Driving Factors of the Subprime Crisis and Some Reform Proposals

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Billions in losses at financial institutions throughout the world, the sudden and extraordinary liquidity crisis on the interbank markets, the severe criticism targeted at the credit rating agencies and the new accounting rules – as well as the risk of a credit crunch affecting the real economy – all raise questions about the true causes of the financial crisis. The crisis started in the US subprime market and then spread with remarkable speed to global financial markets. Immediately, culprits were identified. For example, the rating agencies were blamed for having underestimated the underlying risks of structured financial products, and the regulatory and supervisory authorities were accused of not having done their homework thoroughly. A large part of the blame was put on the lenders in the US housing market. They were accused of inadequately screening the creditworthiness of their clients and selling the originated loans to agencies (Fannie Mae, Freddie Mac)[1] as well as private mortgage lenders who, in turn, re-packaged the loans to create structured securities that were sold to investors and financial institutions around the world. However, there must have been other causes and driving factors behind the sharp market dislocations which we observed during the past year. In addition, it has to be questioned how problems in a relatively small segment of the wider market could subsequently turn into an international financial stability issue and lead, even in Germany with its conservative housing market, to billions of euros in losses at major financial institutions. The market segment of securities backed by dubious mortgages accounts for only a small fraction of the total volume of global financial markets. Furthermore, prior to the subprime crisis, the wide distribution of risk which was made possible by new credit risk transfer instruments such as credit derivatives and securitisations was considered an important contribution to the stability of the financial system. One has to be clear on the background, the causes and the driving factors of the crisis before assigning blame and discussing new regulatory proposals. "The task for regulators is not to suppress all knowledge of the new technology but to channel it in productive directions – as with nuclear power – and to prevent it from getting into the wrong hands" (Eichengreen 2008, 20).

It is generally agreed by different national and international institutions that a "cocktail of various ingredients" (Weber 2008, 2) caused the turmoil on international markets. While the ingredients considered in isolation seemed to be rather innocuous, their dynamic interaction turned out to be a highly dangerous mixture. The focus of most of the studies dealing with the crisis is on the undesirable developments on the US subprime market, in which rising delinquencies together with the end of the long lasting increase of residential property prices ultimately triggered the crisis. Attention is further given to the role of more recent developments in financial markets. In particular, these comprise the increasing importance of the originate-to-distribute (O&D) business model that enabled financial institutions to reduce their regulatory capital by taking risk positions out of their balance sheet, as well as the enormous growth of innovative financial products whose underlying risks were not fully understood by many market participants. Some of the studies also consider the similarities of the recent turbulences to previous crises, such as the banking crisis in Japan, because it sheds light on the more enduring driving factors of financial instability. "In each episode, a long period of strong credit growth coincided with an increasingly euphoric upturn in both the real economy and financial markets, followed by an

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[1] Fannie Mae: Federal National Mortgage Association, Freddie Mac: Federal Home Loan Mortgage Corporation.

unexpected crisis and extended downturn" (Bank for International Settlements 2008, 3). Generally, for effectively strengthening financial stability, it is essential that regulatory measures are not only based on the specific causes of, and vulnerabilities revealed by the recent turmoil, but also on more fundamental factors underlying financial instability. In what follows, we outline the initiatives that are currently under way and highlight some policy responses that should be further considered to enhance the resilience of the financial system. This will be done against the backdrop of the relevant driving factors or underlying causes of the crisis.

Initiatives responding to the market turmoil

On a national as well as on an international level, initiatives are under way to respond to the market turmoil and to identify measures enhancing the resilience of the financial system. In this regard, on 7 April 2008, the Financial Stability Forum (FSF) published a report providing a wide set of policy recommendations.[2] The recommendations of the FSF relate to a wide spectrum of weaknesses and proposals, such as capital and liquidity requirements, transparency and valuation, the role of the rating agencies, the supervisors' responsiveness to risk and the central banks' operations in times of stress, of which only the most important can be addressed and discussed in the following. Besides the actors directly engaged in the US subprime market, the most obvious reproach of failure can be directed to the banking supervisory authorities, given their task to prevent undesirable developments at individual banks and in the banking system. The current crisis shows that the conceptual design of banking supervision once again lags behind financial market development.

