Eidgenössische Bankenkommission
Commission fédérale des banques
Commissione federale delle banche
Swiss Federal Banking Commission

Subprime Crisis: SFBC Investigation Into the Causes of the Write-downs of UBS AG

“SFBC – UBS Subprime Report”

30 September 2008

Summary

*The Swiss Federal Banking Commission (the **SFBC**) has investigated the causes of the significant write-downs incurred by UBS AG (**UBS** or the **bank**) on positions with exposure to US subprime mortgages (**Subprime mortgages**). It based its investigation on the inquiry conducted by UBS, its own inquiries and numerous discussions with the responsible persons at the bank. In principle, the investigation encompassed only the period prior to August 2007. The measures that UBS has taken in response to the crisis after that time were not part of the scope of the investigation.*

The SFBC's investigation confirms UBS's own conclusions in all relevant aspects. UBS was not aware of the extent and the nature of its risk exposure to the Subprime mortgage and related markets until the beginning of August 2007, and was thus unable to take appropriate measures in a timely manner. This lack of awareness was the result of significant organizational weaknesses that, given the exceptional market environment, had grave consequences. In retrospect, insufficient attention to the inherent risks related to the balance sheet growth and the over-confidence in the existing risk management and risk control mechanisms appear as significant failures on the part of the bank.

To summarize, the data information systems used by UBS to assess the relevant risks must, with the benefit of hindsight, be considered insufficient. Although the systems generated a large volume of information, they were not adequate to identify key factors that may have led to an earlier identification of the material risks associated with exposure to Subprime mortgages.

In retrospect, the stress scenarios used by UBS proved far too optimistic. With the benefit of hindsight, the situation appears clear: the bank did not sufficiently manage, limit and control its Subprime mortgage exposure. This finding applies in varying degrees to each of the strategic, business and control processes employed by UBS. Despite the fact that no one could have foreseen the practical implications of the Subprime mortgage crisis and the speed at which it was to unfold, the bank remains responsible for the risk assessment failures from a supervisory perspective.

The bank has developed a comprehensive and detailed remediation plan to eliminate the weaknesses it identified, and this plan is being or has already been implemented. The SFBC supports these remedial actions in coordination with other supervisory authorities and is following the implementation process closely.

1. Investigation of the SFBC: In January 2008, the SFBC initiated an investigation into the causes of the write-downs incurred by UBS in 2007[1] on US debt securities, a large number of which were backed by Subprime mortgages. In particular, the SFBC investigated whether, and, if so, why the bank recognised the extent of its exposure in the Subprime mortgage market only in August 2007. In addition, the SFBC examined whether the bank had violated statutory responsibilities under the Banking Act. The SFBC also sought to ascertain whether the measures already implemented or initiated by the bank in response to the write-downs were appropriate and sufficient, or whether additional measures needed to be taken by the SFBC as supervisory body of UBS. The results of the SFBC's investigation are contained in a detailed report addressed to UBS dated 24 September 2008. That report is strictly confidential. This summary report, which is made available to the general public, summarizes the results of the investigation conducted by the SFBC.

2. Reports of UBS to the SFBC and to UBS's shareholders: As a first step, the SFBC required UBS to conduct its own inquiry on the basis of a detailed questionnaire prepared by the SFBC, and to issue a corresponding report. The bank presented its report to the SFBC on 4 April 2008. On 18 April 2008, the bank published a summary of its report addressed to its shareholders[2]. In July 2008, UBS presented its remediation plan to the SFBC, a summary of which was made available to the UBS shareholders on 12 August 2008[3].

Textbox 1: «Write-downs by UBS due to the Subprime crisis»

In a nutshell, this phrase relates to the write-downs incurred by UBS on (US) Asset Backed Securities (**ABS**s) or (US) Collateralized Debt Obligations (**CDO**s), collateralized for the most part by Subprime mortgages.

A large portion of the write-downs taken by UBS were directly related to the US Subprime mortgage market. However, there were other reasons for the write-downs. Some of the securities on which UBS had to take write-downs were partially collateralized by loans extended to US mortgagors with a higher credit score (Alt-A or prime mortgages); others referenced underlying collateral from the US consumer sector in general, such as student loans, auto loans, credit card receivables, etc.

The phenomenon known as the Subprime crisis started in the Subprime mortgage sector; however, it gradually spread to the rest of the US housing market and affecting other debt securities that were collateralized by receivables from US debtors (e.g., auto loans, aircraft leases, equipment leases, credit card receivables, student loans, etc.).

