

Cross-border crisis management: a race against the clock or a hurdle race ?

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Introduction

In recent months discussion and debate regarding the supervisory architecture for cross-border financial institutions in Europe have become lively and intense. Fed by industry complaints regarding the cost burden associated with the current supervisory framework, in which banking supervision is organised along national lines and cross-border banks must often report to multiple supervisors, these debates have generated many proposals. In one such proposal, the European Financial Services Round Table advocates a lead supervisor model, whereby the authorities supervising the parent institution would play a key role – assisted by a college of supervisors comprised of authorities from countries in which the institution has substantial operations (see European Financial Services Round Table, 2005).

Supervision of financial institutions and management of crises involving these institutions are intrinsically linked; hence proposals relating to the supervisory architecture also have a bearing on the potential organisation of crisis management functions. For instance, the lead supervisor model would emphasize the key role of authorities in the home country, and could lead to difficulties in managing a crisis, at least as long as the question of cost sharing among the countries in which the faltering bank operates has not been resolved. Yet, as noted by the European Commissioner McCreevy (2005), determining “who pays the bill if a part of a banking group becomes insolvent”, i.e. establishing the financial responsibilities of national authorities, constitutes a major issue in crisis management for cross-border banks.

This article addresses issues related to crisis management for cross-border financial institutions. The analysis of the difficulties involved in cross-border crisis management proceeds by first identifying obstacles to swift crisis resolution in a purely domestic context (Section 1). Part of the complexity of crisis resolution is attributable to the fact that banks combine retail and wholesale sources of funding, and they often also operate a mix of business lines. Once domestic crisis management has been analysed, the additional complexities arising in the cross-border context are identified (Section 2).

Although the number of large cross-border banks in Europe is limited, the issues that a crisis of one of these institutions would raise are crucial, particularly as the mere threat of the bankruptcy of a single large cross-border bank could generate significant disruptions in the financial systems of several countries. Yet, cross-border crisis management gives rise to particular challenges. For instance, as suggested above, nationally based crisis management responsibilities for cross-border institutions can lead to conflicts of interest between national authorities in a crisis, and these conflicts are likely to be amplified when public funds are at stake. In addition, defining supervision and crisis management responsibilities along national lines may lead to situations where the authorities’ approach to supervision and crisis resolution is not compatible with banks’ functional and/or business-line approaches to their operations, which often transcend national borders.

After highlighting the difficulties associated with cross-border crisis management, the article draws some implications for cross-border supervision and crisis management functions (Section 3). It also discusses some of the ongoing initiatives aimed at tackling cross-border issues.

1. Crisis management in a domestic context: why is it so complex?

Understanding the rationales underlying the regulation of financial institutions helps to appreciate the complexity associated with the management of a crisis of even a purely domestic bank. Two main rationales justify the regulation of financial institutions:

- First, small uninformed depositors have neither the capacity nor the incentives to monitor bank management; therefore, they need to be represented by an agent who will ensure effective “debt governance” of the institution (the representation hypothesis of Dewatripont and Tirole, 1994). This representation role is taken on by public authorities, who monitor banks in the name of retail depositors.
- A second rationale for bank regulation derives from the observation that bank failures may lead to potential externalities, which can be of two different types. First, banks perform functions that are critical to the financial system and the economy, such as provision of the means of payment and the financing of small and medium-size firms. Bank failures can jeopardize the performance of these functions. In addition, certain individual banks may provide services such as clearing or settlement, custodian services for securities, or correspondent banking, which are also deemed critical for the efficient functioning of the financial system. A second type of externality arises from the possibility of a bank failure generating contagion effects, created by interlinkages between financial institutions, such as lending and borrowing through interbank markets.

Both the organization and the scope of responsibility of financial authorities are influenced by these two rationales. Yet, although financial authorities’ responsibilities may be well delineated in normal times, it may be more complex to define them in a crisis. This section deals with specific challenges arising in the management of a domestic banking crisis.

1.1 Complexity and size of the financial institution

Crisis management is complicated by (1) the combination of retail and wholesale sources of bank funding, as well as by (2) the mix of differing business lines operated by many banks:

- (1) The first rationale for banking regulation, i.e. the protection of small depositors, obviously relates to the retail funding of banks. If banks were funded solely through wholesale sources, this rationale for bank regulation would no longer exist. Protection of retail depositors through deposit insurance may necessitate funds to compensate insured retail depositors in a crisis, up to pre-specified limits. However, if the deposit insurance fund is privately owned and adequately funded, the use of public funds to indemnify the depositors will not be necessary. On the other hand, wholesale sources of funding, such as interbank lending, are combined with retail sources for banks. If wholesale sources of funding react more swiftly than uninformed retail depositors to a crisis affecting the bank, the latter (and consequently the deposit insurance fund) may end up bearing a disproportionate share of the burden of the crisis. In addition, the presence of wholesale sources of funds gives rise to the possibility of contagion across banks via the wholesale funding channel. This prospect of contagion and the associated negative impact on the retail depositors of the affected banks may well result in the use of public funds to aid the initial failing bank, in order to prevent contagion from occurring.
- (2) An additional layer of complexity arises when a bank mixes differing business lines. This is the case in e.g. universal banks. In these banks, a problem initially arising from potentially riskier activities, such as investment banking, may affect the entire institution⁽¹⁾.

