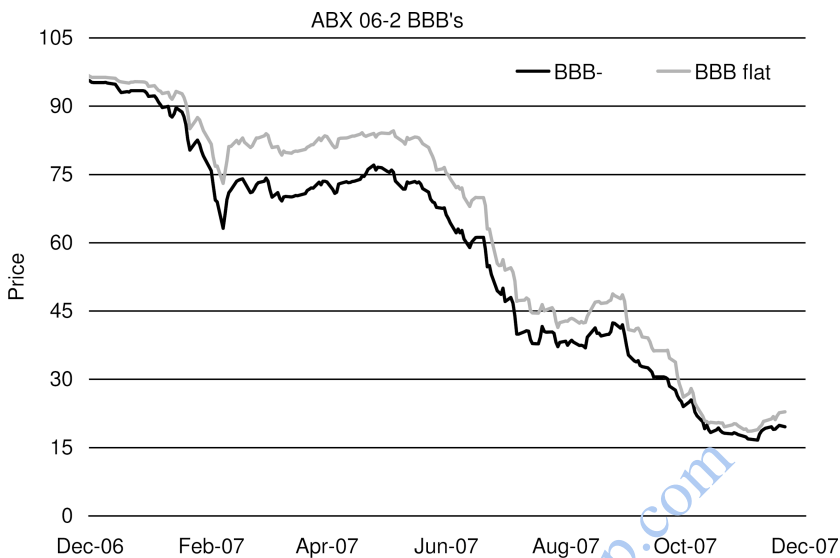


Fig. 1.5: The slump of the ABX market (stated in price terms)

USD 60 bn in loans. Like rival firms, the company lowered its lending standards to keep cash flowing after demand slumped. According to Bloomberg, New Century was founded in 1995 and in the late 1990s survived an industry shakeout that led to the bankruptcy of bigger rivals including United Cos. Since then its growth had surpassed that of all other subprime underwriters. In the past two years, New Century underwrote about USD 120 bn of loans, or more than half the total since its inception. Subprime loans accounted for 86% of all New Century loans in 2006. Since its inception, the company made about 1.4 mn loans totaling more than USD 225 bn. Global credit markets remain relatively unimpressed by the news, and the iTraxx Crossover shows a strong performance over the month, ending up at 204 bp.

1.3.6 May 2007: The impact on the banking sector

At the beginning of May, UBS announces the reintegration of Dillon Read Capital Management (DRCM) Portfolios into the Investment Bank, while outside investor funds will be redeemed. The fund generated significant losses on subprime-related investments. The official press release states:

Zurich/New York, 3 May 2007 – UBS announced today that the proprietary funds currently managed by DRCM within Global Asset Management will transition to the Investment Bank. DRCM’s principal finance, credit arbitrage, and commercial real estate businesses will be merged with relevant business lines within the Investment Bank. DRCM’s third-party funds will be redeemed. UBS intends to work with DRCM investors to identify alternative investment opportunities for them.



Fig. 1.6: The plummet of New Century shares

This is not the end of the story for UBS, as Peter Wuffli, UBS’ CEO at the time, will be ousted only two months later (cf. July 5). European credit spreads grind tighter towards cyclical lows, while the iTraxx universe ends up at 190 bp as of May 31. This translates into a positive spread performance of 14 bp from the already very depressed levels we saw at the end of April.

1.3.7 June 2007: Hedge funds blow up

Two hedge funds managed by Bear Stearns announce losses during April on subprime-related positions. They sell USD 4 bn of assets to cover investor redemptions and potential margin calls. Merrill Lynch sells off assets seized from the funds. In the center of the subprime woes is Bear Stearns’ in-house

hedge fund, the High-Grade Structured Credit Strategies Enhanced Leverage Fund (what a name!), which had a fund volume of USD 6.6 bn (USD 600 mn in equity and USD 6 bn borrowed money). The fund lost 23% within the first four months of this year, with forced unwinding of some (home equity linked) CDO positions aggravating the situation. The synthetic iTraxx universe cannot withstand this flood of negative news, with the Crossover widening by 40 bp in the course of June, ending the month at 230 bp.