[1] The losses and write-downs sustained during the first semester of 2008 were not subject to investigation. Nor was the handling of Auction Rate Securities (ARS).

[2] Shareholder Report on UBS's Write-Downs, 18 April 2008 ("Shareholder Report").

[3] Summary of the Remediation Plan in Response to Issues Outlined in the Shareholder Report, 12. August 2008.

This report distinguishes between securities collateralized by Subprime mortgages and other securities or debt obligations and the risks related thereto only to the extent necessary for an understanding of the relevant circumstances.

3. Confirmation of UBS's report: The SFBC's investigation confirmed the causes of the significant write-downs that UBS identified in its report of 4 April 2008. The SFBC understands that UBS did not assess the weight of the various contributing factors. UBS's investigation and its report were not intended to establish any individual responsibility of management for the write-downs. However, since August 2007, the bank made a number of changes at the senior executive level. The SFBC supports these changes.

4. Confirmation of the report of the Senior Supervisors Group: The SFBC's investigation also confirms the assessments made with respect to possible causes of the write-downs in the joint report published by various supervisory authorities for financial institutions with activities in investment banking (Senior Supervisors Group) on 6 March 2008.

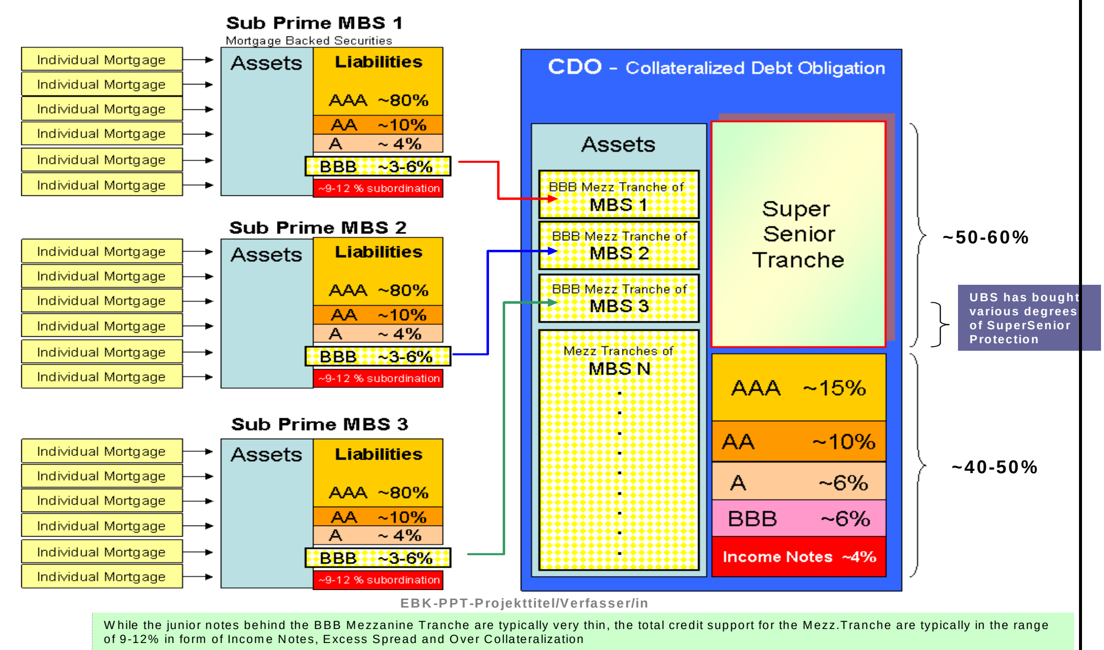
5. Major risks that were not recognized up until the crisis unfolded: During their investigations, both the bank and the SFBC identified management decisions at the board and group senior management level that in retrospect may have taken the bank in the wrong direction, but which were justified at the time. In sum, it was found that UBS was not aware of the extent and the nature of its exposure to the Subprime and related markets until August 2007, and was thus unable to take appropriate measures in a timely manner. This lack of awareness was the result of significant organizational weaknesses that, given the exceptional market environment, had grave consequences.