The management of a crisis involving a large financial institution, especially if the banking system is already concentrated can lead to a problem referred to as “too-big-to-fail”. Here again, however, the nature of the bank’s operations plays a key role, especially as a “functional” approach (protection of critically important functions) may be preferable to a “size” approach (protection of institutions that are “too-big-to-fail”). To the extent that a bank provides some critically important functions, then this bank may be judged to be “too-critical-to-fail”. As is discussed in Box 1, however, pre-specified, privately funded

(1) A more explicit form of contagion between investment banking activities and retail depositors has been explored in the literature relating to a form of moral hazard by which universal banks may implicitly require its retail depositors to invest in more risky activities (see e.g. Boyd et al., 1998).

mechanisms can be set up to ensure business continuity of critically important functions (see e.g. Hüpkes, 2004).

1.2 Public policy objectives and conflicting interests

Even at a domestic level, the objectives of public policy are potentially conflicting. Three kinds of conflicts are identified: (1) objectives resulting from financial stability policy may conflict with objectives of public policy in other areas; (2) it may be necessary to trade off short term and long term objectives of financial stability; (3) the different financial authorities involved in crisis management may pursue incompatible objectives. Some of these conflicts are illustrated below.

1. Public authorities pursue several objectives simultaneously, relating to industrial policy, competition policy, investor and consumer protection and financial stability. Conflicts between the different objectives can materialize in case of crisis. For instance :

- Competition and financial stability policies are sometimes presented as conflicting: in crisis times, some measures aiming at stabilizing the financial system (such as mergers of distressed banks with healthy ones) may result in higher concentration or subsidies and may conflict with competition policy. In the European Union, some of these measures, even in a purely domestic context, may require prior approval from the European Commission.
- Investor protection and financial stability. listed groups are often obliged by law to disclose any sensitive information. However, the disclosure of sensitive information regarding emergency measures taken in listed banks to safeguard financial stability may be counterproductive if it triggers panic among investors and deposit holders.

2. Even if authorities focus solely on financial stability objectives, in some situations crisis management authorities will have to trade-off long term and short term objectives. In the US, for instance, the Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991 requires that authorities adopt least-cost policies, but allows a deviation from the least-cost resolution principle for “essential” banks. The definition of such a policy may generate expectations of future intervention for “essential” banks and consequently may encourage future undesirable behaviour by banks that would like to become essential or that already assess themselves as “essential”. This problem is especially acute in concentrated banking systems.

3. The institutional architecture, at the national level, often comprises several different agencies. Each agency is in charge of the management of a specific aspect of the crisis or intervenes at a different stage in the development of a crisis, ranging from normal times to full blown crisis situations. Although operational arrangements to handle supervisory and crisis management functions vary from country to country, a stylized presentation of the agencies that could possibly intervene in a crisis and their likely roles is given below :

- Supervisory authorities The agency in charge of banking supervision probably possesses the most complete and up-to-date information and is likely to be the first to detect problems in individual institutions that might necessitate the intervention of the other agencies. The organization of supervisory authorities differs from country to country. Supervisors may represent a division of the central bank or be constituted as an autonomous agency and may cover banks, securities and insurance firms or focus only on banking supervision.
- Central bank Circumstances may lead the central bank to act as lender of last resort (LLR). In addition, thanks to its involvement in wholesale liquidity markets and in payment systems, such as Target, the central bank is likely to possess information both on the liquidity position of the ailing bank, and on the repercussions of disturbances on other banks through payment and settlement systems and on wholesale markets in general.
- Deposit Insurance: Deposit insurance schemes insure depositors against losses, subsequent to the default of their bank. The crisis management role of the agency managing the deposit insurance fund can range from the “passive” indemnification role of a pure insurance fund to active participation in crisis resolution. The design of deposit guarantee schemes may differ according to several essential elements, including the scope and pricing of coverage and the funding and ownership of the scheme (see e.g. Eisenbeis and Kaufman, 2005).
- Ministry of Finance (or Treasury) Assistance from the Ministry of Finance may be requested when public funds are needed. Although there is no assurance that the Ministry of Finance will be willing to allocate public funds towards the resolution of a banking crisis, as banking crises are often politically sensitive, with far reaching and costly implications for the economy, it is likely that the Ministry of Finance will want to be involved in crisis resolution,

even in cases in which it is not called upon to allocate public funds.

- Crisis manager, Temporary management, Liquidator or Receiver: A crisis or temporary management or a liquidator, responsible for the management or the winding up of the bank, may be appointed. The manager or the liquidator may have to trade off the interests of several classes of creditors. The role of the management and of the liquidator, as well as their rights and duties and their degree of independence, must therefore be clearly specified beforehand. Their goals may be as diverse as to maximize returns for domestic creditors, to preserve going-concern value, to safeguard financial stability, to protect employment, to ensure business continuity of critical infrastructures, etc.

The presence of several agencies illustrates the need to designate ex ante a crisis coordinator, who would be responsible for coordinating communication and actions in the management of a crisis and for the dissemination of information. Several authorities have a vested interest in being appointed co-ordinator. For instance, the Ministry of Finance may be politically accountable for the allocation of public funds. On the other hand, supervisory authorities are likely to be the first informed of a crisis and possess the most complete set of information on the banking group and on its financial situation, while central banks play a key role in the provision of emergency lending assistance.

Even when a coordinator is appointed, tensions between agencies can arise if their roles and objectives or if the procedures for crisis management are not well defined or are ill-conceived and conflicting, especially if agencies do not internalize the effects of their (in) actions on other

agencies. For instance, in a crisis situation involving a large bank facing a liquidity shortage but with a suspicion of solvency troubles, the lender of last resort may favour a liquidation in order to reduce the risk of financial losses, especially if macro-prudential concerns are limited. If the bank is liquidated, LLR funds are not put at risk, whereas funds from the deposit insurance will be mobilized. The deposit insurance fund, on the other hand, may favour continuation of the bank, in order to avoid its funds being tapped (this problem may be exacerbated by the structure of the fund. For instance, recall that some deposit insurance fund are privately owned). Therefore, the institutional design must clearly specify who takes the ultimate decision when a crisis arises, and on what grounds the decision must be taken.