Several shortcomings in the Basel I capital framework have significantly contributed to the ongoing crisis. For example, under Basel I the providers of a liquidity facility of 364 days or less were not required to hold regulatory capital. This clearly contributed to the excessive build-up of exposures to conduits and special investment vehicles by many financial institutions. It is generally agreed that the financial turmoil would have been less severe if the new capital adequacy regime – Basel II – had already been in place in recent years. Basel II shows considerable improvements over Basel I as the scope for regulatory arbitrage is reduced by aligning capital requirements much more closely to the underlying risks banks face. The Financial Stability Forum also confirmed its confidence in the new capital framework by noting the importance of its timely implementation. However, at the same time the FSF pointed out a number of areas in which further improvements or changes are needed. On 26 April 2008, the Basel Committee on Banking Supervision (BCBS) announced steps to strengthen the resilience of the banking system (Basel Committee on Banking Supervision 2008a). The proposals relate to several areas of regulatory perceptions:

- On a medium-term basis, the BCBS is planning to raise capital requirements for certain structured credit products, such as high rated CDOs of ABS (ABS CDOs), which have suffered substantial losses during the turmoil.[3] The complexity of structured finance products may have led market participants to underestimate the underlying risks and as a result banks might have held inadequate capital relative to the risks they face.
- The BCBS will also further strengthen the capital treatment of liquidity facilities extended to support off-balance sheet vehicles such as asset-backed commercial paper (ABCP) conduits. Higher capital requirements will also be required for credit products held within the banks' trading books.[4]
- The market turmoil highlighted the importance of an effective liquidity risk management and high capital buffers to withstand a prolonged disruption of market and funding liquidity. In June 2008, the BCBS issued the revised *Principles for Sound Liquidity Risk Management and Supervision* for public consultation (Basel Committee on Banking Supervision 2008b). The main objective of these principles is to enhance banks' resilience to liquidity stress. Among others, the guidance covers liquidity measurement, including the capture of contingent liquidity risk asso-

[2] See Financial Stability Forum (2008). The FSF is comprised of high-ranking representatives of central banks, regulators, finance ministries, and international bodies.

[3] The market for these products has grown rapidly in recent years. ABS CDOs accounted for around 49 percent of the global CDO issue volume of USD 560 billion in 2006. For further details see Joint Forum (2008, 4–6) and Fender, Tarashev and Zhu (2008, 88–89).

[4] On 22 July 2008, the BCBS issued for public comment Guidelines for Computing Capital for Incremental Risk in the Trading Book and Proposed Revisions to the Basel II market risk framework (Basel Committee on Banking Supervision 2008c; 2008d).

ciated with off-balance sheet vehicles, and stress tests that consider a wider range of stress scenarios and are linked to the development of contingency funding plans.[5]

- During the turmoil, significant weaknesses in banks' risk management practices became apparent. Therefore, the BCBS will issue guidance to strengthen risk management and supervisory practices. Among other areas, the principles will relate to firm-wide risk management, banks' stress testing for risk management and capital planning purposes, the management of off-balance sheet exposures including reputational risks, and the risk management of banks' securitisation activities (see also Financial Stability Forum 2008, 17–19).
- The lack of transparency regarding structured products and financial institutions played a substantial role during both the build-up to and unfolding of the turmoil. It apparently contributed to the fact that despite high ratings of debtors and third-party debtors, investors denied rolling over their investments, financial institutions left the interbank market, and central banks intervened to provide liquidity to substitute for these denied investments. The BCBS is addressing these problems by initiating efforts to promote better valuation and disclosure practices, relating in particular to complex securitisation and off-balance sheet exposures.

Some starting points for further policy responses

Below we highlight some additional areas for possible policy responses to address the vulnerabilities of the financial system exposed by the market turmoil. The focus of the analysis is on structured credit products, the role of credit rating agencies (CRAs), misaligned incentives of originators and the German banking system.

Structured credit products and the role of credit rating agencies

Structured credit products such as CDO tranches and tranches of other securitisations can have very complex risk characteristics. It is presumed that many investors, especially those who invested in the high rated senior tranches, did not understand or fully assess the risks associated with these instruments and therefore relied heavily on ratings from the CRAs.

But what are the special difficulties inherent in CDO tranches? In a Monte Carlo study, Krahnen and Wilde (2008) analyse the risk profiles of different tranches of a hypothetical CDO transaction when the underlying asset values are driven by a macroeconomic factor and an idiosyncratic component. They show that the non-linear risk allocation of tranching leads CDO tranches to exhibit completely different risk characteristics compared with untranched bond portfolios with the same rating or probability of default (PD). Specifically, their simulation results demonstrate that tranches above the first loss piece are more exposed to tail risks as they show a higher probability of large losses than bond portfolios with the same PD, and that this exposure increases with tranche seniority. That is, CDO tranches, especially the more senior ones, produce a steady stream of income in "good" and "normal" times, but can suffer extensive losses in times of market-wide stress (Borio 2008, 10). Krahnen and Wilde (2008, 13) further examine the sensitivity of the tranches to unforeseen shocks to the underlying risk characteristics and a downgrade of the underlying asset pool, respectively.[6] They show that increases in default probability or in asset correlation of the reference portfolio strongly affect the systematic risk of the senior tranches as, in relative terms, these tranches experience by far the largest increase in default expectation. Thus, in times of system-wide stress, senior tranches have a higher risk of severe downgrades than more subordinated tranches and traditional bonds (Financial Stability Forum 2008, 35).