6. Write-downs: UBS was not the only bank to assess the risks it took on with respect to Subprime mortgages inaccurately. The same errors were made by virtually all the other market players. Even the relevant supervisory authorities failed to recognise the imminent risks in time. In 2007 and through the first half of 2008, UBS (including Dillon Read Capital Management (**DRCM**)) suffered far higher write-downs than most of its competitors, totalling about USD 42.8bn. The write-downs may be categorized as follows: UBS, like many other market players, sourced assets under the originate-to-distribute model for purposes of securitization as an ABS or CDO. Prior to the completion of the relevant securitization, UBS held these assets in a "warehouse" and, upon completion, sold the related securities to investors. UBS further invested in the secondary market for ABSs and CDOs, using a number of proprietary trading strategies. As a result of these proprietary trading activities, UBS had to take additional write-downs. Taken together, the write-downs related to the AAA ABS carry trades (see textbox 3 below) of the Foreign Exchange / Cash and Collateral Trading (**FX/CCT**) business and DRCM totalled about USD 21.09bn. This represents nearly half of the entire write-downs incurred by UBS as of August 2008.

7. Additional write-downs: In addition, UBS had to take write-downs of about USD 21.7bn on investments in Super Senior CDOs. This was because the CDO Desk had not only securitized CDOs and sold such CDOs to investors, but had retained the Super Senior CDOs it structured (see textbox 2) as a long-term investment strategy. Due to their low-yield, these Super Senior CDOs were not easily marketable to third party investors and so the CDO Desk retained them on its own (trading) books. The bank's investment in these Super Senior CDOs increased in the first half year of 2007 and amounted to USD 50bn prior to the onset of the Subprime crisis. The Super Senior CDOs retained by UBS were the greatest single source of loss for the bank.

Textbox 2: Super Senior CDOs

Super Senior designates the highest tranche of a CDO (a securitization of ABS). Super Senior CDOs had a AAA-rating and, in the event of a default, were rated higher than other AAA-tranches of the same issue. As they were considered virtually risk-free, they bore a very low interest rate.



8. No intentional damage: The SFBC's investigation did not reveal any evidence that managers at the Investment Bank (**IB**) or group level purposefully damaged the bank, or consciously incurred incalculable risks for the sole purpose of obtaining a higher bonus. Nor did it reveal any evidence that the persons responsible for the risk control function recognised the risks UBS had taken on and had deliberately turned a blind eye. On the contrary, all the evidence points to the fact that the persons responsible for building up the problematic positions relied on the presumed robustness of UBS's risk management and risk control, and that when the market deterioration commenced, they believed UBS was sufficiently protected. This was especially true in the case of the practice of retaining the Super Senior CDOs. Ac-

cordingly, UBS internal reports to senior management were consistently optimistic until mid-year 2007. The internal reports referred to the bank's risk situation (two hedging strategies: NegBasis at the level of single CDO tranches; AMPS trades at higher portfolio levels), which was presumed to be excellent, the AAA-rating of Super Senior CDOs, and the extensive market liquidity. The sense of relative security shared by the persons responsible for these businesses is further demonstrated by the build-up of additional Super Senior CDOs retained on the bank's book in the second quarter of 2007. In fact, the managers of IB Fixed Income had considered requesting further risk limit increases for this purpose.

9. <u>Ambitious growth strategy combined with limited risk appetite</u>: UBS had set the following goals for itself: further developing the Investment Bank into a market leader and positioning the Investment Bank better than its direct competitors. These goals were communicated publicly. However, these goals conflicted with the limited risk appetite of the group. While the Board of Directors of UBS had set the Investment Bank very ambitious targets with regard to profitability, earnings and (above all) cost management and the position to be taken with respect to direct competitors, both the Group Executive Board and the Board of Directors maintained a conservative risk appetite between 2004 and the onset of the Subprime crisis in August 2007. Some of the individuals at UBS interviewed by the SFBC alluded to this conflict between this growth strategy and the limited risk appetite in the high-yield products and leveraged finance business, whereas others took the view that the existing risk limits of the bank would have allowed for the build-up of an attractive portfolio with an appropriate balance between resources, earnings, and risk. In accordance with this latter view, which prevailed at the time prior to the onset of the Subprime crisis, requests by the IB and individual businesses for risk limit increases and approval of various leveraged finance transactions were repeatedly rejected. Based on its experience from past credit crises (namely the significant losses it sustained on commercial mortgages in Switzerland in the 90's), UBS strictly preferred securitized and thus easily tradable assets over illiquid assets, which is why UBS's balance sheet, prior to the outbreak of the crisis, was generally considered one of the best in its peer group. In practical terms, this, together with its AA+-rating (S&P), meant that UBS could obtain funding in the capital markets on favourable terms.

