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New Financial Order
Recommendations by the Issing Committee

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A. EXECUTIVE SUMMARY, INCLUDING MAJOR RECOMMENDATIONS

Our first report gave a broad overview on the causes of the financial market crisis and presented a number of recommendations for improving the framework („New Financial Order“). A number of our recommendations were more or less straightforward and in line with those by other groups and institutions.

Our Report was well received and finally published. We are grateful for feed back from many sides. After a very fruitful interaction with the government we were now asked to expand our analysis on several issues. This, second report does not cover again a broad set of aspects but concentrates on several important topics. These refer to the proposal for a risk map and a credit register, to regulation and supervision of hedge funds and rating agencies, the problem of procyclicality, and the role of international institutions and fora.

1. INTELLIGENT TRANSPARENCY

Many studies and statements have come to the conclusion that the financial market crisis to a large extent is caused by a lack of transparency which contributes to asymmetric information, leads to misallocation of risks, fosters destabilising compensation schemes etc. On issues of systemic importance, information is incomplete or relevant data are just missing.

Greater transparency therefore is badly needed to avoid pitfalls of the past and improve the framework of a new financial order. But, greater transparency does not and must not mean just collecting more and more data, and providing additional information. A myriad of data is already available, just adding more and more statistics might rather lead to confusion than improving transparency, not to forget the costs for reporting and data collection.

Data have to be collected more systematically and with a clear orientation on the purpose for which they are needed. We call this “intelligent transparency”. The focus in this concept is on the proposal for a Risk Map, but also refers to a number of other issues.

2. RISK MAP

The current crisis has been characterized by the fact that the relevant authorities (Central banks, supervisors, deposit insurers) were not fully aware of the extent, the interconnectedness, and the systemic risks emanating from the shadow banking system. This shadow banking system had evolved over the past couple of years, comprising off-balance sheet entities as well as risk transfer instruments like CDOs and CDS. In fact, available data bases are not prepared to capture these financial instruments, nor the international interconnectedness among large and complex financial institutions (LCFI). Therefore, as a prerequisite for strengthening counter-cyclical policy measures (eg capital adequacy, and liquidity reserves), a coordinated effort to set up a suitable data base of the global financial interconnectedness (the exposure net) and its major risk factors (the risk drivers), is needed. Such a Risk Map constitutes a much needed push to enable an effective macro-prudential policy targeted at crisis prevention and crisis management (discussed in more detail in section 5 of this report).

Recommendations:

- Macro-prudential supervision (i.e. systemic stability supervision) should become a major objective of banking supervision, complementing the traditional micro-prudential supervision.
- Chaired by the IMF, and complemented by an inter-agency task force, a proposal should be developed defining the conceptual back-bone of the Risk Map project. The participating agencies should have a proven record of regional expertise as, for example, the ECB and the ESCB in the case of Europe. One key issue relates to data specification, i.e. micro and macro data enabling an operational framework for financial stability assessment. The second key issue relates to data access and data use, i.e. a common understanding of how these data can be used, encompassing the most important countries and their agencies (central banks in particular).
- One lesson from the current crisis is also that data analysis *alone* does not suffice to spur appropriate market discipline and to trigger interventions by regulators and supervisors. What is needed instead is a pre-arranged link between the results of the data analysis and a set of policy actions. On the basis of the Risk Map, we propose to establish a hard-wired policy rule linking the systemic risk assessment to a suitable policy action, e.g. bank capital requirements.
- Furthermore, in order to assure the continuous consideration of systemic risk assessment by policy makers, the Risk Map analysis will regularly be discussed at G-20 (finance minister) conferences, or at IMFC meetings.

3. CREDIT REGISTER

Credit registers which collect firm exposures vis-à-vis financial institutions, work efficiently at a national level only. Given the current high level of international lending and exposures, a global credit register will greatly enhance risk management, both at the firm level (improving due diligence of cross-border exposures), and at the systemic level (adding a cross-border dimension to financial stability stress testing, and to an evaluation of real effects on the economy). In a similar way, a unified approach to exposures vis-à-vis bonds and stocks will add the international capital market dimension to the picture of corporate and bank risk exposures. Credit register information extends the information aggregated under the Risk Map project in the direction of major bank borrowers.

Recommendations:

- We propose a centralized approach to setting up a standardized credit register that is capable of mapping domestic and cross-border exposures simultaneously. These registers will require a standardization effort by all participants. It may well be covered by the Inter Agency Task Force, which we have proposed for setting up the Risk Map.
- Likewise, the advancement of a global securities register, itself closely related to the Risk Map project, should be continued in parallel, exploiting possible synergies. The

existing Working Group on Securities Databases WGSD should be cooperating with the Risk Map project.

4. HEDGE FUNDS

Hedge funds tend to take large risks, often accompanied by high leverage. However, these risks are not necessarily systemic risks. In view of the current market situation, there is no indication yet of a prominent role of hedge funds in the genesis of the crisis. However, hedge funds played a role in crisis transmission, due to their strong reliance on bank financing and maturity mismatch. In the crisis, these characteristics contributed to procyclical behaviour, in particular to deleveraging and asset sales, which both had a negative impact on market liquidity.

Recommendations:

In weighing the arguments presented in the preceding section, we propose a mixture of direct and indirect hedge fund regulation, i.e. a gripper approach, having two levers.

- Direct regulation is the first lever, referring to hedge fund registration, combined with the collection of structural data (including a unique identifier, domicile, ownership structure, management advisor, investment objectives). The hedge fund data base will be stored in a publicly accessible register, possibly as a part of the Risk Map project. The structural information can (and should) be complemented by balance sheet information on a quarterly or annual basis (e.g., asset under management and capital structure)¹. A reasonable size threshold above which registration and reporting requirements apply has to be set, e.g. \$ 100 million assets under management (AUM).
- Indirect regulation is the second lever. The actual systemic risk oversight should be directed primarily at the major banks providing funding, counterparty positions and transaction services to single hedge funds (prime brokerage). The emphasis will be on monitoring counterparty risk management by prime brokers, including leverage ratios, and by looking after a sufficiently large capital base to cover the risks involved. The first lever, above, provides the necessary information to link any registered hedge fund with all of its brokers, thereby viewing the consolidated exposure of the financial system vis-à-vis hedge funds.
- Concerning funds domiciled in offshore centers, indirect regulation should factor in any risks emanating from counterparties (i.e. hedge funds) not subject to direct oversight, i.e. the first gripper described above. This policy will make the choice of offshore centers as the domicile for hedge funds less attractive.

¹ Balance sheet information is not collected on a continuous basis, respecting proprietary information of the funds. Limiting data collection to annual or quarterly data, in line with the Risk Map project, is also reasonable for capacity reasons.

5. RATING AGENCIES

The recent past has seen a highly disappointing performance of rating agencies in the new debt markets, whose explosive growth they have enabled. By carrying over a well-established methodology from bond markets to more complex, structured finance products, the rating firms acted thoughtless, and indeed irresponsible, eventually wreaking havoc to the agencies' credibility. Given the important functions rating agencies are fulfilling in debt markets, the regulatory response to the current crisis has to aim at re-building their reliability and credibility. The issues at stake are: conflict of interest, compensation, transparency of the rating methodology, and rating performance.

Recommendations:

- Registration and rating depository: Internationally active rating agencies should be registered with an institution entrusted with capital markets oversight, e.g. the IMF or the BIS.
- On a regular basis, agencies are required to deposit their rating assessments with the entrusted institution. The latter takes responsibility for a profound statistical analysis of these data, publishing regularly rating default tables and rating migration tables. Such tables are the basis of an official performance measurement of all internationally active agencies, in order to facilitate an inter-agency comparison of their predictive performance.
- These assessments should be disclosed to markets and investors.
- In addition, we propose to hold a high-level, open annual event that discusses the status of the rating industry and its performance. The use of designated expert panels in a public dialogue with issuers, investors and regulators should help to maintain the right level of awareness, and to stimulate regulatory and industry debate about rating practice.

6. THE PROBLEM OF PROCYCLICALITY

Procyclicality is the term used to characterise financial and economic systems prone to credit driven phases of boom and bust. In the boom phase, rising optimism about the economy leads to an expansion of credit which drives up asset prices, encourages spending, and leads to more optimism in turn. These patterns eventually prove inconsistent with underlying fundamentals, and the bust phase follows, often triggered (and made more serious) by a sharp tightening of credit standards by those left exposed to imprudent loans made earlier. These big cycles have been seen repeatedly in history. Moreover, there is ample microeconomic evidence of procyclical behavior on the part of virtually all the economic agents, both private sector and public sector, that have contributed in some way to the current global downturn.

Recommendations:

- Central banks and regulators should agree that procyclicality is a serious problem, and that identifying and responding to the build up of systemic exposures should be a priority for all concerned. In effect, “preemptive tightening” should replace what has been the preference in recent decades for “preemptive easing”.
- There is a need to develop a set of indicators , using both macroeconomic aggregates (macrosystemic indicators) and data indicating growing stresses within the financial system (microsystemic indicators), to alert policymakers of rising systemic exposures. The “Risk Map” project is directed to this end.
- Policymakers should lean against these rising exposures using the instruments available to them, both monetary and regulatory. For both, this will imply significant changes to how they currently behave. Given how hard it will be to use available instruments in a discretionary way, an initial recourse to rules based reactions has much to recommend it.
- Central bankers and regulators, both nationally and internationally, must cooperate more systematically if the problem of global procyclicality is to be dealt with effectively. If significant progress on these issues could be made within Europe, the potential for global solutions would be much enhanced.