Despite these different risk characteristics of structured products and corporate bonds, CRAs use the same rating categories for both instruments. The findings of Krahnen and Wilde, however, point out the need for CRAs to differentiate structured finance ratings from traditional corporate debt ratings in order to signal that structured products have different risk profiles. Ratings on structured products also differ from corporate bond ratings in that they are model-based and to a greater degree assumption-driven. As current rating schemes focus solely on expected loss (EL) and probabilities of default, it is doubtful that structured finance ratings

[5] See also the recommendations of the FSF relating to banks' liquidity risk management (Financial Stability Forum 2008, 16–17).

[6] See also Fender, Tarashev and Zhu (2008), who analyse the impact of changes in credit fundamentals on tranche ratings, based on a hypothetical CDO transaction.

are an adequate measure for the overall credit risk of these products (Fender and Mitchell 2005, 67). Therefore, rating agencies need to provide more information about the underlying assumptions and the driving factors of, and the uncertainties associated with, ratings of structured finance products. In this regard Knight (2008) and Borio (2008) suggest a three-dimensional rating system, which not only takes the first moment of the probability distributions (EL and PDs) into consideration, but also higher moments, such as unexpected loss or tail risks, and a measure of the reliability (margin of error) of the first two classifications.

It is also seen as critical that CRAs could be faced with conflicts of interests when assigning ratings to structured products. These conflicts arise because, on the one hand, the agencies advise issuers of structured products on how to design the tranches in order to achieve a particular rating, and, on the other hand, they themselves subsequently assign these ratings. In this regard, the FSF challenges rating agencies to revise their code of conduct to implement the International Organization of Securities Commissions (IOSCO) CRA Code of Conduct, which was recently revised by the IOSCO to, among other things, reduce the potential for conflicts of interest in rating structured products (Financial Stability Forum 2008, 34; International Organization of Securities Commissions 2008). Some observers also demand the establishment of an independent entity that monitors rating agencies' implementation of and compliance with the revised IOSCO code.

A different approach to mitigating the rating problem could be to reduce the rating agencies' importance in the regulation of markets and financial institutions. For instance, under the first pillar of the Basel II Accord, banks are permitted to use external ratings to determine the minimum capital requirements for credit risks. However, in the course of their development these ratings were not designed for regulatory purposes. Rather, the role as a regulatory instrument for credit assessment was assigned to them later on. Further, their use as a regulatory instrument apparently led investors, including many financial institutions, to rely on ratings instead of scrutinising the underlying risks associated with a security themselves.[7]

Retention of risk by originators

Perhaps the most important area for changes involves the mitigation of the various incentive problems in the securitisation process and in the O&D business model that encouraged financial institutions to establish special purpose vehicles (SPV) in which credit risk exposures were placed. For solving the incentive problems regarding the screening and monitoring of borrowers it has been proposed that originators should be encouraged to hold a sufficient share of the securities issued. Retaining a share of the underlying risks is essential for two reasons. First, the subprime crisis revealed that underwriting standards in the US mortgage market had deteriorated since late 2004 (Financial Stability Forum 2008, 7). This development might have been less severe if originators were required to hold a fraction of the underlying credit risks. Second, retaining a share in the credit risks improves the bank's incentives to carefully monitor the borrower also after the origination and securitisation of the loan. The retention or repurchase of the most subordinated tranche of securitisation transactions (first loss piece), which prior to the crisis was frequently sold to institutional investors, could even be made a mandatory requirement.[8] But if credit and valuation risks are "hidden" in other "secure" tranches, a regulation of this form might be insufficient. According to Eichengreen (2008) retaining a considerable share of each tranche would turn the attention of issuing firms to the risk properties of all tranches.