10. <u>Growth strategy as a catalyst</u>: The strategic objectives set by UBS's Board of Directors and their implementation by the Group Executive Board and management of the IB were ambitious. They required the full commitment of all participants, especially when UBS concluded that the IB's positioning had declined vis-à-vis direct competitors (in particular in the case of the IB's Fixed Income business). The pressure to stop and reverse this trend created a climate that paved the way for a number of negative developments, which are also set out in UBS's report:

- <u>IB Fixed Income – further expansion instead of exit in time</u>: The objectives and the ambition of the IB Fixed Income business were to redevelop certain competencies that it had lost as a result of the formation of DRCM, position its business globally and close the gap with competitors. In 2006, the IB had achieved record results, which the IB Fixed Income business had significantly contributed to; however, the Investment Bank had increased its cost base relative to its income. Already in the third quarter of 2006, some competitors had started to reduce their securitization activities and limit their exposure to the US housing and consumer market. Although the management of the IB Fixed Income business saw signs of deterioration in the US housing market, it remained convinced that its business strategies carried relatively low risks. As a result, the management of the IB Fixed Income business remained optimistic in its statements to the Group Executive Board in the second quarter of 2007. According to a "White Paper" of the IB Fixed Income business dated as of end of May 2007 (which was not presented to the IB Management Committee), the managers continued to expect considerable growth in the securitization business. According to the "White Paper", such growth would require a substantial increase in the applicable VaR limits and lead to additional balance sheet usage. As a result, the IB did not reduce its Subprime mortgage activities during the first half of 2007. On the contrary, the IB Fixed Income business retained an increasing number of Super Senior CDOs on its (trading) books.

- Retaining CDO tranches was assumed safe: At least towards the end of the mortgage boom, the CDO securitization business functioned only to the extent that market players such as UBS, Merrill Lynch and Citigroup were willing and able to retain “unattractive” low-yield Super Senior CDO tranches of individual securitizations on their own (trading) books. The IB Fixed Income business believed that this ability of the market players in the CDO securitization business to retain the (presumed) safe but, from an earnings perspective, unattractive positions formed an integral and active part of the successful CDO securitization business, and did not see it as a potential source of market tightness.

- Improved risk hedging: Those responsible for the above described business strategies in the IB Fixed Income business also believed that the decision to perform a CDO securitization transaction and retain the related Super Senior CDO tranches on UBS's (trading) books actually improved UBS’s risk situation, since a corresponding hedging transaction was then entered into. In contrast, asset-backed securities and other assets were not hedged during the period in which they were held in the "warehouse".

- IB FX/CCT – no timely reduction of risk: The FX/CCT[4] business was responsible for managing group liquidity. FX/CCT was a profit centre. FX/CCT invested surplus liquidity into a Relative Value Trading Portfolio, which also included the ABS Trading Portfolio. In June 2007 and December 2006, the value of the ABS positions, which were collateralized by US auto loans, Commercial Mortgage Backed Securities (**CMBS**), Commercial Mortgage Obligations (**CMO**), credit card receivables, equipment leases, home equity

[4] The FX/CCT was previously a part of Money Markets, Currencies and Commodities (MCC), then a part of the Fixed Income, Currencies and Rates (FIRC) business and today it is a part of FX & Money Markets (FXMM); for ease of reference this report uses the term FX/CCT.

loans / RMBS and student loans, amounted to USD 30bn and USD 29bn, respectively. These investments were also made to avoid negative carry in the profit centre that was to provide liquidity to the group.

- DRCM – unsuccessful strategy: In retrospect, various individuals at UBS interviewed by the SFBC considered the formation of DRCM a strategic error. DRCM was a platform initiated with the backing of UBS's Group Executive Board and the acquiescence by the Board of Directors of UBS that was intended to enable high-net-worth clients to participate with their own funds in an investment vehicle with a higher risk profile. The formation of DRCM sent the wrong signals to the Investment Bank, whose staff was increasingly under the impression that the bank had gone too far in accommodating the promoters of DRCM. Furthermore, the establishment of DRCM was planned under intense time pressure and unsatisfactorily implemented. After the decision to close DRCM, the reintegration of the DRCM's legacy positions and organisation into the IB absorbed a considerable amount of time of the IB management and the group management. In retrospect, during the critical time period in which measures to reduce commitments referencing Subprime mortgages would still have been possible, the responsible individuals failed to focus on more important aspects of the bank's management. In hindsight, it must be concluded that DRCM diverted the attention of senior management away from other key issues.

- Write-downs attributable to DRCM: As of 30 June 2008, about 22% of UBS's write-downs (totalling USD 42.8bn) are attributable to the business strategies of DRCM. Although the business strategies of the IB and DRCM showed many similarities, there were nonetheless key differences between them. For instance, the IB hardly invested in Net Interest Margin Securities (NIMS), which, compared to the Super Senior CDOs, carried more risk. On the other hand, DRCM did not implement any significant Super Senior CDO carry trades, which at the IB led to the greatest losses (see textbox 3 below).