7. THE ROLE OF INTERNATIONAL INSTITUTIONS

The New Financial Order requires efficient global cooperation and well-functioning international institutions and fora, in particular with respect to the International Monetary Fund (IMF), the Bank for International Settlements (BIS) and the Financial Stability Forum (FSF). To strengthen the role and effectiveness of these bodies, two broad issues need to be addressed: Their legitimacy because the current composition of their decision-making bodies is no longer accepted by the largest emerging market economies (EME); and the focus of their work which should be aligned to deal with the key weaknesses of the old system.

Recommendations:

- Improve the legitimacy of the relevant international bodies. This implies:
 - For the IMF: to continue the process of quota adjustments in favour of EMEs. In addition, more of the Fund’s Executive Directors should come from developing countries. In this context, the European representation on the Board should be reconsidered.
 - For the BIS: the key committees of the BIS should be expanded beyond G10 countries to include the largest EMEs, such as China, India and Brasil, as full members.

- For the FSF: as already agreed by the G20, the membership should be expanded. However, the number of countries participating fully (with three representatives) should not increase too much in order not to lose efficiency. It will be important to find the right balance between legitimacy and efficiency.
- Re-focus the work of the IMF, BIS and FSF while maintaining the existing division-of-labour between these institutions:
 - The IMF should intensify its work on financial market issues, in particular on the spillovers between financial markets and the real economy, the assessment of macro-prudential risks, the collection of financial market data and the monitoring of the implementation of agreed standards and codes;
 - The BIS-committees should adopt decisions to close gaps in the regulatory and supervisory system and to tighten capital requirements and should review the procyclicality of the system;
 - The FSF, with an expanded membership, should use its unique experience to identify gaps in the regulatory and supervisory system and guide the implementation of reforms carried out by its members.
 - In principle, IMF, BIS and FSF should cooperate closely on issues related to systemic risks, macro-prudential risks and on ways to reduce the procyclicality of the regulatory and supervisory system.
- Mandate the IMF, BIS and FSF to develop a better early-warning system, using their respective expertise. A better early-warning system should incorporate the insights gained from the Global Risk Map and the international credit register proposed earlier in this report.
 - As one element of a better early-warning system, IMF and FSF could produce and publish a joint annual International Financial Stability Report (as proposed by the Deutsche Bundesbank).
 - IMF member states should acknowledge that early-warnings are only effective if such warnings are taken into account early-on in economic policy decisions.
- Develop a more robust macro-economic policy framework, with implications for the conduct of fiscal and monetary policies, to help prevent the next crisis. This will be of particular importance during the next few years, after the end of the current crisis, as policy-makers have to find an exit from the exceptional fiscal and monetary policy measures that are unavoidable under current circumstances. If, during the next decade, policies do not compensate for the exceptional stimulus given now, public debt might become unsustainable and/or high levels of inflation might return in some countries. Consequently,

- the IMF should take the lead in designing a “Global Stability Pact” for the conduct of fiscal policy (as proposed by Chancellor Merkel);
 - the BIS should take the lead in designing elements of a more robust monetary policy framework without compromising the independence of central banks.
- Increase the financial resources of the IMF:
- In the short-term, the GAB and NAB should be increased, possibly doubled and the membership of the NAB should be broadened to include all G-20 countries.
 - In the medium-term, the quotas of the IMF should be increased substantially. A large quota increase will also make it easier to accommodate a shift in relative quotas in favour of EMEs.

B. COMPLETE REPORT

1. INTRODUCTION

Our first report gave a broad overview on the causes of the financial market crisis and presented a number of recommendations for improving the framework („New Financial Order“). A number of our recommendations were more or less straightforward and in line with those by other groups and institutions.

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Intelligent Transparency

Many studies and statements have come to the conclusion that the financial market crisis to a large extent is caused by a lack of transparency which contributes to asymmetric information, leads to misallocation of risks, fosters destabilising compensation schemes etc. On issues of systemic importance information is incomplete or relevant data are just missing.

Greater transparency therefore is badly needed to avoid pitfalls of the past and improve the framework of a new financial order. But, greater transparency does not and must not mean just collecting more and more data, and providing additional information. A myriad of data is already available, just adding more and more statistics might rather lead to confusion than improving transparency, not to forget the costs for reporting and data collection.

Data have to be collected more systematically and with a clear orientation on the purpose for which they are needed. We call this “intelligent transparency”. The focus in this concept ist on the proposal for a Risk Map, but also refers to a number of other issues.

2. RISK MAP

2.1 Why a Risk Map is needed, and for what purpose

The current crisis was at least partly due to the fact that far too long the relevant authorities (Central banks, supervisors, deposit insurers) did not know enough about the rapid build-up of an enormous shadow banking system, involving off-balance sheet entities as well as risk transfer instruments like CDOs and CDS. Some of these financial innovations escaped regulatory attention almost entirely, probably because of data shortage.² For example,

² History has shown that the collection of new data sets, as for instance by banking supervisors and central banks, is typically initiated as a consequence to a particular market crisis. Thus, following the surge of the euro-currency market, the BIS was mandated by the G-10 in the late sixties to collect international (currency) exposures of national banking systems. The mandate was extended in the eighties, and once again in 1998, after the LTCM debacle.

consider the market for credit default swaps.³ This OTC market, now estimated at \$ 60⁺ trillion notional volume, has moved to the center stage of the crisis, following the bankruptcy of Lehman Brothers, and the near-collapse of AIG. However, supervisory agencies have not been able to monitor the emergence of this market in the past few years, as there was no systematic collection of hard CDS data at any central bank. Similarly, the distribution of ABS senior and junior tranches, often consisting of US subprime loans,⁴ could (and can) not be monitored due to a lack of harmonized data collection by supervisory agencies.⁵

This is not to say that central banks and international organizations did not try to get the full picture of stocks and flows of the financial system. However, the state of Financial Stability measurement and reporting needs to be developed further.⁶ In fact, available data bases are not prepared to capture these financial instruments, nor the international interconnectedness among large and complex financial institutions (LCFI). Therefore, as a prerequisite for strengthening counter-cyclical policy measures (eg capital adequacy, and liquidity reserves), a coordinated effort to set up a suitable data base of the global financial interconnectedness (the exposure net) and its major risk factors (the risk drivers), is needed. Such a Risk Map constitutes an attempt to enable a more competent macro-prudential crisis prevention and crisis management (discussed in section 5 of this report).⁷

Therefore, a safer world with active financial markets needs a political effort to establish a global map of financial risk exposures, which we label the Risk Map project.

The data set we are considering displays the funding and investment patterns of systemically important financial institutions (large, complex financial institutions, LCFI). Intentionally,

³ Credit Default Swaps (CDS) promise to pay a specified amount to its holder in case the underlying bond defaults.

⁴ A major part of US subprime lending ended up in RMBs or CMBS instruments, which were often transformed further into CDOs and CDOs of CDOs.

⁵ A provisional list of missing information includes:

- i) consolidated exposures of large banks in their role as (prime) brokers vis-à-vis major hedge funds, consisting of loans, commitments, and derivatives;
- ii) consolidated exposure of insurance firms vis-à-vis major banks, including conditional exposure via CDS counterparties;
- iii) whereabouts of collateralized debt obligations and other asset backed securities, differentiated by subordination level (junior, mezzanine, senior tranches);
- iv) maturity mismatch with respect to remaining maturities, by type of institution, or product family;
- v) the global (international) links within the set of LCFIs;
- vi) the global (international) links between LCFIs and large insurance companies, and major fund investors (pension funds, mutual funds and hedge funds);
- vii) an overview on the dynamics of leverage ratios by type of institution (international banks, hedge funds, regional financial institutions) and by region;
- viii) aggregate debt allocation by asset class, by industry, by region;
- ix) transfer of risk within the financial system (by product, institution, region);
- x) transfer of risk from the banking system to the non-financial sector;
- xi) quality of counterparty risk management (by type of product and region); permitting cross-border stress-testing.

⁶ Consider, for example, financial stability reporting by the BIS, the IMF, the ECB, and many national central banks.

⁷ Privacy considerations concerning the data collection will have to be respected, see footnote 8, below.

the data collected are merely snapshots of an underlying dynamic process, to avoid interference with proprietary information on the business strategies of individual institutions.⁸ Since the data set allows getting an overview of financial links and interconnections on the level of institutions and regions, the information contained in the data set resembles a map of financial exposures. Using the information contained in the map for estimating vulnerability of institutions, regions or the entire systems with respect to certain risk factors (e.g. interest rate changes, asset price changes, market liquidity) transforms the map into a Risk Map. Conceptually, the map pictures the network of mutual exposures that exist a) among LCFIs, and b) between them and major counterparties, e.g. insurance firms, hedge funds, major corporations and central banks.

The Risk Map is intended to improve the relatively young discipline of financial stability supervision, which is likely to play a much bigger role in the supervisory mandate of the future. The costs of the Risk Map project may not be negligible, as data standards have to be defined and applied to existing and new data sources alike. However, the cost-benefit analysis will have to weigh these costs against the welfare costs resulting from an inadequate monitoring of systemic risk.

The **objectives of the Risk Map project** are:

Creating a unified data base: The necessary data inputs are defined and put together by an inter-agency task force (e.g., BIS, ECB, BOC, BOJ, BOE), mandated by G-20, and chaired by the IMF. National institutions, in particular Central Banks are contracted for data collection.