1.3 Additional layers of complexity

Two additional features of crisis situations can generate further complexity: the inherent uncertainty in a crisis; and the race against the clock. A crisis situation is by nature uncertain. Although most crises possess some common features, each crisis situation is essentially unique and presents contingencies that could not have been anticipated or dealt with ex-ante. In addition, the effects of crisis management authorities' decisions are also uncertain, since in most cases, there is no real precedent that would allow an assessment of the potential consequences. As a result, a certain degree of discretion must be left to the authorities. Crisis management is also a race against the clock. A bad situation can very quickly deteriorate, due to the high leverage of banks and the ability of depositors to withdraw their deposits. Decisions must be taken very rapidly to restore confidence and to avoid wide-scale bank runs and disruptions in the financial sector.

Box 1 – Crisis resolution mechanisms

Potential policy responses to banking crises are multiple. As argued by Dewatripont and Tirole (1994), the policy response to an imminent bank failure affects the incentives and behaviour of lenders, potential lenders, bank management and crisis management authorities. One may classify policies according to whether they represent private sector solutions, liquidity support measures, public intervention tools, or the winding-down of troubled institutions.⁽¹⁾ Many factors, including the critical functions performed by the institution, expected costs, the legislative framework, political considerations, the cross-border character of the ailing bank will influence the chosen solution.

(1) See e.g. Economic and Financial Committee (2000).



Private sector solutions:

Two kinds of private sector solutions can be distinguished:

The first relates to predetermined institutional mechanisms, such as for instance:

Privately funded mechanisms ensuring the business continuity of critical functions: Institutions performing some functions that are critical to the stability of the financial system may be induced to consider the establishment of a legally isolated entity that would be capable of taking over the critical functions if a crisis emerges. This entity could be, e.g. a dormant bank. For instance, in the US, the Working Group on NewBank Implementation (2005) is working on the conditions to implement a newly created company to clear and settle US government bonds and to facilitate tri-party repurchase agreements for the sudden and involuntary exit of one of the two US clearing banks. Important challenges may be associated with the protection of critical functions. Bankruptcy law may need to be modified and operational issues need to be carefully studied. Privately funded mechanisms present the advantage of reducing moral hazard, since they allow an institution to go bankrupt while ensuring the business continuity of the critical functions it operates.

The Liquidity Consortium Bank Mechanism: Liquidity Consortium banks are private limited companies in which all major domestic banking associations, as well as the central bank, participate. The objective of a liquidity consortium bank is to provide liquidity assistance to solvent banks that would need it, in order to secure the payment of their transactions. To the best of our knowledge, a liquidity consortium bank exists only in Germany (Liquiditäts-Konsortialbank).

Predetermined institutional mechanisms are generally tailor-made instruments designed to address specific circumstances and are thus highly dependent upon the environment in which they are implemented.

The second kind of private sector solution relates to ad hoc measures, in which authorities may want to or may be asked to act as “powerful brokers”, such as e.g.:

Capital injection by shareholders or external parties: Supervisory authorities will call for a capital injection when a bank is undercapitalized. When, despite this call, capital requirements can not be met, more drastic solutions may be contemplated.

Mobilization of less liquid collateral and refunding by a bank in the markets: An illiquid bank can obtain liquidity through the mobilization of less liquid collateral and the refunding by a bank, or on the market. If, however, an illiquid bank fails to obtain liquidity through these channels, authorities may act as a powerful broker to initiate a solution in which liquidity is provided by a consortium of banks. This consortium would be an ex-post mechanism, while mechanisms similar to the Liquiditäts-Konsortialbank mentioned above are ex-ante mechanisms.

Restructuring of debts: It may be more profitable for creditors to accept a haircut on their debt, imposed by crisis management authorities or determined by collective renegotiation, than outright liquidation.

Acquisition (of parts) of the institution: Merging the ailing bank with a sound bank allows continuation of business while potentially minimizing the use of public funds. However, this type of private sector solution is not always possible for large banks because of excessive concentration in the banking sector, or because of the absence of candidate acquirers for a complex or very large ailing bank.



Liquidity Support Measures:

Emergency liquidity assistance (ELA) is the responsibility of the central bank, which can decide to provide ELA either to an individual institution, in the Bagehot (1873) view, or to the entire market.

In the Eurosystem, the provision of ELA is primarily a national responsibility. Consequently, costs and risks resulting from ELA are borne at the national level. Mechanisms ensuring adequate flows of information between national authorities and the ECB have been set up to ensure that any potential liquidity impact can be managed in a way consistent with the monetary policy stance and to ensure that any cross-border implications can be dealt with by the competent authorities.

Public Intervention:

In exceptional circumstances, governments can intervene to support an ailing bank, to recapitalize it or to nationalize it to eventually resell it, after restructuring, in part or as a whole at an acceptable price. These operations may require some kinds of government guarantees, loans or transfers, potentially accompanied by changes in management. In more complex situations, new structures, such as a bridge bank or an asset management company (a hospital bank) may be set up:

Bridge Bank: Hoggarth et al. (2004) describe the mechanism of the bridge bank. The ailing bank is closed by the chartering authority and is liquidated. A bridge bank, controlled by the liquidator, is set up to permit the restructuring and sale to a private institution. The bridge bank represents a form of temporary state-ownership that allows to guarantee business continuity.