11. No hard limits on balance sheet growth: From its inception, UBS did not view its balance sheet as a relevant metric for managing its risk appetite. Risk was to be managed and controlled through other means. Already in 2005, senior management focused its attention on UBS's consistent and rapid balance sheet growth and there were discussions regarding placing limits on further balance sheet growth. However, hard limits were not introduced until mid-2007, because the Group Executive Board initially wanted to reduce the balance sheet by other means, and the IB wanted to give priority to the initiatives pursued by the Asset & Liability Committee (**ALCO**) in that regard. The ALCO was formed in January 2007. Insufficient attention to the inherent risks related to balance sheet growth and over-confidence in the existing risk management and control mechanisms appear, in retrospect, to have been significant failures.

12. (Too) advantageous internal funding terms and a lack of macro-management through balance sheet usage:

- For reasons pertaining to its history, UBS, until the summer of 2007, provided funding to all of its lines of business, including businesses with a proprietary trading activity, on the same funding terms (which, compared to the internal funding terms of competitors, were relatively favourable). There was no internal sensitive pricing model that, potentially in combination with balance sheet limits, would have provided a sufficiently strong incentive to monitor the business strategies of the individual lines of business on the basis of their respective risk/return profile. Similarly, when providing internal funding, there was no requirement that the tenor of the funds provided to the relevant business match the nature or liquidity of the assets being funded.

- The “neutral” design of UBS's internal pricing model reflected UBS's intention to provide the IB with initial funding support for its growth strategy. The model could be neutral because it was generally believed that UBS's risk management and control processes were sufficiently sensitive. The internal pricing model, which had remained largely unchanged since 2004, was discussed repeatedly within UBS during the time period under review. In March 2007, when the Group Risk Subcommittee (GRSC) rejected a request to introduce hard balance sheet limits for the time being, the Group Treasurer was instructed by the GRSC to continue work on the introduction of a more sensitive pricing model for the funding needs of the business units. This led to the introduction of the so-called "Haircut Funding Model" in the second and third quarters of 2007.

- The neutral design of the funding terms of the IB, together with the lack of hard limits on balance sheet usage by individual business lines and business strategies, in effect enabled the IB Fixed Income management to benefit from UBS’s AA+-rating and to obtain funding on considerable scale on favourable terms through the parent company. The funding obtained in this manner flowed in part into AAA Super Senior CDOs, which were retained on UBS's (trading) books. In effect, the CDO Desk was thus implementing various significant carry trade strategies.

- There was hardly any effective (macro-)management of the risk appetite through balance sheet usage. Considerations such as matching the nature of the assets and the tenor of their funding were given too little attention. As a result, the controls for market and credit risks at product and portfolio levels and the control processes of Business Unit Control (a business unit within the Finance function) were not supplemented by means of macro factors, such as balance sheet usage, balance sheet limit allocation and/or internal pricing charges.

Textbox 3: Carry Trade

In its most commonly known form, carry trades are used as a currency trading strategy (i.e., the so-called Currency Carry Trade). Using this strategy, an investor borrows a certain amount of money in a comparatively low-interest rate currency and exchanges such money into a higher-interest rate currency. The investor's earnings derive from the difference between the interest rate, on the one hand, and the potential exchange rate fluctuations, on the other. The investor is thus exposed to the risk of a fluctuation in the exchange rate and interest rate. Although interest rate fluctuations may be eliminated through fixed interest transactions and the exchange rate risk may be reduced through futures transactions, such transactions reduce expected returns.

In addition to investments in currencies carrying a higher rate of interest, carry trade strategies may also be applied to investments in metals and other commodities, as well as debt obligations.

The retention of Super Senior CDOs structured by the IB and the acquisition of Super Senior CDOs from other issuers were a form of carry trade. The basic idea was to acquire the highly rated but relatively unattractive (low-yield) Super Senior CDOs on UBS's highly favourable funding terms, hedge the presumed minimal residual risk (through NegBasis and AMPS trades) and immediately recognize the relatively low return in the trading book. For such strategies to be attractive from an earnings perspective, the nominal value of such positions needed to be relatively high, as their yield as such was low.