Assessing systemic risk: The Risk Map provides information to supervisors and, suitably considering the proprietary nature of firm-level data, to the public on risk exposures of financial institutions and markets, both at the national and the global level. The data can be used to run financial stability models, and to draw the relevant conclusions, enhancing model competition. The assessment of systemic risk will be enabled.⁹

Allowing for coordinated and timely action: To make best use of the information derived from the Risk Map, identified shifts of systemic risk have to be “wired” into adequate policy measures,¹⁰ thereby reducing systemic bank risk whenever needed. The links (“wires”) to policy action should be firmly agreed between project members, conditional on an assessment of systemic risk. This assessment should be delegated ex-ante to a relevant policy institution, eg. the IMF or a suitable inter-agency task force. For example, tier-1 minimum capital requirements may in the future be partially related to the longer-term assessment of the global systemic risk status (as inferred from the Risk Map), thereby allowing equity capital to build up in good times, and to be partially run down in bad times. The assessment

⁸ Sampling will not be day-to-day, but rather in an infrequent manner, for example on a quarterly basis. Thus, moral hazard and the false impression that public authorities monitor closely what institutions are investing in, or are funded by, are avoided as well. Federal Reserve Chairman Bernanke, in a speech at the Federal Reserve Bank of Atlanta’s 2006 Financial Markets Conference, said: “I expect discussion and analysis of the potential costs and benefits of increased disclosures will continue, as well as suggestions about how such disclosures might be structured and disseminated. The important challenge is to structure any disclosures in a way that does not generate moral hazard or weaken market discipline.”

⁹ The theoretical and empirical details of defining and assessing systemic risk still need to be developed.

¹⁰ E.g., a conditional decrease in leverage, or in maturity mismatch.

of the global systemic risk status (*supra* 2) is therefore a key contribution of the Risk Map project.

In the ensuing subsection 2.1.1 we discuss the role of an Inter-Agency Task Force in coordinating and collection efforts. Section 2.1.2 presents several conceptual issues concerning the risk assessment objective of the Risk Map. These refer to the need of standardization in sampling, the benefit of model competition in data analysis, and the experiences gained from existing financial stability projects. Finally, subsection 2.1.3 addresses a possible nexus between systemic risk and capital adequacy rules, the nexus being an important support for the Risk Map to have impact on policy makers, and more basically, to be heard by the public. More generally, such a nexus is a precondition for the overarching concept of ‘intelligent transparency’ to have ‘bite’, and thus to be satisfactory¹¹ as a regulatory response to the current crisis.

2.1.1 Creating a unified data base

- a) The collection of data in a unified way, worldwide (G-20), is a formidable coordination and management task. While much of the required data will already be available in some data set, eg., leverage ratios of LCFI, there is nevertheless a need for coordination, pertaining to variable definition, for example. We therefore propose to mandate one institution which has already a global mandate, like the IMF, to develop a feasible project plan. It is assisted by an inter-agency task force.¹² Note that full compliance to the agreed upon rules by all participants is needed for the Risk Map project to be effective.
- b) As a fall-back option, in case a common agreement on a global Risk Map cannot be achieved among the G-20 members, we propose to aim for a regional solution, at the EU level, including the UK. The smallest version of the Risk Map project would be confined to the Euro area. Here, too, the ECB could play the role of the lead institution, with assistance by the ESCB. A future extension of the Risk Map to a more global level should always remain possible.¹⁴

2.1.2 Assessing systemic risk

- a) A few basic requirements have to be met if an assessment of systemic risk is expected to work with some reliability. While we leave the exact definition of Risk Map data items to the mandated project leader mentioned above (possibly assisted by the expertise of other agencies and central banks, as well as private professional

¹¹ ‘Satisfactory’ is used here in the sense of politically acceptable.

¹² Experiencing agencies which may be involved in a future task force comprise the ECB and the ESCB, the FRB, the BOC, the BOJ, the BIS, the OECD, and the BOE.

¹³ The IMF, in cooperation with other multinational institutions like BIS, ECB, was remarkably successful in coordinating an international standardization accord for macroeconomic (not financial) data. The project is known under the acronym GDDS (entry level, mostly developing countries), and SDDS (advanced level), where GDDS stands for General Data Dissemination System, and SDDS is Special Data Dissemination Standard.

¹⁴ If a purely European solution is sought, the competency of ECB and BIS may be brought together, following the experiences of the JEDH project. The Joint External Debt Hub involves teams of BIS, IMF, OECD and WB to harmonize data on cross-border claims and liabilities.

data collectors), one can specify, by way of example, some general requirements for the Risk Map data project.¹⁵

- b) The Risk Map project consists of two ‘levels’. The first (or data-) level consists of the global financial exposure data set, including structural information on the entities holding the exposures, and a set of associated risk factors (as just explained). Given a suitable aggregation level, this data set is considered to be the input into financial stability analysis. The second (or model-) level refers to the use of the data set by multiple users. Access to the data set is regulated by the mandated lead institution, e.g. the IMF. In principle, access could be unqualified for supervisors and central banks, and qualified for other users. The model-level will allow optimal use of the data, and in particular it will induce analytical innovations in the use of the data, in order to enhance its use as an early warning mechanism.¹⁶
- c) The last point on the development of a reliable early warning methodology, points at an important conceptual issue. A reliable measures of systemic risk still need to be developed, and availability of a global Risk Map will greatly help to make progress on the issue of macro-prudential supervisory policy. Therefore, the Risk Map project constitutes a true innovation, although earlier attempts exist.¹⁷.

2.1.3 Allowing for coordinated policy action

- a) One experience of the current crisis is that there were explicit warnings of risk build-up in the credit derivatives markets and in the subprime housing markets as early as 2005.¹⁸ However, in the midst of what appeared to be a boom environment for global banking, these critical reports were largely disregarded. One important reason for the political weakness of these early reports was the absence of reliable and consistent data, an unbearable situation which the Risk Map project is intended to remedy.

¹⁵ First, data collection has to target the level of generic (financial) institutions, while data exchange may target at a higher, consolidated level (e.g., by region, by period, by product line, by type of institution, etc) Second, banks and other legal entities included in the Risk Map project will be given a unique identifier (ISIN, CUSIP), which allows disparate data sets to be matched on a global level. Third, variable definition, reporting dates and reporting frequencies have to be harmonized. Fourth, exposures of financial institutions vis-à-vis other entities may be responsive to various dimensions of the risk factor, also part of the Risk Map, e.g. the amount of exposures, the remaining maturity, the industry, the country, and the currency. Fifth, the Risk Map project addresses financial institutions (banks and non-banks), financial markets (exchanges and their substitutes), and financial infrastructures (payment and clearing systems, and custodians)

¹⁶ The suggestion to open the data set for a competitive process of stability analysis borrows from the recent experiences of New Zealand, Norway and Sweden. These countries put their financial stability data online. See also subsection 1.1.4, below.

¹⁷ Earlier attempts in this direction, however, were severely hampered by the unavailability of true bank-by-bank exposure data. They therefore had to ‘torture’ aggregate data in order to distil information on stability. While the ingenuity of data analysis can be seen in several reports issued recently by such data collectors as IMF, ECB, and BIS one can also note the ad-hoc character of these analyses. We therefore expect the proposed data initiative to mirror the desire to make macro-prudential supervision (i.e. systemic stability supervision) the major objective of banking supervision

¹⁸ Explicitly critical reports on the credit derivatives market and the US market for subprime lending were issued early on by the BIS.

- b) Therefore, one lesson from the current crisis is also that data analysis *alone* does not suffice to spur appropriate market discipline, and to trigger intervention by regulators and supervisors. What is needed instead is a pre-arranged link between the Risk Map analysis, resulting in an overall assessment of systemic risk,¹⁹ and (supervisory) policy action.²⁰ A link, which should be part of the initial set-up of the Risk Map project, must be such that the issue of financial stability cannot easily be overheard again. One way to achieve this is to establish a fixed ('hard-wired') policy rule that links a measure of (global) systemic risk and procyclicality to certain bank-level characteristics, such as leverage and maturity mismatch.
- c) In order to enhance public awareness of risks in the global financial systems, including the emergence of new instruments, the use of new investment strategies or funding patterns, the build-up of excessive leverage or maturity mismatch, the existence of global risk transfer and exposure clustering, we recommend to place the topic firmly on the agenda of regular meetings of the G-20 finance ministers, and/or at the IMFC meetings.

2.2 Recommendations

- Macro-prudential supervision (i.e. systemic stability supervision) should become a major objective of banking supervision, complementing the traditional micro-prudential supervision.
- Chaired by the IMF, and complemented by other knowledgeable agencies, a proposal should be developed defining the conceptual back-bone of the Risk Map project. One key issue relates to data specification, i.e. micro and macro data required to enable an operational framework for financial stability assessment. The second key issue relates to data access and data use, i.e. a common understanding of how these data can be used, encompassing the most important countries and their agencies (central banks in particular).
- One lesson from the current crisis is also that data analysis *alone* does not suffice to spur appropriate market discipline, and to trigger interventions by regulators and supervisors. What is needed instead is a pre-arranged link between the results of the data analysis and a set of policy actions. On the basis of the Risk Map, we propose to establish a hard-wired policy rule linking the systemic risk assessment to a suitable policy action, e.g. bank capital requirements.

¹⁹ The exact format of the systemic risk assessment should be left for future work, once the Risk Map project is generally agreed upon. However, one possible reporting structure that is perfectly compatible with the Risk Map project is described in the IMF memorandum, dated January 2009: "The Fund-FSF Early Warning Exercise: Proposed Procedure". In this document, the IMF proposes an organizational setup allowing a working group composed of IMF and FSF staff to generate a prioritized list of current risks and vulnerabilities of the financial system. In this proposal, the required data input is left unspecified ("a wide range of external sources,..., combined with internal analysis should be consulted").

²⁰ In a parallel argument, the EU agreed on a Growth and Stability Pact that defined a maximum budget deficit (the 3% rule) which has improved fiscal discipline in the system.

- Furthermore, in order to assure the continuous consideration of systemic risk assessment by policy makers, the Risk Map analysis will regularly be discussed at G-20 (finance minister) conferences, or at IMFC meetings.