Hospital Bank: The setting-up of a bridge bank can be combined with the setting-up of a separate state-owned hospital bank, to which all bad loans are transferred (see e.g. Mitchell, 2001 and Bonin and Wachtel, 2004)

In the E.U., any public intervention must comply with E.U. legislation on State aid and, in case of intervention of the central bank, with Article 101 of the Treaty Establishing the European Community which prevents any form of monetary financing of faltering banks.

Winding Down:

As suggested by the Economic and Financial Committee (2000), in many cases, the liquidation of the ailing bank will be the preferred solution.

2. The cross-border dimension: an additional layer of complexity

2.1 Assessing the cross-border character of banks

Each layer of complexity identified in Section 1 is likely to become more difficult to manage in a cross-border setting. Before analysing the additional sources of complexity in a cross-border context, we first provide evidence regarding the cross-border nature of several of the largest banks in Europe.

The number of important cross-border banking groups in Europe is limited, probably at between 20 and 40 institutions (see e.g. Schoenmaker and Oosterloo, 2005). However, since most of these banks are very large, a severe stress affecting one of these institutions could have important knock-on effects on the economies of several countries. Table 1 presents a number of potential indicators of banks' internationalization for some large banks in selected countries. The data in this table come from publicly available sources, principally banks' annual reports. Since all banks do not report the values of each variable, the table is incomplete.

TABLE 1 MEASURES OF FINANCIAL GROUPS INTERNATIONALIZATION
(Year 2003)

	Percentage of employees in domestic country	Percentage of net income generated in domestic country	Percentage of deposits located in domestic country (excluding interbank)	Percentage of assets located in domestic country	Percentage loans located in domestic country (excluding interbank)	Total assets (billion USD)	Total assets as a percentage of country GDP	Total assets in domestic country as a percentage of country GDP
Large financial groups in selected small EU member states								
Belgium								
Dexia Group	63.7	47.3				441.9	150	
Fortis Group	49.4	40.8 ⁽¹⁾	55.4 ⁽²⁾	58.7	36.5	535.5	181	106
KBC Group	39.9		52.9	37.8 ⁽³⁾	48.2	284.9	96	36
Netherlands								
ABN Amro Holding NV	28.2		45.8	36.2 ⁽⁴⁾	58.8	667.6	141	51
ING Group	29.6	42.5 ⁽⁵⁾	33.6	33.2 ⁽⁴⁾	46.2	684.0	144	48
Rabobank Group	87.5				80.0	509.4	107	
Sweden								
Nordea Bank AB	26.1				29.7	331.1	131	
Large financial groups in selected large EU member states								
France								
BNP Paribas	54.7	55.1		40.9		989.0	58	24
Groupe Crédit Agricole SA	70.0	67.7			50.8	1,105.4	64	
Société Générale Group	50.0	54.5			60.0	681.2	40	
Germany								
Commerzbank Group	77.4		92.4		71.4	481.9	22	
Deutsche Bank	41.4	39.8		24.5	57.0	1,014.8	47	11
Dresdner Bank Group	78.5	83.1		89.7	40.7	602.5	28	25
HypoVereinsbank AG		87.9				605.5	28	
United Kingdom								
Barclays Group	76.5	74.8	71.6 ⁽⁸⁾	74.7		791.3	46	34
HBOS						650.7	38	
HSBC Holdings	22.1	23.5 ⁽⁹⁾		< 42.6		1,034.2	60	26
Royal Bank of Scotland Group			73.9	69.4 ⁽⁴⁾	72.8	806.2	47	32
Large financial groups in selected non EU member states								
Switzerland								
Credit Suisse Group		38.3 ⁽⁶⁾	46.2	19.8 ⁽⁴⁾	66.5	777.8	337	67
UBS AG	38.5	36.4 ⁽⁷⁾		10.9		1,120.5	486	53
USA								
Bank of America Corp		94.6	82.9	94.3		736.4	7	7
Citigroup Inc	50.3	47.0 ⁽¹⁰⁾	33.6	between 62 and 67	57.9	1,264.0	12	8
JP Morgan Chase & Co		52.3	75.0 ⁽¹¹⁾	76.9 ⁽⁴⁾	90.7	770.9	7	6

Sources: The Banker, OECD, Financial Groups' annual reports.

(1) Total revenues net of interest expenses.

(2) Amount owed to customers.

(3) Banking.

(4) Interest earnings assets only.

(5) Operating profit before tax.

(6) Net interest income.

(7) Total operating income.

(8) Customer accounts including trading business.

(9) Profit on ordinary activities before tax excluding goodwill amortization.

(10) Including Canada.

(11) Including interbank.

The variables in the first five columns of the table propose a set of alternative measures of internationalization. These variables capture different dimensions of the cross-border character of banks, such as the internationalization of the workforce, of revenues, and of assets and liabilities. Taken individually, no single indicator provides a perfect measure of the degree of internationalization of the institution. Taken together, however, the group of variables gives a better idea of the degree of internationalization of each bank, as it reflects differing dimensions of internationalization. Additional variables, such as the organisational structure of the group (branch vs. subsidiaries), data relating to the countries in which the group has significant operations, or data on links with foreign banks, etc., would allow to gain a more accurate picture of some of the risks that could be associated with internationalization, especially as such data could provide insights on banks exposures in individual countries and on the potential channels through which a problem in one country could affect a bank in another country.