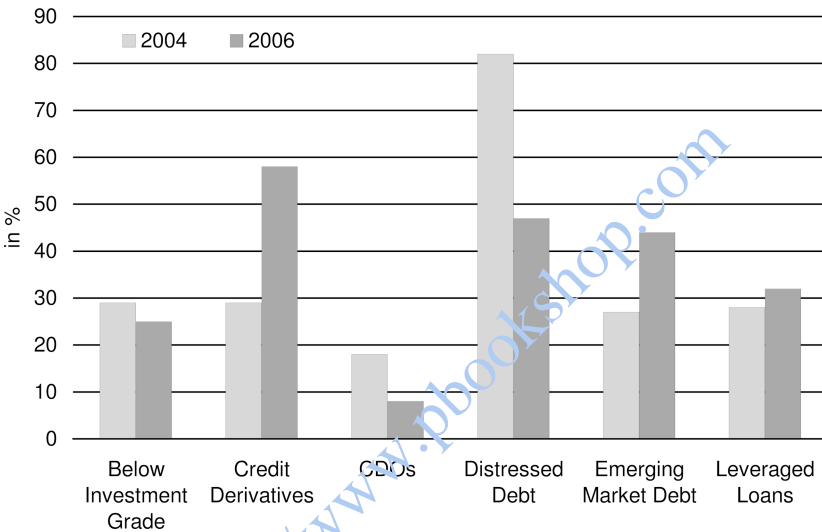


Fig. 1.7: Hedge fund trading volumes as a percentage of sector totals
Source: FitchRatings

Hedge funds have become a major force in credit markets during the last few years. This trend even accelerated recently and is closely coupled with the innovative power of the market. While hedge funds bring additional liquidity to the market, a potential threat emerging from this trend is the focus on similar strategies within the hedge fund arena, increasing the vulnerability of credit markets when tail risk rises. A majority of hedge fund inflows seen during previous years have been allocated to credit-linked hedge funds, including capital structure arbitrage strategies, correlation trading, and leveraged long/short funds (see also section 3.5).

1.3.8 July 2007: A first peak of the crisis!

- On July 5, UBS, the world’s largest wealth manager, announces that it is replacing CEO Peter Wuffli with Marcel Rohner, the deputy CEO. “Wuffli, 49, relinquishes all of his functions at UBS,” according to an Emailed statement from the Zurich-based bank. The iTraxx Crossover closes at 236 bp, 66 bp wider than its lowest level of 170 bp, which we saw in February.
- July 10: The rating agency Standard & Poor states that it may cut ratings on some USD 12 bn of subprime debt. US companies like Home Depot and D.R. Horton issue warnings about the housing market. The iTraxx Crossover index jumps to 267 bp. Downgrades in the structured credit universe remain a topic over the whole period of the crisis as further downgrades bear the risk that rating-sensitive investors might be forced to sell assets, which would put additional pressure on the segment.
- July 17: Bear Stearns announces that two hedge funds with subprime exposure have “very little value”. Later on, Bear Stearns tells hedge fund investors that “there is no value left” in the High-Grade Structured Credit Strategies Enhanced Leverage Fund after the “unprecedented