3. GLOBAL REGISTER FOR LOANS (CREDIT REGISTER) AND BONDS (SECURITIES REGISTER)

Subsection 3.1 discusses the objectives of a register for bank loans (credit), followed by stylized facts on credit registers in Europe (3.2), and several suggestions for an enlarged, supra-national role of such registers, including a possible integration into the Risk Map project (3.3). To complete the picture, subsection 3.4 extends the view on harmonized, global register for bonds – building on extensive preliminary progress that has already been achieved in this area.

3.1 Objectives of a credit register

Typically three objectives are mentioned: financial stability, banking statistics, and information for lenders' due diligence. If reporting thresholds are set at low loan amounts, as is the case of Portugal for instance (€50), the second and third objective are dominant. Else, if the reporting thresholds are at an elevated level (e.g. Germany, € 1.5 million), banking stability interest seem to matter more. If we compare the credit register with the Risk Map project, there is some redundancy. The major difference refers to the borrower identity, in case this is a corporation, since this information is not part of the Risk Map project. Thus, the traditional credit register is an enriched subset of the Risk Map. If financial institutions access the credit register in order to complete a due diligence exercise, the register accomplishes a pure service role to industry.

3.2 Credit registers in Europe (and beyond)

Currently, credit registers exist in all EU-27 countries, either in the form of public registers (typically run by the central bank) or in the form of private credit bureaus. Mandatory reporting only exists for the former, with widely different reporting thresholds applying in some countries, for instance in Portugal (€50), France (€500), Spain (€6,000), Italy (€77,500), Austria (€350,000), and Germany (€1.5 million). The basic idea of both registers and bureaus is to augment the information set of lenders, allowing them to get a view of the overall indebtedness and debt service performance of a particular borrower, thus reducing the risk of debt dilution. Furthermore, the information provided to credit registers may be used by the central bank to improve its assessment of systemic risk, by looking at debt concentration, either sectoral, regional, or maturity-related.

With respect to large corporate borrowers, there is a European network of credit registers in operation, since 2005. Supported by a memorandum of understanding (MOU), 7 central banks (A, B, F, D, I, P, E) now routinely exchange borrower-related information across jurisdictions. The national CR acts as a “clearing house”, as it provides a transmission mechanism for requests and replies of national financial institutions asking for information of another country's bank. However, the actual data exchange is apparently cumbersome, and the number of data sets transferred is small.

The harmonization effort underlying the MOU has led to a minimum consensus. The exchange of information is limited, e.g. the total amount of indebtedness of corporate borrowers, defined to be a borrower unit (Konzern); interbank lending is included whereas loan commitments, contractual maturities, and gross derivative positions are not included.

3.3 Suggestions for a supra-national Credit Register

For a completion of the due diligence carried out by lenders, internationally harmonized credit registers could provide a substantial input. A harmonized approach should be adopted, where harmonization refers to the standardization across countries, much in line with what has been said about the Risk Map data set in section 2.1, as. Since the record of the bottom-up strategy leading to the aforementioned MOU on a Europe-wide credit register is disappointing, we propose a more organized top-down approach, as it was exemplified in section 2.1, perhaps relying on the Inter-Agency Task Force. This may of course render existing national credit registers redundant in the long run.

Obviously, such a supra-national credit register will also be of high value for central banks and supervisors, as it allows to improve financial stability stress tests and its impact on the real economy.

3.4 Integrating a supra-national Securities Register

Since exposures by banks and firms is not only vis-à-vis financial intermediaries, but also vis-à-vis capital markets, both types of claims have to be considered. In the same spirit as the credit register, which looks at bank lending, bond financing by firms and sovereigns can be captured in a global securities register. Some progress towards erection of such a securities register has already been achieved. There is a Working Group on Securities Databases (WGSD) which aims at providing security-by-security information on the basis of internationally harmonized data sheet, collected at issue. The ECB is a founding member of this working group. We recommend to link this initiative with the other initiatives mentioned above, the credit register and the Risk Map. In this regard,

3.5 Recommendations

- We propose a centralized approach to setting up a standardized credit register that is capable of mapping domestic and cross-border exposures simultaneously. These registers will require a standardization effort by all participants. It may well be covered by the same working group, which we have proposed for setting up the Risk Map.
- Likewise, the advancement of a global securities register, itself closely related to the Risk Map project, should be continued in parallel, exploiting possible synergies. The existing Working Group on Securities Databases WGSD should be cooperating with the Risk Map project.

4. HEDGE FUNDS: REGULATION AND SUPERVISION

This section starts with key facts on hedge funds: business model, industry size, location and regulation. It is followed by a discussion of the major risks posed by hedge funds, including systemic risks and risks resulting from the interaction with their prime brokers. We then summarize the different routes to more transparency and regulation that are currently discussed, distinguishing between direct and indirect regulation. The final subsection contains our recommendations.

4.1 What are hedge funds (activities, location, size, regulation)?

Hedge funds are investment partnerships, with fund managers being general partners who typically invest their own money into the fund as well. The vast majority of hedge fund advisers (i.e. portfolio managers) is located in the US (an estimated 78%) and the UK. Hedge fund management is widely regarded as the most highly compensated profession in the world, applying the 2/20 rule (a management fee of 2%, plus the “carry”, a share in net annual value increase of 20%).

Legally, the assets of a hedge fund are separate from the portfolio management, which is directed by the hedge fund advisor, who is typically also the general partner of the fund. While most hedge fund advisors are in New York or London, the funds themselves are often offshore.

Hedge fund activities concentrate on asset management for wealthy individuals and institutions. Complex trading strategies, involving derivative instruments and short sales transactions, are the main, non-patented intellectual assets of these firms. The objective is to achieve positive returns in all market environments. These strategies are typically characterized by voluminous and aggressive trading activities, carried out via teams at specialized banks, the so called prime brokers. Prime brokerage, in turn, has been a very profitable business in the past decade. It is also highly concentrated, with the leading 3 prime brokers (Morgan Stanley, Bear Stearns, Goldman) holding a 62% market share at year end 2006. Since then, market share has become less concentrated, shifting to deep-pocket banks, like JPMorgan-Chase or Deutsche Bank. Multiple prime brokerages are spreading.

In 2007, there is an estimated number of 11,000 hedge funds globally, managing \$2.25 trillion in assets, on average \$200 million per fund, with a compound growth rate of 30% over the last 10 years. Nevertheless, these numbers may be considered small, at least in relative terms. For example, the assets of insurance companies are 8 times as large as the assets of all hedge funds taken together, while pension funds assets are 13 times as large, mutual fund assets are 20 times as large, and the assets of the global top 1000 banks are 25 times as large.

Hedge funds in the US are subject to various pieces of regulation, provided that they are domiciled in the country. About half of all funds are domiciled in offshore financial centers, where effective regulation is light. Most hedge funds manager, however, fall under the Financial Advisory Act of 1940, while hedge funds are subject to the Investment Company Act of 1940, the Securities Exchange Act of 1934, and other, trade-related specific regulations. Using exemption rules that are due to the small number of investors, most US

hedge funds are not regulated, while their managers are. There were efforts of self-regulation recently, leading to “best practice rule books” both in the US (The President’s Working Group) and the UK (The Hedge Funds Standard Board). Note that stiffer rules for hedge funds were prepared by the SEC in 2004, but were repealed by a court decision.²¹

4.2 What are the risks posed by hedge funds (systematic risks, interaction with prime brokers)?

Measured by the failure rate, hedge funds tend to take large risks.²² This is to be expected, given the high return objectives pursued by the funds. However, taking high risks is not synonymous to taking high systemic risk. If, for example, a hedge fund is pursuing a high risk contrarian strategy, then it is probably lowering systemic risk. Concerning the current credit crisis, there is no indication of a prominent involvement of hedge funds in the genesis of the crisis. However, hedge funds played a role in crisis transmission, due to their strong reliance on bank financing and maturity mismatch. These characteristics contributed to procyclical behaviour, in particular to deleveraging and asset sales, which both had a negative impact on market liquidity.

While there were apparently a great number of hedge fund failures, to date all funds were wound down safely, that is with zero recourse to taxpayers’ money. Unless new evidence will show otherwise, in the current credit crisis hedge funds seem to be victims rather than perpetrators.

Looking at the potential for systemic risk in hedge fund investment, one can distinguish a direct and an indirect channel. The direct channel sprawls from a wave of hedge fund collapses, via fire sale of assets and a subsequent asset price impairment, to eventual losses at systemically important counterparty institutions, e.g. large prime brokers. This risk is currently scaled down, due to the shifting of market share in prime brokerage, and to the encroachment of multiple prime broker relations.

The indirect channel relies upon the effect of forced hedge fund liquidation on secondary market performance, in particular on rising volatility and disappearance of liquidity, and its impact on systemically important financial institutions whose assets are depreciated.

4.3 Routes to better regulation (direct, indirect)

Both channels of systemic risk focus on systemically important (or large and complex) financial institutions (SIFIs, LCFIs), which typically also run the major prime brokerages. For this reason, financial stability-oriented hedge fund regulation could be effective by emphasizing the counterparty risk management practices of LCFIs, ensuring sufficient collateral and adequate margin requirements, as well as reasonable leverage ratios and limited maturity mismatch. Regulation has to ensure that competition between prime brokers does not crowd out proper risk management standards. Regulation proposals can be grouped in

²¹ The court argued that the presumption used by the SEC, namely that there are typically many investors needing protection, were misplaced in the case of hedge funds, as there is only one client to the hedge fund advisor, the fund.