Because of their international activities, cross-border banks are usually large. The three last columns of the table allow comparisons of the sizes of large banks relative to the sizes of their home countries. The GDP of the home country is compared to both the total assets and the domestic assets of each large institution. Not surprisingly, total assets represent a larger percentage of GDP in small countries than in large countries. For instance, total assets of UBS AG represent 486 p.c. of Switzerland's GDP while those of BNP Paribas represent 58 p.c. of the GDP in France and those of Citigroup Inc. 12 p.c. of US GDP. The picture is slightly different when we consider domestic assets only. Although domestic assets also represent a larger share of the GDP in small countries, the difference between large and small countries tends to reduce. For instance, domestic assets of UBS AG represent 53 p.c. of its home country's GDP vs 24 p.c. for BNP Paribas. The relative importance of cross-border banks for large and small countries is dealt with in sub-section 2.5.

2.2 Allocation of responsibilities in a cross-border context

The legal structure of a bank influences the supervisory and, to some extent, the crisis management responsibilities of the different national authorities. Cross-border banks can choose between two legal forms of organisation: subsidiaries or branches. Foreign subsidiaries are legally independent entities owned by their parent company. Theoretically, limited liability establishes a legal firewall shielding the parent company from losses in its subsidiaries and vice-versa. Foreign branches, on the other

TABLE 2 TRADITIONAL VIEW OF HOST-COUNTRY RESPONSIBILITY FOR FOREIGN-OWNED BRANCHES AND SUBSIDIARY BANKS IN EUROPE

Host-country authorities are responsible for	Subsidiary banks	Branches
Information sharing	Home/host responsibility	Home/host responsibility
Solvency assessment (supervisory authorities)	X	
Liquidity support (central bank)	X	X
Capital support (political authorities / Ministry of Finance)	X	
Deposit guarantee (deposit guarantee fund)	X	X ⁽¹⁾
Winding down (liquidator)	X	

Source: Adapted from Borchgrevink and Moe (2004).

(1) In the EEA area, branches of credit institutions based in another EEA state are entitled to purchase additional cover in the host country's deposit guarantee fund if the host country's guarantee fund has a better coverage than the home-country fund of which the branch is a member.

hand, are operating entities which are an integral part of the parent company, in that they do not have a separate legal status. The parent company is thus liable for the obligations of its foreign branches. In the case of a crisis, it may thus be easier to organize the disposal of a subsidiary than the sale of a branch.

In terms of supervisory responsibilities, home authorities have responsibility for the supervision of foreign branches (with the important exception of the supervision of liquidity which is the responsibility of host authorities⁽¹⁾), and host authorities have responsibility for the supervision of the subsidiaries they host. Although cross-border crisis management responsibilities are not clearly defined, current perceptions of these responsibilities tend to follow from the supervisory responsibilities. For instance, the host country is considered to be responsible for the liquidity assistance of both branches and subsidiaries it hosts. On the other hand, the home country is responsible for deposit insurance coverage of depositors in foreign branches. A foreign branch may however purchase "top-off" deposit insurance coverage when the coverage offered in the host country exceeds that in the home

(1) As put forward by the Basel Concordat, (Committee on Banking Regulations and Supervisory Practices, 1975), the rationale for entrusting host authorities with liquidity supervision is that "in managing their liquidity foreign banking establishments rely heavily on local practices and comply with local regulations, including those established for monetary purposes". This includes of course the use of local currencies.

country. The host country is responsible for deposit insurance coverage of foreign subsidiaries. Table 2 summarizes the traditional views regarding home-host responsibilities in case of crisis management.

2.3 Public policy objectives and conflicting interests in the cross-border context

The difficulty of defining public policy objectives at the national level in domestic crises was discussed in Section 1. Not surprisingly, adding the international dimension to crisis management makes identification of a single objective more difficult, even in the case where the focus is exclusively on financial stability and when a single authority is in charge of crisis management in each country. Indeed, as each national authority often has a mandate to minimize the negative externalities and the use of public funds at the national level, the objectives of the differing authorities may end up conflicting in some crisis situations, especially if handling externalities in one country would require public intervention in another country.

A classic example in which the objectives of national authorities may differ is that of a bank which is not systemically important in the home country but which nevertheless has a systemically important branch in a host country⁽¹⁾. Imagine that this bank fails. If no private sector solution emerges, the home authorities may be reluctant to use domestic taxpayers' money to bail out a bank that is not of systemic importance. On the other hand, whereas systemic concerns might render host authorities more favourably disposed to using public funds to resolve the crisis, they might not accept to allocate public funds to bail out the home country bank. As long as the sharing of the costs is not predetermined, and consequently, as long as interests between national authorities diverge, authorities may end up acting non-cooperatively.

(1) This example, although frequently cited, is not likely to materialise as the number of systemic branches is limited. Indeed, systemic establishments are preferably incorporated as subsidiaries than as branches.

However, as conflicts of interest are exacerbated by the use of public funds, prespecified cross-border mechanisms that would rely on private funds (see Box 1) and that would ensure the business continuity of systemically important functions could help to alleviate these conflicts. Yet, implementing such mechanisms in a cross-border setting would likely be more challenging than implementing them in a purely domestic context.

In addition to this classic example, there are other situations in which the interests of different national authorities could diverge. Indeed, it is not even necessary for a bank in one country to have an establishment in a foreign country in order for its failure to trigger negative externalities in the foreign country. For example, the failure of a purely domestic bank performing critical functions for some foreign banks can generate negative externalities in foreign countries. Handling these negative externalities would likely necessitate intervention of the home authorities of the bank. Yet, if the mandate of these authorities is to find the least-cost resolution mechanism while minimizing domestic negative externalities, the authorities may simply want to liquidate the bank.