13. Insufficiencies in the development of processes and systems and insufficient rigour in their application:

- Based on the information available to the SFBC, the write-downs cannot be attributed to obvious errors in the risk management and control processes, although already prior to the onset of the Subprime mortgage crisis UBS had recognised a need for action and investment in those areas. Positions that were not hedged consisted mainly of inventory in the "securitization warehouse" ramped for securitization transactions or for distribution to clients after securitization, and the retained Super Senior CDOs for which no direct hedging transaction had been entered into as of yet.

- Infrastructure deficiencies – too slow reaction: UBS recognised early on that the infrastructure of the IB (mainly the IT systems) had only a limited capacity for keeping up with the transaction volume and the constant new developments in financial products. However, the bank failed to take swift and decisive action to remedy those deficiencies. Although this failure was not the cause of the write-downs, it impaired the efficiency and the effectiveness of the risk management and risk control processes.

- Inconsequent application of processes: A considerable weakness existed in relation to the securitization of individual CDOs because approvals were granted on a transaction-by-transaction basis at a relatively late stage in the process under the so-called Transaction Requiring Prior Approval (TRPA) processes. AMPS transactions were also approved on a transaction-by-transaction basis under these TRPA processes; however, given their volume, a New Business Initiative (NBI) approval process would have been appropriate. One such process was under preparation mid-2007, but it was not pursued further given the market events at the time. If an NBI approval process had been undertaken in time, this may have led to the introduction of a nominal ceiling for these kinds of business transactions, which may have limited the risk exposure. In addition, the TRPA processes for AMPS transactions were only initiated when the Super Senior CDOs had already been acquired or retained on UBS's (trading) books, which may have meant that the approval of such Super Senior CDOs was a kind of "fait accompli".

- Failure to assess risks adequately: One of the main causes of the write-downs was that the individuals who managed (i.e., the front office), valued and controlled (i.e., the control function) the trading positions of the IB relevant to this investigation inadequately assessed the inherent risks associated with such trading positions. In assessing the risks of Super Senior CDOs, too much weight was attributed to the securities' AAA-rating, which was consequently reflected in the risk measurement metrics. Because these positions were viewed as being VaR neutral, they were not reflected in key internal risk reports and thus disappeared from the radar screen. A ceiling on their nominal volumes, which would have counterbalanced this weakness, did not exist for most of the business lines.

14. Over-reliance on AAA-rating of ABS and CDOs:

- Prior to August 2007, the assessment of the bank's risk exposure did not take into account the fact that a AAA-rating of a Super Senior CDO cannot be equated with a AAA-rating of other debt securities such as corporate or government bonds. This is because in deteriorating markets the subordinate CDO tranches of the relevant issue can be eroded relatively suddenly and rapidly. Group Internal Audit (**GIA**) had mentioned this characteristic, amongst others, in a GRSC meeting during an analysis of the losses sustained by DRCM. However, the investigations of the SFBC and UBS did not reveal any evidence showing any follow-up. Following the meeting mentioned above, the GRSC requested an in-depth analysis of the trading positions of the IB in order to ascertain whether the IB was exposed to risks similar to those of DRCM. The results of this so-called "Deep Dive" analysis were available only after the Subprime mortgage crisis had unfolded. It should be noted, however, that the rating agencies themselves did not take the default sensitivity of CDOs into account when establishing their ratings. Other material risk-related information, which followed from the nature and the quality of the loans underlying these structures, such as the relevant vintages of the securitized mortgage loans, was only insufficiently available in UBS's data systems for the purposes of risk management and risk control prior to the Subprime mortgage crisis.

- Chain reaction: From a process-oriented perspective, risk management and risk control did not conduct their risk assessment at the individual product level on a sufficiently analytical basis. Key risk-assessment information relating to these products was not assessed in sufficient detail, nor was the sensitivity of the AAA-rated debt securities adequately put into perspective. These errors remained unidentified in the subsequent layers of the risk management and risk control processes. Consequently, all risk metrics (e.g., VaR models, stress tests, risk reports, etc.) operated on the basis of overoptimistic assumptions, which resulted in the supply of insufficient information to senior IB and group management, which formed the basis for their management decisions.

- Lack of visibility: No concise overview of UBS's aggregate Subprime mortgage positions in total was made available to senior management. As a result, prior to the Subprime mortgage crisis, UBS's senior management only had access to such information on a net basis (i.e., if positions were hedged, they would not show up in the overall position data supplied to senior management; this was also the case for positions hedged by AMPS trades, which only offered a first-loss protection of 2-4%).

- Insufficient risk assessment system: To summarize, the system used to assess the relevant risks must in retrospect be considered insufficient. While it generated a large volume of information, it did not generate information that would have provided early warning signs regarding the material risks associated with exposure to Subprime mortgages.