²² While accurate numbers are not readily available, industry estimates show failure rate of 3-6%, and average life to be less than 4 years.

one of two categories, direct regulation of hedge funds entities or their advisors, and indirect regulation via prime brokers and counterparties.

With respect to direct regulation, hedge funds may be treated similar to mutual funds, needing registration and facing investment rules. However, we are quite sceptical as to the obligation of a continuous disclosure of exposures, positions and strategies vis-à-vis prime brokers and supervisor. For one, full transparency of positions and strategies interferes with the intellectual property of the fund advisors, possibly making the strategy impossible altogether, or subsidizing copyists. There are also moral hazard issues at work, namely when full disclosure leads fund advisors to feel wrongfully safe, e.g. they expect prime brokers and supervisors to warn against overly risk strategies (caused by herding, for instance). More importantly, perhaps, timely collection of position information in the hedge fund business seems technically unrealistic, because of the fast changes in fund exposures and position taking, and the enormous data collection and analytical requirements involved.²³

Therefore, indirect regulation seems to be a more powerful approach, as far as hedge funds are concerned. This is particularly relevant if macro-prudential risks are addressed. For this reason, the indirect approach to regulation has to take into consideration the systemic dimension. This means that the exposures of prime brokers vis-à-vis hedge funds have to be reviewed as to systemically relevant interdependencies, such as procyclicality.²⁴

Note that most counterparties of hedge funds are regulated institutions themselves, like prime brokers, investment and commercial banks, insurance firms, futures and options exchanges – and these institutions will also show up in the Risk Map.

4.4 Recommendations

In weighing the arguments presented in the preceding sections, we propose a mixture of direct and indirect hedge fund regulation, i.e. a gripper approach.²⁵

- Direct regulation is the first lever, referring to hedge fund registration, combined with the collection of structural data (including a unique identifier, domicile, ownership structure, management advisor, investment objectives). The hedge fund data base will be stored in a publicly accessible register, possibly as a part of the Risk Map project. The structural information can (and should) be complemented by

²³ For this reason Chairman Bernanke, in a speech of 2006, had rejected the monitoring of hedge fund liquidity risk (i.e. the continuous day-to-day monitoring of all major financial market participants). Bernanke states: “A system in which hedge funds and other highly leveraged market participants submit position information to an authority that aggregates that information and reveals it to the market would probably not be able to address the concern about liquidity risk. Protection of proprietary information would require so much aggregation that the value of the information to market participants would be substantially reduced. Timeliness of the data would also be an issue.”

²⁴ As long as hedge funds are not open for investment by the general public, an emphasis on investor protection seems misdirected. However, if hedge funds target retail investors, then quite naturally all rules pertinent to mutual funds do apply as well to hedge funds.

²⁵ Gripper=Zange. Considering hedge fund performance over the past several years, there is a clear lesson from the current crisis. Hedge funds were not involved in the epicentre of the crisis, subprime mortgage origination, they were rather absorbing part of these toxic risks. The crisis experience this far does not support the introduction of direct-only regulatory approach.

balance sheet information on a quarterly or annual basis (e.g., asset under management and capital structure)²⁶. A reasonable size threshold above which registration and reporting requirements apply has to be set, e.g. \$ 100 million assets under management (AUM).²⁷

- Indirect regulation is the second lever. The actual systemic risk oversight should be directed primarily at the major banks providing funding, counterparty positions and transaction services to single hedge funds (prime brokerage). The emphasis will be on monitoring counterparty risk management by prime brokers, including leverage ratios, and by looking after a sufficiently large capital base to cover the risks involved. The first lever, above, provides the necessary information to link any registered hedge fund with all of its brokers, thereby viewing the consolidated exposure of the financial system vis-à-vis hedge funds.
- Concerning funds domiciled in offshore centers, indirect regulation should factor in any risks emanating from counterparties (i.e. hedge funds) not subject to direct oversight, i.e. the first gripper described above. This policy will make the choice of offshore centers as the domicile for hedge funds less attractive.

5. RATING AGENCIES: REGULATION AND SUPERVISION

In this section we will describe the unique role rating agencies have played, and will likely continue to play, in the working of national and international financial markets, particularly with respect to corporate debt, and sovereign debt.

5.1 The role of ratings in bond and structured finance markets, past and present

As has been argued by several studies recently, the growth rates of international financial markets over the past 20 years would not have been possible without the unique role played by the rating agencies. The reason is that the willingness of remote investors worldwide to invest in corporate and governments bonds whose intrinsic quality is difficult to assess requires some short cut language about the default risk embedded in these instruments. Rating agencies have developed over the past almost 50+ years a consistent and easy-to-understand methodology that helps investors to access national and international bond markets beyond their scope of direct expertise, and therefore improve diversification and expected return of their investment. This positive assessment applies to corporate and government bond markets alike.

This being said, the recent past has seen a highly disappointing performance of rating agencies in the new debt markets. These markets, comprising different variants of asset backed securities (e.g., CMBS, RMBS, MBS, CDO, CLO, CDO-squared), have experienced

²⁶ Balance sheet information is not collected on a continuous basis, respecting proprietary information of the funds. Limiting data collection to annual or quarterly data, in line with the Risk Map project, is also reasonable for capacity reasons.

²⁷ A threshold level of \$100 million AUM is about half the average size of the hedge fund universe at year-end 2006.

formidable growth rates over the years 2000-2007. This explosion of volume would not have been possible without the involvement of rating agencies. More specifically, rating agencies carried over their well-established and highly credible bond rating methodology to complex structured finance products, despite the fact that structured finance instruments are profoundly different from straight bonds. Thus, the methodological carry-over applied by the agencies was thoughtless, and indeed irresponsible, eventually wreaking havoc to the agencies' credibility.

Given the important functions rating agencies fulfill in debt markets, the regulatory response to the current crisis has to aim at re-building their reliability and credibility. Not to forget, industry reforms are already under way,²⁸ and the industry panel suggested below will have to evaluate the appropriateness of relevant changes made by the three dominant firms, Moody's, S&P, and Fitch. However, it is assumed that industry self-interest ('market discipline') will play a strong role.²⁹

5.2 Elements of rating integrity (independence, compensation and incentives, transparency)

Why did investors, over so many years, believed in rating opinions by agencies? The trust by investors, which is evident from stock market reactions to bond rating changes, probably derives from the special business model of agencies, which involves a fee-based due diligence service, based on the reputation of its analyses.

The issues at stake are: conflicts of interest, compensation, transparency of the rating methodology, rating performance:

- a) Conflicts of interest: the offering of technical advice related to the structure of CDOs has been criticized widely, and may require closer scrutiny. In particular, allowing issuers to access a so-called "customer-end" of the rating model has greatly contributed to an effective loosening of rating standards. Such direct interaction, therefore, should have to be disclosed to analysts and investors.
- b) Compensation: Agency compensation by issuers should be transparent to analysts and investors. It should be structured such that the agency's integrity is not undermined. How best to achieve incentive-oriented compensation is a topic for future thought, and thus a relevant topic for the policy panel, to be suggested below.
- c) Transparency of rating processes: It has increasingly been demanded, for instance by the European Parliament in their recent draft legislation, that rating agencies should be required to disclose their rating methodology fully. Issuers should have the opportunity to understand the reasons for a particular rating decision, and would have the opportunity to request a correction, if the method has been applied inappropriately. We dismiss this proposal as dangerous. Rather, if issuers are to be

²⁸ All the leading rating agencies are involved in these reform discussions on the technical level.

²⁹ These changes will probably involve a more differentiated rating scale applicable for structured finance products, including information about the status of incentive alignment (see our earlier report prepared for the G-20 meeting in November 2008, p. 2).

discouraged from gaming their own rating,³⁰ one has to avoid that issuers know precisely how agencies reach their risk assessment.

- d) Rating performance: The basis of agency reputation is its rating performance, i.e. its ability to assign ratings such that their embedded default estimations are reliable and precise predictors of actual default risk. The true rating quality of an agency can therefore only be evaluated over time, when defaults have happened (or not). A proper comparison of rating performance across agencies, therefore, is instrumental if agency reputation is to have disciplining effects on agency behavior. In particular, it requires initial ratings, their migration over time, and the fate of the underlying firms to be recorded fully and properly. Such a comprehensive record will allow a systematic comparative evaluation of agency ratings, thereby stimulating quality competition between incumbent agencies.³¹

5.3 Recommendations (registration, transparency, annual report on rating performance)

- Registration and rating depository: Internationally active rating agencies should be registered with an institution entrusted with capital markets oversight, e.g. the IMF or the BIS.
- On a regular basis, agencies are required to deposit their rating assessments with the entrusted institution. The latter takes responsibility for a profound statistical analysis of these data, publishing regularly rating default tables and rating migration tables. Such tables are the basis of an official performance measurement of all internationally active agencies, in order to facilitate an inter-agency comparison of their predictive performance.
- These assessments should be disclosed to markets and investors.
- In addition, we propose to hold a high-level, open annual event that discusses the status of the rating industry and its performance. The use of designated expert panels in a public dialogue with issuers, investors and regulators should help to maintain the right level of awareness, and to stimulate regulatory and industry debate about rating practice.

³⁰ Rating „gaming“ can be achieved by fulfilling all requirements included in the disclosed rating model, but at the same time increasing the risk via asset characteristics that are not covered by the model, and which are known not to be covered, because of rating method disclosure. This is what has happened in recent years in the CDO structured finance market, under the headline of rating models’ “customer-end”.

³¹ To date, all published performance numbers rely on the agencies’ own records. A standardization of the data depository, and of the method of performance measurement will help to strengthen the reputation of the agencies.