An additional source of complexity is specific to the institutional architecture in the EMU. The primary objective of the Eurosystem is the maintenance of price stability. At the same time, the Eurosystem also aims to safeguard financial stability and to contribute to the smooth conduct of policies pursued by the competent national authorities relating to prudential supervision of credit institutions. Yet, potential tension could arise between these objectives. They are, however, not addressed in the present article (see e.g. Lamfalussy, 2004).

In brief, the purely national mandates of authorities can lead to conflicts of interest between national authorities. These conflicting interests introduce considerations of non-cooperative game theory. Box 2 presents an short overview of the academic literature related to such conflicts.

Box 2 – Conflicts of interest in supervision and crisis management of cross-border banks: an overview of the literature

This box reviews the literature on potential conflicts of interest between supervisors or between crisis management authorities in a cross-border setting. Four main topics are identified: (1) Race (to the bottom or to the top) with regards to capital requirements; (2) Withholding of information by authorities; (3) Excessive forbearance in closure policy; and (4) Inefficiency of improvised co-operation when public funds are needed.



(1) Race (to the bottom or to the top) with regards to capital requirements

Because they have purely domestic mandates, nationally based, or “decentralised” supervisors may fail to internalise cross-border effects of their actions. If they fail to internalise the positive effects of their actions, nationally based supervisors will choose lower capital requirements than would a single, or a “centralised” supervisor of cross-border banks. For example, Dell’Ariccia and Marquez (2006) study a situation in which capital requirements are binding; therefore, an increase in the capital requirements in a given country reduces the loans granted by banks from that country. The reduction of loans by domestic banks reduces competition for foreign banks. The reduction in loans by domestic banks also raises the marginal return of the extra loans granted by competing foreign banks in that country, as foreign banks are able to charge a higher interest rate on the residual demand. This increases the average return to lending of foreign banks, increasing the return to monitoring. Indeed, banks choose the level of monitoring. The model assumes that monitoring costs are increasing and convex in the probability of success of loans. The optimal degree of monitoring by the bank in a given country decreases with the quantity of loans granted (due to decreasing marginal returns of loans), in both the home and the foreign countries in which the bank operates. Hence, if the capital adequacy ratio increases in a given country, loans in this country will fall, and the level of monitoring in foreign countries will rise. A “centralised”, or single, regulator would internalise this positive externality, whereas decentralised, nationally-based regulators will not. Decentralised supervisors, because they have an incentive to lower capital requirements to provide the banks they supervise with an advantage over foreign banks, may then engage in a “race to the bottom”.

On the other hand, if higher capital requirements in one country have negative effects in other countries, then decentralised supervisors will fail to internalise these negative externalities, and they will set higher capital requirements than would a centralised supervisor. Harr and Rønde (2003) analyse this type of case. In their model an increase in the capital requirements in the home country reduces the welfare of home banks’ shareholders, both those located in the home country and those located in foreign countries. The reduction in shareholder welfare is due to the fact that capital is costly. A decentralised supervisor takes account of this reduction when he maximises his welfare function. Yet, since the decentralised home supervisor does not take account of foreign shareholders’ welfare reduction, he may set higher capital requirements than the level that would be socially optimal when the foreign shareholders’ welfare is taken into account.

In reality, to the extent that Basel 2 imposes a certain amount of leveling of capital requirements across countries, one might wonder whether authorities could in practice engage in the “races” studied in the above papers. Actually, the ideas of these models could still apply in the frame of Pillar 2 of the Basel Accord, since Pillar 2 allows authorities to exercise a certain degree of discretion in imposing capital requirements in response to the assessment of certain risks not explicitly taken into account in the capital formulas of Pillar 1.

(2) Withholding of information by authorities

Because information plays a crucial role in crisis management, domestic authorities may withhold information in the case of crisis in order to protect their own domestic interests. Information-sharing mechanisms between domestic authorities in normal times, however, may be argued to reduce asymmetries of information in a crisis involving a cross-border bank. Ex-ante information sharing, however, will only occur if authorities expect a low level of conflicts of interest in crisis times, or if authorities in other countries are believed to be unlikely to exploit their information opportunistically in the case of crisis. In other words, the benefits of sharing information today must exceed the potential costs for domestic authorities resulting from dealing with better informed counterparts in foreign countries in crisis times. The level of information sharing is thus endogenously determined. For instance, Holthausen and Rønde (2003) study the information sharing incentives just preceding bank closure. They conclude that even if the appropriate formal channels for the exchange of information are in place, the current regulatory framework might not work well if the interests of the supervisors in different countries are very different. National supervisors are assumed to maximize the welfare of their own country, disregarding welfare of other countries. ▶

Supervisors in different countries will not always agree on whether to close an ailing bank because, generally, the two countries will be affected differently by the closure decision. The national supervisors thus have asymmetric interests resulting from differences in their own exposures, in the exposure of domestic stakeholders, in the importance of the bank in each country, in the impact on their deposit insurance scheme, etc. Consequently, as incentives to share information are not perfectly aligned at the point of closure of a bank, none of the supervisory authorities will benefit from perfect information sharing.

(3) Excessive forbearance in closure policy

Acharya (2003) studies another form of race to the bottom by supervisory authorities, i.e. a race to forbearance in the decision to close, to liquidate or to withdraw the banking license of a bank. In this model, a greater forbearance in one country constitutes a competitive edge for the banks located in that country. In particular, banks located in that country will be able to invest in more risky assets. Acharya (2003) observes that if capital requirements are constrained to be the same across countries, then supervisory authorities may engage in a race to forbearance, because of the competitive edge that is obtained.