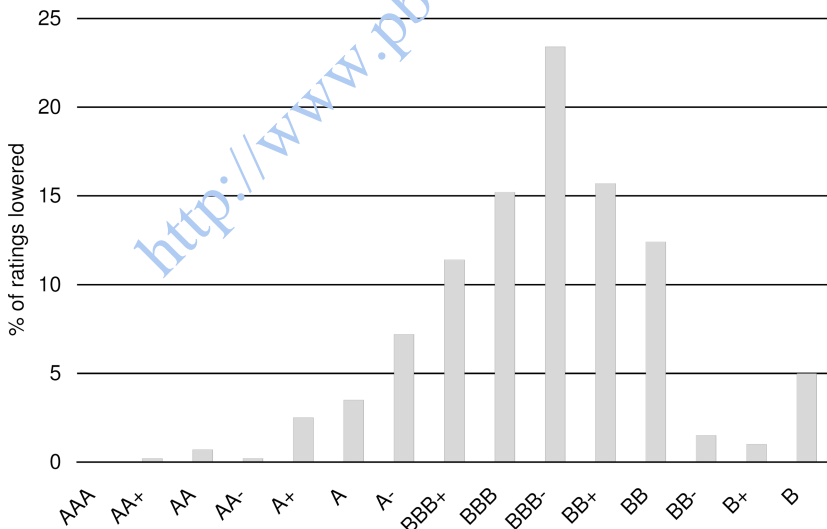


Fig. 1.8: Rating actions in the structured credit arena
Source: Standard & Poor’s RatingsDirect

declines” of AAA-rated subprime-linked CDOs! The iTraxx Crossover widens to 287 bp.

- July 20: Following rumors regarding its involvement in US CDOs and substantial spread widening in its bonds and CDS, the German Mittelstandsbank IKB issues a statement saying that only a single-digit million amount of around EUR 5 mn would be affected by the subprime crisis. The iTraxx Crossover continues to remain under pressure, closing at 344 bp.
- July 25: The crisis is spilling over onto the market for leveraged buy-outs. LBOs are heavily dependent on credit market conditions given the immense use of debt in such transactions. Arranging banks are forced to postpone the Chrysler and Alliance Boots debt sale, and they will keep the senior loans after failing to find investors to buy them. The banks will sell junior ranking loans of the Alliance Boots deal after increasing the interest rate and using their underwriting fees to discount the price by as much as 5%. Global banks are keeping around USD 350 bn in LBO transactions on their books with the intention to sell these loans to the market. This is also bad news for equity markets, as the record high in LBO transactions in H1 2007 was a major argument for the strong performance of stock markets at this time. The credit universe reacted immediately, and the iTraxx Crossover spread reaches a new high at 363 bp.
- July 30: Our UniCredit financial analyst states in a note to clients:

Within one week, IKB completely destroyed its profile as a conservative capital market participant (built up over recent decades), as it not only suffered severe losses due to bad investments but above all lied about this topic. In a brief statement issued this morning, IKB, in contrast to what it said on July 20 and repeated to market participants last week, said that the operating profit target of EUR 280 mn for FY 2006/07 will be missed substantially. As a result, the CEO has resigned and was replaced by Dr. Günther Bräunig, board member of KfW, Germany’s flagship promotional bank and IKB’s largest shareholder (38%). KfW said it will protect IKB from any related losses in order to maintain its position as a strong lender for the German Mittelstand.

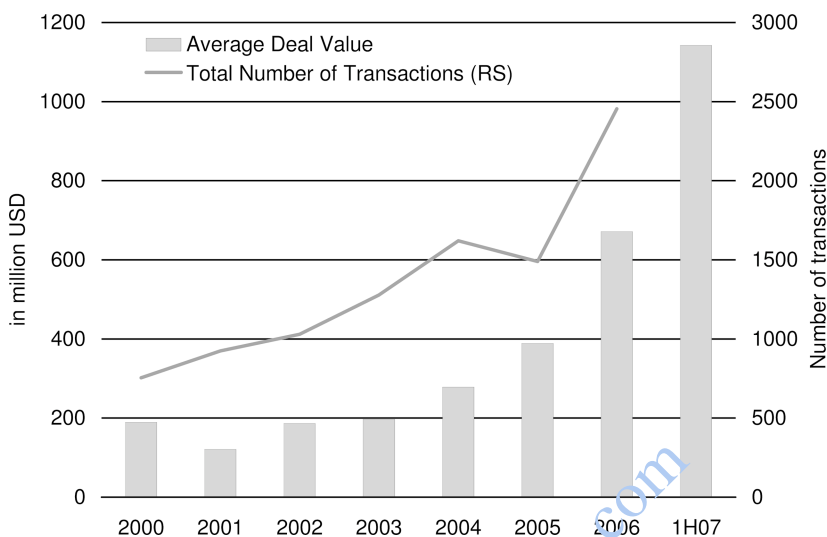


Fig. 1.9: Growth of the LBO market
Source: Standard & Poor's RatingsDirect

Unfortunately, the worst is still to come! (cf. August 9). The Crossover reaches a new all-time high at 505 bp (intraday), while the index ends a very volatile trading session at 461 bp.