6. PROCYCLICALITY: PROBLEMS AND POTENTIAL SOLUTIONS

The earlier chapters of this paper have highlighted some relatively new developments in financial markets, and the ways in which they have contributed to the current financial and economic turmoil. In contrast, this chapter focuses on the underlying tendency towards “procyclicality” in liberalized financial markets, a tendency which has contributed to financial and economic cycles almost from time immemorial.

In the following paragraphs, three issues are discussed. First, what is meant by procyclicality, and why is it a problem? Second, to what extent does this problem have deep roots in human nature itself? Third, recognizing these possible deep roots, what institutional reforms might policymakers suggest to at least moderate procyclical tendencies. Should both monetary policy and regulatory instruments be used to “lean” against the upswing of the credit cycle? Within the latter set of instruments, can Basel II be adapted for this purpose or do we need a Basel III?

Evidently, the purpose of these reflections is to help avoid in the future problems similar to those we see today; in effect, crisis prevention. While this might seem of less pressing concern than managing the current crisis, there are at least two reasons for thinking crisis prevention should also be treated with some urgency.

First, it is clear that many of the policies currently being suggested to manage the crisis may have negative implications looking forward. For example: both monetary and fiscal stimulus have well known dangers over longer term horizons; financial consolidation in the midst of crisis aggravates the “too big to fail/save” problem; and government guarantees invite moral hazard. Concurrent and credible efforts to ensure that similar problems would not be allowed to arise in the future might help compensate for the unwanted, longer term effects of policies needed to deal with today’s urgent problems. In effect, pursuing such a joint agenda provides a means of reconciling the shorter term preoccupations of the Anglo-Saxon schools of thought with the longer term worries more likely to be espoused by Central Europeans. Second, periods of crisis often provide a window of political opportunity to make desirable changes that would otherwise not be possible. As noted in the decomposition of the Chinese character for “crisis”, it is indeed a time of challenge but also one of opportunity.

6.1 What is meant by “procyclicality” and why is it a problem?

Financial systems dominated by market forces (i.e. liberalized) seem better at allocating capital on the basis of relative risks and returns than do repressed financial systems dominated by bureaucrats. Nevertheless, it also seems clear that market dominated financial systems frequently make errors with respect to evaluations of absolute risk and return. In particular, they seem prone to periods of excessive optimism, followed by periods of commensurate pessimism. The challenge for policymakers is to maintain the allocative efficiency of private markets while restraining these cyclical tendencies.

“Procyclicality” is the word used to describe this process of credit driven “boom and bust” in both the economy and the financial system. Often some piece of good news (say, a new

innovation or discovery) and the profits it promises spurs both the demand for credit and the supply of credit. The joint effects of rising optimism and more credit lead to higher asset prices and higher spending, both of which reinforce the optimism. However, as this process unfolds, rational exuberance turns into irrational exuberance and asset prices and spending patterns become increasingly divorced from underlying realities. In sum, the economy becomes increasingly unbalanced. At a so called “Minsky moment”, impossible to predict in advance, something triggers a reassessment and the crisis is on. In the subsequent downturn, the interactions between real and financial processes go into reverse, likely further fuelled by the increasing vulnerabilities of the institutions that provided credit on increasingly easy terms in the first place.

There are various kinds of evidence supporting the view that the concept of procyclicality needs to be taken seriously. At the **macroeconomic** level, history provides many examples of major downturns with antecedents similar to the stylized cycle described above. Consider the major crises which began in the UK and US in 1873, the beginnings of the Great Depression in 1929, the experience of Japan in the early 1990s, the experience of South East Asia in the second half of the 1990s, and the atmosphere of crisis in the US after the collapse of the dot.com bubble. It is noteworthy that each of these crises broke abruptly and without any significant degree of prior CPI inflation, the latter generally reflecting increases in measured productivity in the upswing. At the **microeconomic** level, there are numerous studies which indicate that credit ratings rise in the upswing of the credit cycle, that credit standards decline, that provisions for prospective loan losses (implying rising bank profits), and that speculation and leverage rise sharply. Perhaps worse, all of these tendencies go into sharp reversal in the downturn, as the bad loans materialize, and regulatory tightening commonly makes things worse still.

In sum, the evidence indicates that the inherent procyclicality of the financial system can lead to costly economic downturns. Moreover, a number of academic studies have documented how the number and seriousness of such crises have been growing in recent years. While this latter finding seems to contrast with the concept of “The Great Moderation”, as espoused until quite recently by US policy makers, it may be that the US was only temporarily insulated from these problems. A plausible explanation is that their policy of “preemptive easing” (sometimes called “the Greenspan put”) was responsible for downturns being so moderate, but only at the expense of storing up still further problems for the US economy in the future. These pent up problems are now emerging, raising the prospects of a serious downturn in the US (and a number of other countries) similar in nature to those noted above.

Finally, there are cogent arguments for believing that the problems posed by procyclicality, already materializing in a serious way, could actually worsen in the future. First, financial markets over the last few decades have been characterized by important structural changes; in particular, securitization, globalization and consolidation. It can be argued that each has contributed to both raising the likelihood of financial crisis and the costs of such crises should they occur. Consider, by way of example, how housing markets almost worldwide have turned down simultaneously and how global recession threatens to follow in their wake. Since each of these structural changes has been largely driven by technological progress, which will surely continue, we should expect these trends to reassert themselves once the current turmoil dies down. Second, fair value accounting seems increasingly likely

to be adopted as a global standard.³² While it generally dominates the available accounting alternatives, in itself it is generally thought likely to exacerbate the problem of procyclicality. Third, the great advantage of Basel II is that it allows relative risk weights to change to reflect changes in underlying fundamentals. However, Basel II also implies that the absolute level of the risk weights might also change and likely in a procyclical way. In sum, there are numerous grounds for belief that the problem of procyclicality, already severe, might worsen over time.

6.2 The roots of procyclicality and the lessons it suggests for policymakers

6.2.1 Underpinnings of the phenomenon

It is important to understand the roots of the phenomenon of procyclicality, both to avoid being excessively optimistic about what can be done about it, and to provide some guidance as to which kinds of policy responses might be more useful than others. Two human shortcomings are highlighted here. The first is the tendency of most people to believe that the future will be like the recent past (the extrapolative fallacy). The second tendency is to discount risks excessively, especially those with low probability. Both tendencies imply that the efficient markets hypothesis, which dominates the modern theory of finance, may have serious shortcomings. If so, this must logically also call into question regulatory frameworks (some aspects of Basel II) which assume such efficiency. Moreover, these tendencies also affect the behavior of other involved parties; rating agencies, internal governance mechanisms in financial institutions, and indeed the broader central banking community.

The extrapolative fallacy was highlighted millennia ago in both the Bible and the Koran. Early references to seven fat years being followed by seven lean ones constituted a warning not to simply extrapolate good times. These tendencies persist today. Moreover, there is a self fulfilling aspect to this process in modern financial markets. It is a well documented phenomenon that “momentum trading”, based on the assumption of extrapolation, can prove highly profitable for long periods of time. This incites more people to follow such an investment strategy, which further encourages the momentum of an upswing, and sets the stage for the inevitable downswing which also overshoots for the same reasons.

As for the underestimation of risk, there are many reasons why this might happen in an upswing. One reason is closely related to the extrapolative fallacy. If one presumes the future will be like the past, then past variances can be used to estimate future risks. Indeed, modern risk management techniques, like the calculation of “Variance at Risk”, are explicitly based on this assumption. Thus, periods of low financial volatility, often associated with the steady growth generated by easy credit conditions, are presumed to imply low risk going forward. When we consider the risk of extreme outcomes, a number of further factors come into play. One is “disaster myopia”, the tendency to not want to think about highly improbable but likely extremely costly events (like airplane crashes). The second is our very limited human capacity to predict outcomes of processes in which all the variables are highly endogenous. Not only do we not want to think about disastrous outcomes, but we could not

³² There are a number of currently controversial accounting issues which, unfortunately, this report cannot deal with.

do it well even if we wanted to. The natural human response to this challenge seems to be simply to ignore such possibilities altogether.

These tendencies, to extrapolate the good times and to excessively discount risk (especially tail risk), also explain the recent popularity of strategies which promised significant and steady up front returns, while also increasing exposure to low probability but high cost events, including reputation loss. Consider as examples, the widespread purchase of senior tranches of CDO's, the marked increase in the writing of out-of-the-money options (including CDS's and synthetics based upon them), FX carry trades, and the use of Structured Investment Vehicles by banks. Indeed, some academics have contended that many of the new financial instruments created in recent years were explicitly designed to push expected losses into the tails of distributions where they would effectively "disappear". Recent experience indicates clearly that the risks (expected losses) were still there, if unperceived, and that the lower probability of problems arising was matched by the higher losses likely to arise in the unlikely event that problems did emerge. A good example of this kind of highly non-linear exposure is provided by the super-senior tranches of structured debt products. These were originally rated AAA, but were then suddenly and massively down graded.

6.2.2 Lessons to be learned

Four lessons can be drawn from these reflections and used to guide public policy. The first two support the need for a new institutional structure to resist procyclicality (helping to overcome the "acceptance" problem). The third one underlines the inherent deficiencies of traditional indicators and models of accumulating risk exposure (helping to overcome the "identification" problem). The last lesson points in the direction of rule based responses to procyclicality (helping to overcome the "will to act" problem).

If procyclicality has such deep psychological roots, a first lesson to draw is that it will never be eliminated. Recall the number of serious historical crises noted above, and the evidence for their becoming ever more frequent. In response to this enduring reality, we must accept the need for a new **macrofinancial stability framework**, one which will attempt to moderate the economic and financial costs of these inevitable cycles (the "acceptance" problem). Moreover, if it is accepted that financial crises can never be eliminated, then we should also be preparing ex ante to manage crises better. This would involve such measures as reviewing the adequacy of deposit insurance schemes, the establishment of "shelf banks" to replace "failed banks" to ensure that vital functions can continue, memoranda of understanding between interested agencies (both national and international) and other similar measures.