Calzolari and Loranth (2004) study a model in which a supervisor faces a trade-off between intervening early and closing a bank – which generates a sure cost but which may prove to be unnecessary if the bank could have survived – and waiting, which may generate a substantially higher cost if the bank is insolvent and if its insolvency worsens over time. Differences in banks' organisational structures (branches versus subsidiaries) lead to differences in the likelihood of intervention by foreign and domestic regulators. These differences of regulators in the tendency to intervene in troubled banks derive from the differences in the foreign and home regulators' deposit insurance liabilities according to whether the bank is organised via subsidiaries or branches. In addition, the availability of assets from the parent unit to bail out the foreign unit will depend upon whether that unit is a branch or a subsidiary. When the bank is organised via subsidiaries, the home regulator will have the tendency to intervene earlier in the home unit than the foreign regulator in the foreign unit because the home regulator benefits from the residual profits of the foreign subsidiary but is protected from losses of the subsidiary. The home regulator will intervene less often when the bank is organised via branches because the supervisor has to repay foreign depositors.

(4) Inefficiency of improvised co-operation when public funds are needed

In the model of Freixas (2003), a bank bailout is considered to be a public good, and improvised co-operation will lead to an inefficient level of bail out. When co-operation is improvised, different countries' authorities must meet to find out how much they are willing to contribute to a bail out. If the amount they are willing to contribute is greater than the costs of assistance, the bank is bailed out. This game may in fact have a multiplicity of equilibria. In one of them, the bank is never bailed out if the benefits of the bailout in at least one country do not exceed the total costs in the home and host countries; i.e., if no individual country is ready to finance the bail out by itself. This is obviously inefficient; improvised cooperation will lead to under-provision of the public good. Co-ordination is also possible. A single, centralised authority may be designated to collect the benefits and costs estimates of each individual country. Each country will have the incentive to reveal its benefits and costs truthfully if the information that is obtained is only used to reach a bailout decision but cannot be used in the cost sharing rule. Some incentive-compatible mechanisms can be implemented (e.g., the Groves-d'Aspremont-Gerard-Varet incentive compatible mechanism), in which there is no room for ex-post negotiation or for information manipulation.

2.4 Conflicting national legal frameworks

Even in the absence of conflicts of interest between national authorities, the resolution of a cross-border crisis will be more complex than the resolution of a purely domestic crisis because national legal frameworks may differ or, worse, may even be contradictory. In this section, we present a few illustrations of potential obstacles resulting from conflicting legal frameworks.

Competition laws in a country may constitute an obstacle to the resolution of a cross-border crisis. In some cases the proposed resolution mechanism – for instance a takeover of the ailing bank by a sound bank – may be forbidden by a country's legislation, because the proposed solution would result in an unacceptable level of concentration in the banking sector. Although arrangements may be found between national authorities to overcome this problem – such as, for instance, a partial takeover or the sale of the entity in the concentrated country to another participant – these problems are likely to take time to resolve.

Another legal area which may impede a swift resolution process is that of differing insolvency arrangements across countries. (See Box 3 for an illustration of the BCCI case, which spanned countries outside of the European Union). In order to overcome these problems within the EU, several issues concerning insolvency arrangements have been addressed by the European Winding-up directive (see e.g. Deguée, 2001). This directive states that, in the EU, the insolvency framework of the home country will be used for cross-border banks organised via branches. The home authority is thus given the exclusive right to initiate the reorganisation measures and winding-up proceedings, using its national legislation on the winding up of financial institutions. Although the Winding-up directive facilitates the legal treatment of cross-border insolvencies, it clearly does not solve the potential conflicts of interest between national authorities mentioned in Section 2.3.

Many questions remain with regard to the allocation of powers between national authorities when dealing with the insolvency of a cross-border banking group organised via subsidiaries. For instance, in a situation in which the parent company of an ailing foreign subsidiary decides to liquidate it, could the authorities in the country hosting the subsidiary force the parent company to recapitalize it instead? Could the home authorities oppose a recapitalization that would weaken the parent structure? Similarly, if the parent company is in trouble but the subsidiary is sound, could the parent company proceed to a "fire sale" of the sound systemic subsidiary? Could the authorities in the country hosting the subsidiary oppose such a liquidation, even in the absence of buyers at a fair price?

Two issues actually underlie these questions: (1) the "source of strength" doctrine and the associated relationships between parent company and subsidiaries; and (2) the feasibility of transferring assets within a group organized via subsidiaries. The source of strength doctrine requires that a bank holding company uses the resources in its banking and non-banking subsidiaries to support a distressed subsidiary bank (see e.g. Ashcraft, 2004). In the U.S., the Federal Reserve applies the source of strength doctrine by assuming that it is an unsafe and unsound banking practice for a parent holding company to fail to act as a source of strength to a troubled banking subsidiary when resources are available within the parent company. In addition, the U.S. Financial Institutions Reform, Recovery and Enforcement Act of 1989 gives the FDIC the authority to charge off any expected losses from a failing banking subsidiary to the capital of the non-failing affiliate banks within the group. Yet, the application of this doctrine, even in the US, has proven to be problematic. For instance, in two cases (the MCorp and the BNEC cases), the Federal Reserve faced legal opposition to the application of the source of strength doctrine. Although one case made it to the U.S. Supreme Court, the substantive issue was never resolved, and both cases were finally settled out of court (see e.g. Bliss, 2005). In summary, the application of this principle by an authority in a cross-border setting is likely to generate both conflicts of interest between national authorities and long legal disputes.