- July 31: American Home Mortgage Investment says it may have to liquidate assets, fuelling concerns about a spillover of subprime losses into other areas. Australia's Macquarie Bank warns that retail investors face losses of up to a quarter in two of its high-yield bond funds. The market, however, calms down from previous record wiles, while the Crossover ends the month of July at 401 bp.

1.3.9 August 2007: The infection mechanism is getting into full swing

- August 7: The US Federal Reserve leaves interest rates steady at 5.25%, saying economic growth remains moderate despite the current turmoil in credit markets. Inflation risks remain its main concern (cf. August 17). In volatile markets, the iTraxx Crossover ends the trading session somewhat tighter at 375 bp.
- August 9: In reaction to the dry-up in the European money market, the European Central Bank adds EUR 94.8 bn of one-day funds. Concerns

about subprime exposure in the banking industry trigger a surge of the overnight borrowing rate to 4.6%. The move followed news from the French bank BNP Paribas that froze USD 2.2 bn worth of funds referring to subprime problems. Many money market funds are facing the same problem. To increase carry income in their funds, managers continuously increase the share of ABS instruments in the funds. When the liquidity problems in the money market start to negatively affect the ABS market, huge fund withdrawals were the logical consequence. The withdrawals again put pressure on the ABS market but also on the performance of money market funds themselves (see section 3.3). Moreover, the Fed and the Bank of Canada also add liquidity to their banking systems. Germany's Bundesbank sets up a meeting to rescue IKB. The German regulator Bafin says that it was looking into a USD 17.5 bn special funding vehicle of the German state bank SachsenLB, raising concerns about other bank conduits and bank-sponsored structured investment vehicles heavily dependent on easy, short-term financing (cf. August 27). Despite ongoing market worries, the iTraxx Crossover continues its tightening path since the beginning of August, closing at 349 bp.