A second and related lesson has to do with the harm supposedly caused by new financial instruments and practices. If, as suggested above, new instruments essentially provide novel ways of exploiting traditional human failings, then focusing on the new developments (as such) is to miss the forest for the trees. Clearly and importantly, many identified shortcomings in these new instruments and practices should be rectified, as is implicit in the "Risk Map" framework suggested above. However, this will not get to the heart of the procyclicality problem in the way that a new macrofinancial stability framework would attempt to do.

A third lesson has to do with the human tendency (the “identification” problem) to assume that the recent past is generally a good guide to the future. Since most modern statistical models (both macroeconomic and risk management models) are based on high frequency data from the recent past, and effectively assume linearity, they will have to be replaced (or at least complemented) with other methodologies if the hypothesis is untrue. For central bankers this would imply much more attention to low frequency historical analysis for identifying accumulating exposures and non-linear outcomes. For bankers and regulators, it would imply much more reliance on stress tests (what if?) rather than the use of backward looking risk estimates. For everyone it would imply a greater recognition that risks build up steadily during good times, but then materialize (often suddenly and violently) during bad times. Thus “supernormal” profits ought typically to be a source of concern rather than solace. Unfortunately, this seems to be the very opposite of what currently happens at all levels of governance, both internal and external. In the good times, no one (including the regulators) seems prepared to ask hard questions about how high returns can be earned without a commensurate increase in risk.

A fourth and final lesson is that any regulatory framework which relies primarily on market data and market assessments of risk and return will be as “procyclical” as the markets themselves. In the context of Basel II, this implies a much more vigorous use of Pillar II.³³ That is, regulators must have the courage (the “will to act”) to compel actions to safeguard the health of the financial system which market participants would not themselves choose to take. Given how vigorously discretionary actions of this sort will be resisted, and perhaps given regulator’s own reluctance to intervene when things seem on the surface to be going so well, regulators might have to be more reliant on “contra-cyclical” rules going forward.

6.3 Characteristics of a macrofinancial stability framework

The first characteristic of such a framework is that it would focus on **systemic** exposures. In particular, it would pay attention to the dangers associated with many economic agents (households, corporations and financial institutions) having similar exposures to possible common shocks and also the possibility of common responses. It is the shared exposures that lead to systemic problems within the financial sector and to the joint vulnerability of the real and financial sectors.

Given this broad macroeconomic perspective, it would seem appropriate that central banks (given their “top down” perspective) should be intimately involved in the process of resisting procyclicality and systemic distress. This could, but need not, imply that monetary instruments would be used in addition to regulatory ones. Such a mandate for the central bank is consistent with the generally accepted view that price stability should be their principal objective. It recognizes, however, that price stability can be as easily threatened by deflation as inflation, if a boom-bust cycle is allowed to become sufficiently severe. Indeed, a deflationary spiral might prove significantly more dangerous than an inflationary one since monetary instruments can lose their potency in the face of high debt levels and the Zero

³³ As discussed further below, one possibility would be to calculate capital requirements using the methodology suggested under Pillar 1. Then this measure, reflecting each **individual bank's risk posture**, would be grossed up (under Pillar 2) by some factor reflecting **system wide developments** such as aggregate credit growth, deviations of asset prices from longer term trends, etc. In this regard, more empirical work is required to determine which system wide variables seem the best indicators of subsequent crisis.

Interest Rate Boundary. As for regulators, they should continue to monitor institutions and markets (a “bottom up” approach) with a primary focus on ensuring appropriate conduct and consumer protection. This “Twin Peaks” model (now in place in Australia and being suggested elsewhere) has the particular advantage of clarity about objectives, a characteristic which also helps to ensure accountability of the agencies responsible.

A second characteristic of such a framework is that it would be much more **symmetric**. Over the last two decades, there has been a much greater tendency to use monetary policy to lean against downturns than upturns.³⁴ Regulatory policies have been positively procyclical in that they tighten only as losses materialize in downturns. In contrast, what is being proposed here is that the instruments potentially available to resist procyclicality would attempt to lean against the upturn of the credit cycle rather than relying on cleaning up after the bubble had burst. Contrary to what has been the dominant intellectual view to date, concerning monetary policy, the former task (leaning) seems likely to be less difficult than the latter (cleaning). The continuing downturn of the US economy in particular, in spite of massive liquidity injections and monetary easing, attests to this fact.

Using policy instruments to moderate the upswing not only implies a more moderate downswing but also gives policy instruments more room for easing when the downswing does occur. This is of particular importance if one believes that very low interest rates, and/or capital levels can have negative effects on the economy (eg keeping “zombie” companies alive) as well as positive ones.

As noted in Section 3.2.2, conventional models based on recent data are not likely to be very helpful in identifying problems which accumulate slowly during upturns and then suddenly materialize. That is the principal reason why most forecasters missed the current downturn. In contrast, macrosystemic indicators of growing “imbalances” in the economy (defined as substantial and sustained deviations from longer term norms) do seem to have useful predictive powers. Unusually rapid credit and monetary growth rates, unusually low interest rates, unusually high asset prices, unusual spending patterns (say very low household saving or unusually high investment levels) all ought to attract the attention of those charged with resisting procyclicality. Unusually high external trade positions (whether deficits or surpluses) are another macrosystemic indicator that unsustainable exposures are being built up. In addition, microsystemic indicators drawn from financial market data could provide early warning of growing stress or points of vulnerability within the financial system. The Risk Map project described above would hope to shed light on both sets of indicators.

How might these indicators influence the setting of policy instruments? Here, much more work remains to be done. Nevertheless, it is clear that, faced with growing imbalances, monetary policy in the expansion phase of the credit cycle might have to be tighter than inflation control alone would warrant. This policy would then have to be explained to the public. Regulatory policy would have a similar bias, with measures taken to ensure that risk spreads (for expected losses), provisioning (for changes in expected losses) and capital (for unexpected losses) were built up in good times and run down in the bad. These regulatory

³⁴ This has happened against a backdrop of very restrained inflationary pressures, in large part emanating from the globalization process. With central bankers focused almost exclusively the prospects for near term inflation, this implied there was no need to raise rates in cyclical upturns, and no impediment to lowering them in downturns.

policies would then have to be explained to the accounting profession and the fiscal authorities, both of whom have in many cases strongly opposed such policies.

As noted in Section 6.2, the use of discretionary policies to resist procyclicality might prove rather difficult. One alternative would be to rely first on rules for the adjustment of regulatory instruments; for example, dynamic provisioning as introduced by the Bank of Spain. Another possibility, alluded to above, would be to calculate capital requirements as currently proposed under Pillar 1 of Basel II. This relates capital requirements to the perceived risk of the portfolio of individual institutions. This figure might then be grossed up (using the authority of Pillar 2) to reflect system wide imbalances indicating the growing risk of systemic disturbances. Such an approach would offset the inherent procyclicality of Basel II, while building on its strengths, thus obviating the need for a Basel III.

The issue of how to deal with currently unregulated institutions also needs further reflection, since there can be no doubt that tighter requirements on regulated players will encourage migration elsewhere. For this reason and others, automatic (rule based) regulatory measures might prove insufficient to deal with the underlying problem of procyclicality. In this case, both regulatory and monetary policies might also have to be tightened in a discretionary way at a second stage.

A third characteristic of such a macrofinancial stability framework is that the authorities involved would have to be more mutually **supportive**. This implies more cooperation both nationally and internationally.

At the **national**, level, subject to the Two Peaks model which allocates ultimate responsibility for different objectives to different agencies, central bankers and regulators should work much more closely together than is currently the case. This would involve ongoing discussion about both the indicators of procyclicality and the appropriate policy response. Central bankers (mostly economists) and regulators (often from a legal background) need to recognize that they have a great deal to learn from each other. Their respective “top down” and “bottom up” approaches also complement each other. Treasuries should actively encourage such cooperation since, should an unresisted boom turn to bust, it is the taxpayers who will ultimately have to pay for any resulting bailouts. We are seeing this all too clearly at the moment.

As for mutual support at the **international** level, countries wishing to counter procyclical tendencies at home must pay more attention to the international dimension. Three points are worth making, with each leading on to the conclusion that Europe might have a special global leadership role to play. These arguments for an enhanced international role for Europe complement those arguments that recognize Europe’s unprecedented reputation for international cooperation, in forging the European Union as well as the euro area. Moreover, all of these arguments are strengthened given the window of opportunity presented by the current economic and political difficulties of the United States, and the recognition that important emerging market economies need more say in how the global economy is run.

6.4 Recommendations

- Central banks and regulators should agree that procyclicality is a serious problem, and that identifying and responding to the build up of systemic exposures should be a priority for all concerned. In effect, “preemptive tightening” should replace what has been the preference in recent decades for “preemptive easing”.
- There is a need to develop a set of indicators , using both macroeconomic aggregates (macrosystemic indicators) and data indicating growing stresses within the financial system (microsystemic indicators), to alert policymakers of rising systemic exposures. The “Risk Map” project is directed to this end.
- Policymakers should lean against these rising exposures using the instruments available to them, both monetary and regulatory. For both, this will imply significant changes to how they currently behave. Given how hard it will be to use available instruments in a discretionary way, an initial recourse to rules based reactions has much to recommend it.
- Central bankers and regulators, both nationally and internationally, must cooperate more systematically if the problem of global procyclicality is to be dealt with effectively. If significant progress on these issues could be made within Europe, the potential for global solutions would be much enhanced.