15. Failure of the risk measurement and risk control systems:

- With respect to market risk control, since the relevant trading positions were treated as being part of the trading book (see paragraph 17 below), UBS relied primarily on the VaR (at both the product and portfolio level) and stress test methodology. The sizable write-downs that UBS incurred in the last 12 months cannot be explained by any single factor. Rather, in hindsight, a whole chain of unfortunate strategic decisions, insufficient follow-ups, and a lack of scepticism in relation to the bank's own processes and systems were contributing factors both at the risk management and the risk control functions.

- Low regulatory capital requirements on the basis of VaR and net risk presentation: From the perspective of the bank's VaR model and in line with international practice, the positions at the centre of this investigation required only a small amount of regulatory capital as a result of their outstanding rating. In addition, for risk management purposes, the positions were presented only on a net basis, (i.e., investments held to be fully hedged did not show up in the risk reports), so it was practically impossible for the senior risk management and control functions to recognise the extent of the risks to which UBS was exposed. This situation changed only after the Subprime mortgage crisis broke out and it became clear that the true risks had not been presented accurately.

- Stress scenarios too optimistic: During the period under review, the main risk management instrument of the Group Executive Board was stress testing. The investigation showed that, in hindsight, the stress scenarios used by UBS were too optimistic. In retrospect, the corporate bodies of the bank had not sufficiently challenged the stress scenarios used by UBS. The severity and the duration of the market dislocation after mid-2007 came as a surprise. More aggressive parameters in the risk measurement models that might have anticipated such a dislocation had been discarded as unrealistic in risk simulations. The real shocks proved to be far greater than any shocks anticipated by the stress tests performed by UBS on the basis of historical statistics.

16. Unlimited trading book capacity, unrealistic exit strategies and key significance of concentration risks: Inexplicably, for risk management and risk control purposes, it was not taken into account that the tradability, liquidity and thus the risk characteristics of individual products may change very rapidly. For example, the IB FX/CCT business responsible for managing liquidity invested surplus liquidity into AAA-rated ABSs, which were presumed to be highly liquid. The assets referenced by these ABSs originated in different sectors, such as private or commercial mortgages, including second liens, auto and student loans, credit card receivables, etc. As the Subprime mortgage crisis unfolded, the front office's assumption (which was shared by the control function) that it would be able to liquidate these ABS positions within one month at an acceptable price proved unrealistic. Accordingly, UBS had to take USD 1.99bn in write-downs on its liquidity reserves. The same applies to the enormous inventory of retained and purchased Super Senior CDOs on UBS's trading book. The responsible persons at the CDO Desk were convinced that, if necessary, they would be able sell these Super Senior CDOs with a nominal value of about USD 50bn in the market on short notice at their recoverable amount or, alternatively, enter into additional hedges. Effectively, the bank failed to recognise the significant concentration risks to which it was exposed. One of the main lessons to be learned from this is that any concentration of risk must be extensively assessed and avoided.

17. Inappropriate management of the macro risks: Despite the various early warning signs in the market, UBS – like other market players – did not recognise that because of the sheer volume of its ABS and CDO positions related to the US housing and consumer market, it was exposed to an independent macro-economic risk factor. As of August 2007, UBS's total exposure to the US mortgage market amounted to CHF 173.8bn "long" and CHF 66.1bn "short".

18. Insufficient monitoring of the counterparty risk of monoline insurers: When ascertaining the creditworthiness of monoline insurers for negative basis trades, UBS mainly relied on internal ratings of these insurance institutions. No holistic risk assessment was undertaken, however, that would also have adequately covered concentration risks. The fact that the default risk of a monoline insurer increases if the CDOs insured by such an insurer deteriorate in value (so-called "wrong way"

risks) was not taken into account either. All these factors contributed to UBS significantly underestimating the counterparty credit risks of monoline insurers.

19. The risk control's understanding of its role: The internal risk control functions of the bank were and are confronted with the day-to-day pressure of the front desk to make rapid decisions that are positive for the business as well as with the frustration of negative decisions or delayed procedures. Consequently, there appeared to be a tendency to carry out the risk control and valuation processes (which business perceived as tedious, time-consuming and obstructive) as speedily and sparingly as possible. This may have at least partially impeded a more effective assessment, limitation and control of the risks to which it was exposed, as well as thorough and careful valuations.