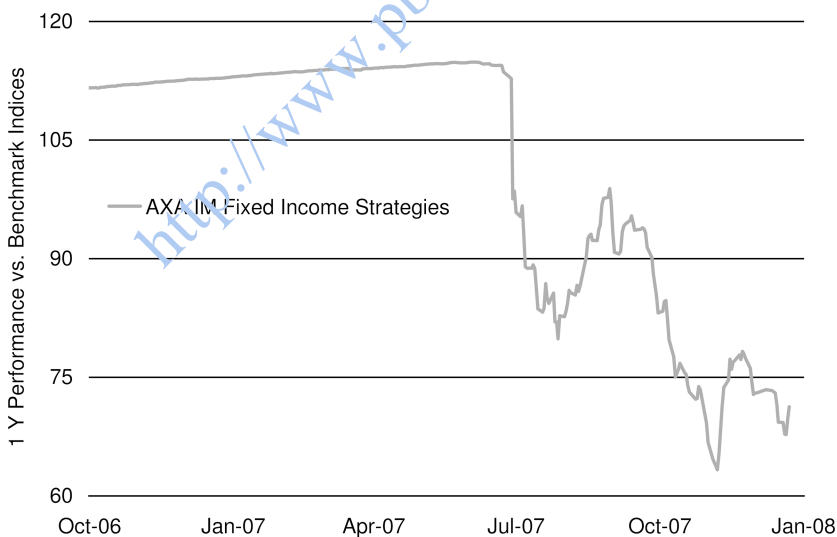


Fig. 1.10: Withdrawals from money market funds after worse performance

- August 13: Coventree, a Canadian financial services company, fails to sell new asset-backed commercial paper (ABCP) to replace maturing debt because of the credit crunch caused by US subprime mortgage losses. In the past, Canadian ABCPs have shown strong demand for leveraged super senior transactions (LSS), instruments which recently came under tremendous pressure. The Crossover ignores potential threats from the ABCP market, closing the day at 345 bp. The outstanding amount of the ABCP market drops during the summer by more than 25%.
- August 16: Countrywide Financial Corp., the biggest US mortgage lender, borrows the entire USD 11.5 bn available in a bank credit. The company turns to the emergency loan provided by a group of 40 banks. Fitch downgrades Countrywide to BBB+ and states that "... when a company draws on its bank lines, it just basically gives off the impression that it has run out of options". "Typically, these bank lines are there but not really meant to be used." The recovery in the Crossover stops, and the index widens to 386 bp.
- August 17: The Fed surprisingly cuts its discount rate for direct loans to banks by 50 bp to 5.75% as downside risks to growth from tighten-

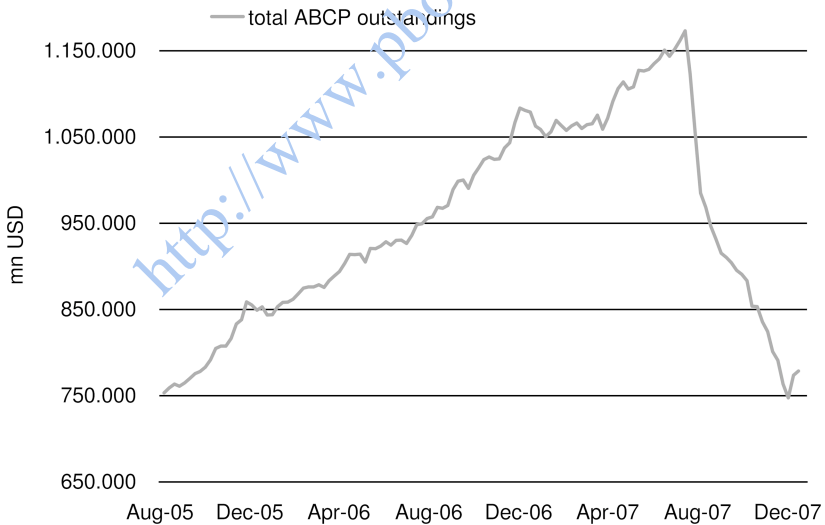
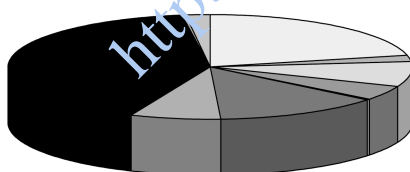


Fig. 1.11: Total ABCPs outstanding – strong drop as a result of subprime woes
Source: Fed

ing credit markets increase appreciably (cf. August 7, 27). World stock markets recover from five-month lows, while SachsenLB states that German savings banks had provided a credit facility of EUR 17.3 bn to secure the liquidity of its Ormond Quay conduit (cf. August 27). Structured Investment Vehicles (SIVs) enter the crisis! SIVs were used by market participants to gain leveraged access to high quality assets. SIVs as well as arbitrage conduits might be forced to sell their assets which usually possess a high quality. The threat in this respect is simply the sheer size of the underlying asset pools of SIVs. Due to the refinancing mechanism of SIV structures (short-term CP refinances long-term debt), liquidity problems might become insurmountable within the next few weeks. Rating agencies estimate the aggregated volume of outstanding SIV, and SIV-lite debt exceeds the USD 350 bn level (Q2 2007). Large parts are invested in structured credit assets. The risk is apparent as the total volume of European AAA rated ABS placed in 2006 was of the same size. Therefore, markets would experience a large shock if they would have to absorb such a volume in a short period. About 60% of the asset pool is related to structured finance (mainly RMBS [23%], CLO/CBO [11%] and CMBS [8%]) and about 98% is rated AAA or AA. The remaining 45% of the portfolio is financial sector (8% AAA, 24% AA, 8% A). In order to guarantee sufficient protection to the senior note holder, the vehicle has to fulfill coverage tests. Such tests and outstanding short-term debt which cannot be rolled forward may force the structure to liquidate assets. The recovery in the Crossover offsets preday losses, ending at 341 bp.