7. THE ROLE OF INTERNATIONAL INSTITUTIONS AND FORA, IN PARTICULAR THE IMF, BIS AND FSF

The financial market crisis demonstrates how inter-connected the world economy has become. Trade, foreign direct investment and capital flows as a share of GDP have increased dramatically in recent decades. Consequently, no major economy can prosper on its own. Global cooperation is indispensable to ensure a smooth development of the world economy.

Global cooperation requires well-functioning international institutions and fora to agree on rules and standards, e.g. on trade (WTO), macro-economic policies (IMF) and financial markets (BIS), and to monitor their implementation. Small groups of leading economies – such as the G7/8 and the G20 – have proven useful to steer the work of the international bodies. The Financial Stability Forum (FSF), so far basically a G7-subgroup (with a few representatives from major financial centers as observers), oversees informally the standard-setting process and has played a key role in suggesting reforms in the area of financial market regulation and supervision. For global crisis prevention and crisis management, the work of the IMF, BIS and FSF is of particular relevance.

To strengthen the effectiveness of these bodies, their legitimacy needs to be strengthened and their work should be refocused.

7.1 Legitimacy

International institutions and fora can only play their intended roles effectively if they are perceived to work in the interest of the world community as a whole. For IMF, BIS and FSF, this is not the case at the moment.

However, these bodies have different “legitimacy-problems”:

- **IMF:** There has been a long and controversial debate among IMF member states about the distribution of IMF quotas and the composition of the Executive Board. Decisions in 2006 and 2008 led to a small increase in the overall share in quotas of fast growing emerging market economies (EMEs). Although this adjustment reflected more or less the current distribution of world GDP (measured in PPPs), criticism from major EMEs about their under-representation continues. A related but separate issue is the composition of the Executive Board at the IMF which was left unchanged despite the adjustment in quotas. Nine of the 24 Executive Directors are Europeans. The influence of Europe on IMF policies could actually be enhanced by a reduced and streamlined Board representation from the EU or the Euro area. At the same time, stronger representation of EMEs on the IMF Board would improve their sense of „ownership“, thus allowing the Fund to become more effective.
- **BIS:** Unlike the IMF, which is a truly global international institution with 185 members, the BIS has only 55 members. The more limited membership can be justified by the highly specialised nature of the BIS’ work and mandate, with a clear focus on financial stability that is more relevant for countries with a sizable financial sector. The legitimacy-problem of the BIS is mainly related to the composition of its key committees which are dominated by G-10 countries. This is particularly relevant in the case of the “Basel Committee on Banking Supervision”, which developed the Basel I and II Accords and which does not include any EME. However, the recent appointment of the Mexican Governor as President of the BIS will reduce this institution’s G-10 dominance.
- **FSF:** The FSF has been a G7-subgroup with a few observers from other major financial market centers. It has become the key body for the preparation of regulatory and supervisory reforms but no large EME is represented in the FSF so far (although the G20 decided to expand its membership “urgently”).

It will be important for the composition of the BIS-committees and the FSF to find the right balance between legitimacy and efficiency to enhance their effectiveness.

7.2 Re-focusing the work

In response to the financial market crisis, international institutions must, in the short-term, help to overcome the current crisis and, in the medium- to long-term, do everything possible to prevent the next crisis.

The IMF has an important role to play in both respects. In the immediate future, the macro-economic expertise of the IMF will be useful for the international community to decide on the appropriate short-term policy measures, including the size and composition of fiscal stimulus measures, and to monitor global capital flows and exchange rate developments. Financial support from the IMF will be needed for some countries, either in the form of quick-disbursing liquidity support or through the Fund's traditional financing instruments for countries that need policy adjustments. The financial resources of the IMF, which have remained constant during the last 10 years, may have to be increased. This could be done quickly through the General Arrangements to Borrow (GAB) and the New Arrangements to Borrow (NAB), before quotas are raised. A sufficient level of IMF resources is important to protect the multilateral character of the international monetary system and to avoid excessive reliance on bilateral assistance with less conditionality.

The IMF should continue to develop its capacity to assess the linkages between financial markets and the real economy better. Together with the BIS and the FSF, the Fund should develop a system to analyse macro-prudential risks and design rules that could guide the work of national supervisors in order to reduce the inherent procyclicality of markets (for a more detailed discussion of possibilities to deal with the problem of procyclicality, see section 6.). This will also help the work of IMF and FSF, which already started, to design a better early-warning system, a task to which the BIS should also contribute. In this context, the IMF should also take the lead in organising the collection of data required for the Risk Map described in section 2.

International institutions can also play an important role in designing a more robust macro-economic policy framework that would help to limit the emergence of major bubbles and thus crisis in the future. This is relevant for fiscal and monetary policies.

Fiscal policy has been procyclical in many cases in the past as standard measurements of cyclically-adjusted budget balances turned out to give wrong signals and sharp fluctuations in tax elasticities were “explained away”. All this contributed to bubbles and the current crisis. The IMF, together with other international and multilateral institutions (like the OECD and the European Commission), should therefore develop a better analytical framework for the conduct of fiscal policy.

Similarly, monetary policy that focused too narrowly on inflation targeting and neglected the rapid growth of monetary and credit aggregates often missed early signs of emerging bubbles in financial assets and house prices. In addition, the implementation of monetary policy has sometimes been asymmetrical as policy loosening in downturns happened faster than policy tightening in upswings. The BIS can provide intellectual leadership in developing a more robust, less crisis-prone monetary policy framework, given its financial market expertise and its track-record in warning early about the current crisis.

In addition, the BIS will continue to be the standard-setter in financial markets. Our first report identified important weaknesses in the regulatory and supervisory system and presented some suggestions how to address these problems. The BIS, through its various committees, should close the existing gaps in regulation and supervision, make proposals for tighter capital requirements, where necessary, and review the system to make it less procyclical.

The FSF will give important input to the reform of the regulatory and supervisory system as it is the only international body that comprises officials from finance ministries, central banks and supervisory authorities. The FSF has already provided detailed recommendations in this respect in its various reports to G7 Finance Ministers and it should be the key forum to monitor and guide the implementation of reforms by its members.

The euro area, has a clear interest in fostering such reforms. One way in which it could enhance its leadership role, particularly vis-à-vis larger emerging market economies, would be to champion the case for institutional reform of the IMF. By agreeing to have fewer Executive Directors at the Bretton Woods institutions, Europe would gain credibility by leaving more room for other important players. Moreover, the influence of Europe within those institutions might actually be enhanced.

Finally, resolving these issues of “chairs and shares” in the Bretton Woods institutions would increase the legitimacy and operational independence of the IMF in particular. Since the IMF is the logical institution to rely on to pursue international monetary reform, its enhanced effectiveness would be desirable both for Europeans and others. With emerging market countries sharing a stronger sense of “ownership”, the Fund might find it easier to eventually produce a more universal floating exchange rate system, at least among the bigger currency blocks. Such a system would be less conducive to spreading procyclical shocks across nations.

7.3 Recommendations

- Improve the legitimacy of the relevant international bodies. This implies:
 - For the IMF: to continue the process of quota adjustments in favour of EMEs. In addition, more of the Fund’s Executive Directors should come from developing countries. In this context, the European representation on the Board should be reconsidered.
 - For the BIS: the key committees of the BIS should be expanded beyond G10 countries to include the largest EMEs, such as China, India and Brasil, as full members.
 - For the FSF: as already agreed by the G20, the membership should be expanded. However, the number of countries participating fully (with three representatives) should not increase too much in order not to loose efficiency. It will be important to find the right balance between legitimacy and efficiency.
- Re-focus the work of the IMF, BIS and FSF while maintaining the existing division-of-labour between these institutions:
 - The IMF should intensify its work on financial market issues, in particular on the spillovers between financial markets and the real economy, the assessment of

macro-prudential risks, the collection of financial market data and the monitoring of the implementation of agreed standards and codes;

- The BIS-committees should adopt decisions to close gaps in the regulatory and supervisory system and to tighten capital requirements and should review the procyclicality of the system;
 - The FSF, with an expanded membership, should use its unique experience to identify gaps in the regulatory and supervisory system and guide the implementation of reforms carried out by its members.
 - In principle, IMF, BIS and FSF should cooperate closely on issues related to systemic risks, macro-prudential risks and on ways to reduce the procyclicality of the regulatory and supervisory system.
- Mandate the IMF, BIS and FSF to develop a better early-warning system, using their respective expertise. A better early-warning system should incorporate the insights gained from the Global Risk Map and the international credit register proposed earlier in this report.
- As one element of a better early-warning system, IMF and FSF could produce and publish a joint annual International Financial Stability Report (as proposed by the Deutsche Bundesbank).
 - IMF member states should acknowledge that early-warnings are only effective if such warnings are taken into account early-on in economic policy decisions.
- Develop a more robust macro-economic policy framework, with implications for the conduct of fiscal and monetary policies, to help prevent the next crisis. This will be of particular importance during the next few years, after the end of the current crisis, as policy-makers have to find an exit from the exceptional fiscal and monetary policy measures that are unavoidable under current circumstances. If, during the next decade, policies do not compensate for the exceptional stimulus given now, public debt might become unsustainable and/or high levels of inflation might return in some countries. Consequently,
- the IMF should take the lead in designing a “Global Stability Pact” for the conduct of fiscal policy (as proposed by Chancellor Merkel);
 - the BIS should take the lead in designing elements of a more robust monetary policy framework without compromising the independence of central banks.
- Increase the financial resources of the IMF:
- In the short-term, the GAB and NAB should be increased, possibly doubled and the membership of the NAB should be broadened to include all G-20 countries.

- In the medium-term, the quotas of the IMF should be increased substantially. A large quota increase will also make it easier to accommodate a shift in relative quotas in favour of EMEs.