20. Group Internal Audit: Prior to the unfolding of the Subprime mortgage crisis, UBS's Group Internal Audit (**GIA**) did not warn of the risks related to Subprime mortgage securities in any of its many investigations of the IB. However, GIA repeatedly warned of the deficiencies in the infrastructure of the IB and the handling of the NBI and TRPA processes.

21. Failure to respond to cautionary signals from internal analysts: The IB Fixed Income Research Group, which is functionally separate from the IB's daily operations, published an analysis with respect to market events in the Subprime mortgage sector in the three periodicals: Mortgage Strategist, CDO Insight and CDO Performance Reports. Themes addressed in these periodicals were consistently relevant to risk management (e.g., market observations, the relevance of certain information, etc.). In addition, the IB Fixed Income Research Group made presentations to investors, including a telephone presentation entitled "How Bad is 2006 Subprime Collateral?". Since the beginning of 2007, the IB Fixed Income Research Group considered the issue of whether models could be used to assess Subprime mortgage securities adequately, or whether the accurate price could be determined by reference to the ABX Indexes, of overriding importance. The IB Fixed Income Research Group's publications also contained a wealth of information from which it could have been concluded that the Subprime mortgage market's prospects were deteriorating. Of course, prior to the Subprime mortgage crisis, UBS's analysts had not expected that AAA-rated securities would suffer from the changing market conditions and, therefore, did not give any warnings.

22. Unfortunate convergence of different factors: Even though "bad luck" may appear suspect as an explanation, at least in terms of an additional element, the unfortunate convergence of different factors contributed to the situation under review in this report. Whilst the decision to create DRCM was a controversial but legitimate strategic step, it resulted in a weakened IB, dampened moods, tight spots in the filling of key positions, and the tying up of management capacities. This was particularly the case at the time of the reintegration of DRCM into the IB. This initiative, though well managed, put such an extraordinary strain on the IB and senior group management that other issues did not receive the attention they deserved.

23. Careful analysis by UBS of the root causes: The SFBC agrees with UBS's analysis of the relevant weaknesses. In hindsight, the situation appears clear: the bank did not sufficiently assess, limit or control its Subprime mortgage exposure. This finding applies in varying degrees to each of the strategic, business and control processes of UBS. However, it must be noted that not every one of these weaknesses, in and of itself, constitutes evidence of insufficient organisation or bad management or deficient strategy – in effect it was the combination of these weaknesses that was material.

24. Close review by the SFBC of the bank's implementation of its remedial action plan: The SFBC is appreciative of the remedial actions that UBS presented to its shareholders in its remediation summary report of 12 August 2008 and is of the opinion that they are appropriate. However, the SFBC will follow their implementation very closely. Given that their implementation will require some time, a reliable assessment of the impact of such remedial actions cannot yet be reliably made. The SFBC will, therefore, continuously review the implementation of the remedial actions and the progress made and will, if necessary, request that additional steps be taken.

25. Violation of the requirement of proper business conduct by the bank: Not every one of the weaknesses referred to in this report, in and of itself, constitutes evidence of inadequate organisation or bad management. Also, the fact that there were no balance sheet limitations, the introduction of which was repeatedly discussed and rejected, is not objectionable from a supervisory perspective and constitutes a legitimate exercise of business judgment. With the benefit of hindsight, one fact remains, however: UBS neither correctly assessed nor adequately limited or controlled the risks associated with the retention of Super Senior CDOs and other ABS positions in the warehouse and on its (trading) books. This constitutes a grave omission and must be considered a violation of the requirement of proper business conduct under applicable banking legislation. The investigation of the SFBC did not, however, reveal any evidence that would lead to the conclusion that the bank's current corporate bodies do not meet the required standard for the proper business conduct of a bank.

26. Responsibility of the bank: Despite the fact that no one could have foreseen the practical implications of the Subprime mortgage crisis and the speed at which it was to unfold, the senior corporate bodies of the bank must take general responsibility for the insufficiencies identified in this report. Since the onset of the Subprime crisis, the bank has made personnel changes to important positions both at the IB and group level. Based on the results of its investigations, the SFBC does not consider any of the members of the current corporate bodies to be professionally or personally inadequate within the meaning of the relevant fit and proper provisions of the Banking Act, nor does the SFBC consider it necessary to take action against any of them. However, the partly considerable termination payments made in cash to certain of the responsible persons who left the Investment Bank appear irritating, even though there was a clear contractual basis for these benefits and, therefore, these benefits were owed. In the SFBC's opinion, there is

clearly no room for severance benefits payable by UBS that are not unequivocally owed pursuant to the terms of the relevant employment contract.