Distribution of SIV Portfolio Assets by Sector



- RMBS (21.46%)
- Home Equity loans/subprime (2.01%)
- CMBS (7.57%)
- Student loans (4.63%)
- CDO of ABS (0.28%)
- CDO (13.16%)
- ABS (7.18%)

Fig. 1.12: SIVs – In the center of the subprime crisis
Source: Standard & Poor's RatingsDirect

- August 21: Britain's Barclays Bank borrows GBP 314 mn from the Bank of England's standing lending facility, the first use of the penalty rate facility since the credit crisis began. Barclays taps the central bank for emergency funds of some GBP 1.6 bn pounds for a second time on August 30, citing a technical hitch in the UK clearing system. The famous first-generation CPDOs (Constant Proportion Debt Obligations, AAA-rated investments which offer a high coupon income by using an aggressive leverage mechanism) issued in Q3 2006 traded down to 55% of their face value. The tightening continues, however, at a moderate pace, and the iTraxx Crossover stands at 335 bp.
- August 27: Finally, Landesbank Baden-Wuerttemberg (LBBW), the largest German state-owned bank, buys SachsenLB in order to avoid an immediate default on EUR 17.3 bn because of investments in US subprime debt (cf. August 9, 17). The iTraxx Crossover still knows only one direction-South-closing the day at 323 bp.
- August 28: London-based hedge fund company Cheyne Capital Management, which manages the special investment vehicle (SIV) Cheyne Finance, reports losses in June and may be forced to sell assets backing a USD 6 bn commercial paper program. The Cheyne Finance SIV publishes a statement saying that it has been selling investments, but there is enough cash to repay CP which will come due in November. Standard & Poor's cuts Cheyne Finance's ratings, citing the deteriorating market value of its assets. Moreover, Rhinebridge Plc, a fund managed by Düsseldorf-based IKB Deutsche Industriebank, says it sold USD 176 mn of assets after it couldn't find buyers for its short-term debt. The iTraxx Crossover experiences some weakness and trades up at 338 bp.
- August 31: US President Bush announces to help people who have fallen behind in their mortgages to keep their homes and to tighten safeguards against predatory lending. Bush admits, "the government's got a role to play, ... but it is not the government's job to bail out speculators or those who made the decision to buy a home they knew they could never afford." The idea is to let the Federal Housing Administration, which insures mortgages for low- and middle-income borrowers, guarantee loans for delinquent borrowers, allowing them to avoid foreclosure and refinance at more favorable rates. The iTraxx Crossover tightens by around 70 bp during August, ending the month at 331 bp.

1.3.10 September 2007: The reaction of central banks

- September 6: The ECB leaves interest rates unchanged at 4%, seen at least as a postponement of the interest rate rise it had appeared to signal in early August. Markets doubt if this is only a temporary reaction to the subprime woes or the beginning of a more dovish monetary policy? In any case, 10Y bond yields have reached their 2007 highs ahead of the subprime turmoil at the beginning of July at 4.68%. Spread volatility remains subdued in the first week of September, while the iTraxx Crossover stands at 332 bp.
- September 7: Disastrous US labor market data triggers rising fears that subprime woes will spill over onto the US economy. The iTraxx Crossover widens to 346 bp.
- September 13: The British mortgage lender Northern Rock seeks emergency financial support from the Bank of England, sparking a run on the bank's deposits by worried savers in the following days. According to a statement of the company, it has agreed with the BoE that it can raise such amounts of liquidity as may be necessary by either borrowing on a secured basis from the BoE or entering into repurchase facilities with it. Such repurchase facilities would include securities that have