From a German perspective, this proposal does not seem to be unrealistic since comparable structures already exist in the credit pooling transactions within both the public savings bank (Sparkassen) and cooperative bank (Genossenschaftsbanken) sectors. Within these transactions, parts of the individual credit risks of the participating banks are transferred to a SPV, then combined to a pool and finally repurchased by these banks ensuring that the banks get back a fraction of their transferred risks.[9] In addition, the participants are only permitted to pass on a share of up to 75 percent of the underlying credit risks of a loan to the SPV. Therefore, each institution bears a substantial share of the credit risks associat-

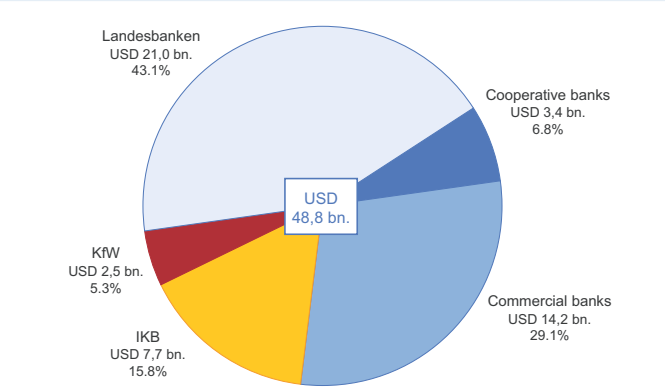
[7] See the article "SEC Moves to Reduce Funds' Reliance on Credit Ratings", published by Bloomberg on 25 June 2008, referring to proposals by the SEC to drop references to credit ratings in SEC rules. According to the SEC, money market funds should no longer be obligated to buy securities carrying a high rating from at least two credit rating agencies.

[8] See Sachverständigenrat (2008, 147), which, among others, recommends frequently providing investors of structured products information about the originator's retention level.

[9] For some time now, the credit pooling model – which is based on the credit risk transfer by credit-linked notes – has been opened insofar as banks are permitted to take on risks for diversification reasons or to pass on risks even if they did not bring in or take on credit risks.

Figure

DISTRIBUTION OF WRITEDOWNS[a] BY DIFFERENT BANKING GROUPS[b] IN GERMANY



a) As of June 2008; all values translated at the average exchange rate for the reference period.
b) Without special banks and insurances.

Source: Own representation based on Sachverständigenrat (2008), p. 138.

ed with the corresponding loan ensuring that the banks carefully scrutinise and monitor the credit quality of their debtors.

German Banking System and Landesbanken

In Germany, in the course of the financial market crisis, some major banks reported significant exposures to the subprime and related markets, both directly and indirectly via their conduits and the liquidity facilities to their conduits. It seems remarkable that the relative size of these exposures – as percentages of liquid assets, total assets or shareholders' equity – was extremely high for the Landesbanken (central savings banks).[10]

In its latest report, the German Council of Economic Experts (Sachverständigenrat) cites the study of the International Monetary Fund (IMF) which heavily criticised the Landesbanken for two reasons: firstly, there would be no sound justification for public ownership in these institutions, and secondly, public ownership had shown inadequate returns for a long time. Therefore, the German Council of Economic Experts (and other researchers and practitioners) believe that the Landesbanken, lacking a lucrative business model in their home market, were forced to search for higher returns in other markets. This was reinforced by low interest rates and margins in the domestic market since the breakdown of the "New Economy". But these higher returns could only be realised by taking higher and different types of risks. By May 2008, the Landesbanken had reported writedowns of USD 21 billion, which accounted for 43 percent of total losses incurred by German banks – thus clearly exceeding the market share of the Landesbanken of 21 percent based on total assets in the banking sector (Figure; Sachverständigenrat 2008, 137).

These banks invested heavily in structured financial products (related to the US subprime market) that offered them the opportunity to earn higher returns as compared to traditional bonds with identical (high-quality) ratings. In addition, they established large conduits and structured investment vehicles that funded long-term investments by issuing short-term commercial papers. There seems to have been a further driving factor for the excessive risk taking of the Landesbanken. In 2005, these institutions had lost their guarantors' liability (Gewährträgerhaftung) and maintenance obligation (Anstaltslast) by the states. Prior to the expiration of these guarantees the Landesbanken issued a higher than average number of guaranteed bonds to build a liquidity reserve for the times when they had to refinance their loans with bonds without guarantee – and hence with lower ratings and higher spreads. After the successful inflow of these new funds they had to search for lucrative investments which they partially found in the US markets for mortgage backed securities.

The Sachverständigenrat asserts that the traditional business model of the Landesbanken has been obsolete for a long time. There are strong incentives for a concentration of the Landesbanken into two or three large institutions. However, political pressure from state governments has prevented concrete consolidation steps so far. Therefore, the subprime crises may become a catalyst for the reorganisation of the public banking sector in Germany in the near future. As not only the Landesbanken suffered from the crisis, other banks will also become the subject of essential changes in the banking landscape. Large losses by well-known international banks demonstrate that the investment banking model as a whole is currently under scrutiny.

[10] Notwithstanding, the private IKB Deutsche Industriekreditbank reported the highest writedowns of all German banks. See Moody's Investors Service (2007, 5) and Sachverständigenrat (2008, 138).

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