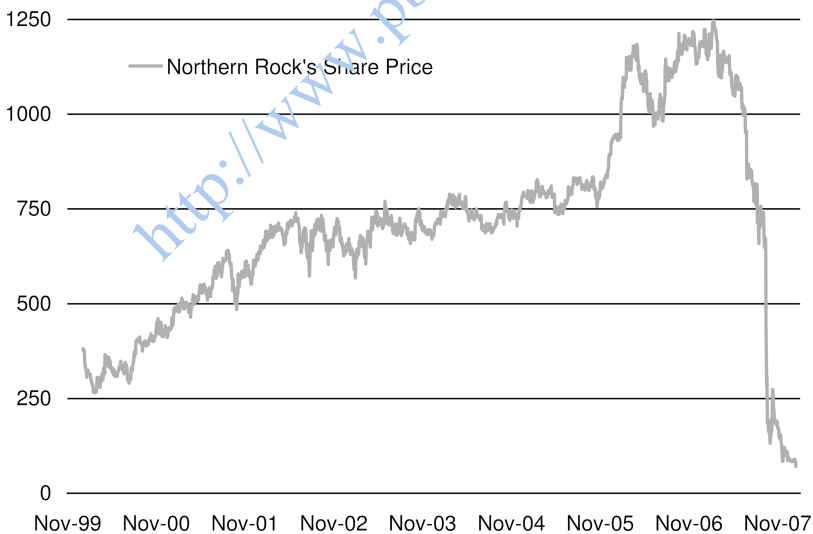


Fig. 1.13: Northern Rock's share price

prime residential mortgage assets as underlying collateral. This additional source of funding will enable Northern Rock to adapt its business model in line with developing market conditions. Despite short-term volatility, the iTraxx Crossover remains unimpressed and ends at 337 bp.

- September 17: British finance minister Alistair Darling says the government will guarantee all deposits at Northern Rock. The iTraxx Crossover stands at 329 bp.
- September 18: The Fed cuts its key Fed Funds target rate and discount rate by 50 bp to 4.75% and 5.25%, respectively. The Fed states that these cuts are a preemptive move to “neutralize the impact of the financial market turmoil on the broader US economy”. World equity and credit markets rally. The S&P 500 ends up almost 3% higher, while the iTraxx Crossover reached its tightest level since mid-July, ending the trading session at 308 bp.

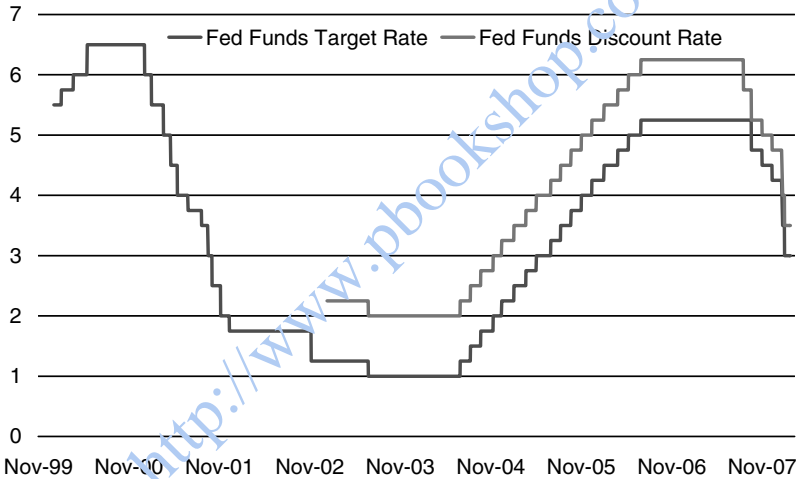


Fig. 1.14: The Fed’s emergency cut in September 2007

- September 18-20: US investment banks start reporting third-quarter earnings, with mixed overall results. At first glance Bear Stearns, Goldman Sachs, Lehman Brothers, and Morgan Stanley managed to weather the storm; this is the conclusion one can draw when looking at the results. Bear Stearns had USD 700 mn of write-downs and USD 250 mn of mark-downs on its leveraged loans; Goldman Sachs faced USD 2.40 bn of write-downs and a loss of USD 1.48 bn in credit products; and