A necessary condition for applying the source of strength doctrine is that assets be easily transferable between all units of a group, including the parent and all the subsidiaries. However, as subsidiaries are legally incorporated entities and as the subsidiaries in a given group have differing stakeholders and creditors, the management of each subsidiary is generally required by law to protect the interests of the particular company they manage. Consequently, transfers within a group are typically subject to the arm's-length principle, and detrimental transfers may eventually be ruled (perhaps retroactively) to be null and void. In addition, company law often prevents the group-wide interest from prevailing negatively on the individual company interest. Thus, financial authorities, because of their national mandates, may have the duty to prevent any detrimental transfers from entities under their supervision, and they might be held liable if they do not, even if the "detrimental" transfer has been orchestrated in co-operation with foreign authorities. Consequently, whereas the principle of group solidarity is often taken for granted, this principle may not actually be applied in practice if the banking group faces severe problems.

Box 3 – Conflicting insolvency arrangements: a mortality review of BCCI

This box illustrates how cross-country differences in insolvency arrangements could influence the management of a crisis of a cross-border bank⁽¹⁾ (see e.g. Contact Group on the Legal and Institutional Underpinnings of the International Financial System, 2002). Countries may differ on several fundamental points. These conflicting principles create uncertainty regarding the final outcome of a crisis resolution process.

A first crucial difference is linked to the specificity of the financial sector. Some countries have designed insolvency arrangements that are specific to banks and that thus take account of bank specificity. However, in other countries, the legislative framework on insolvency is common to all firms. In addition, each legislative framework is based on one of two conflicting principles:

- the principle of unity of bankruptcy: in which one competent court – namely the court of the country in which the bank is headquartered – decides on the bankruptcy of the debtor;
- the principle of plurality of territory: in which the bankruptcy proceeding is effective only in the country in which it is initiated.

Other fundamental principles settling insolvency arrangements in national legislation can be conflicting:

- the single entity principle: in which all assets of the bank are encompassed in the liquidation (worldwide creditors);
- the separate entity principle: in which each entity is considered as a separate bank.

Besides these broad principles, specific legal clauses may be conflicting. For instance, the right to set-off claims in two different jurisdictions is likely to be different. Depending on the jurisdiction, set-off may be forbidden, partially allowed or totally allowed. If it is partially allowed, some conditions may be required for bilateral set-off to be authorised. Conditions may include that claims are denominated in the same currency, are booked in the same legal entity, in the same country or have the same maturity.

A mortality review of BCCI illustrates the uncertainty that results from the lack of coordination when regulators confront different insolvency laws (see e.g. Basel Committee on Banking Supervision, 1992 and Herring 2003). BCCI banking activities were composed of a bank incorporated in the Cayman Islands (BCCI Overseas) and a bank incorporated in Luxembourg (BCCI SA). The non-bank holding company heading these two banks was incorporated in Luxembourg. Although BCCI SA was supervised in Luxembourg, its activities were conducted in 15 countries through 47 different branches and 2 subsidiaries. BCCI Overseas operated in 28 countries through 63 branches. The operational headquarters of BCCI Overseas were located in the United Kingdom. The other subsidiaries and affiliates of BCCI Holdings operated 255 banking offices in about 30 countries. Subsequent to the fraud in 1991, authorities in the Cayman Islands, Luxembourg, the UK and the US secured control of the assets of BCCI. Yet, conflicts in national insolvency arrangements made the liquidation of BCCI exceedingly complex.

First, the US did not apply general bankruptcy laws to banks. In addition, foreign bank insolvencies were ruled by their own legal framework, which was different from both the framework for firm bankruptcy and for domestic bank insolvency (see e.g. Schwarcz, 2005). On the other hand, the same liquidation law was applied to banks as to other firms in the UK. A third regime was applied in Luxembourg, in which a court had to decide on a case-by-case basis whether to apply general bankruptcy laws or specific rules.

(1) Note that the UNCITRAL model law on cross-border insolvency of 1997 excludes banks from its scope. The problem of conflicting laws may thus be even more acute for banks than for non-financial firms.



Not only did the bankruptcy laws applied to the bank differed across countries, but also did the fundamental principles underlying these different codes. While the US applied a separate entity principle to the liquidation of US branches of foreign banks⁽¹⁾, Luxembourg and the UK insolvency arrangements relied on a single entity principle. Consequently, in the US, a preference was given to domestic claims as the creditors of the US branch were repaid from the assets of the US branch in the United States or worldwide. Creditors from other offices of the bank, on the other hand, had access to the remaining assets only when creditors of the domestic branch had been indemnified. Luxembourg and the UK insolvency arrangements considered, in contrast, that the bank and all its foreign branches belonged to a single entity. Therefore, no geographical class of creditors were given preference.

As this brief overview shows, a lack of convergence of insolvency agreements may lead to unequal and conflicting treatment of similar creditors. This opens the door to long legal procedures, which are justified by the legal uncertainty surrounding the insolvency arrangements.

(1) A US chartered bank is liquidated using the single entity principle.

2.5 Complexity and size of banking group

Even if national authorities' interests were perfectly aligned and legal frameworks compatible, the operational structure of banks might create difficulties in the management of a crisis. Indeed, because the operational structure of a bank could potentially distort the capacity of authorities to effectively exert their powers, it may introduce a divergence between the formal power of authorities and their real power. The choice of operational structure is thus not neutral from a crisis management point of view. In particular two types of structures may cause distortions.

First, some banking groups organize their operations along business lines (e.g. retail banking, asset management, merchant banking, etc.), which may cross national borders. Such organisation may result in a transfer of decision power from the national entities of the group to a centralised business-line manager, who will not necessarily be in the home country. Consequently, it may be more difficult for nationally-mandated (i.e., "decentralised") authorities to manage a crisis, as the cross-border integration of business line management may increase the risk of intra-group, cross-border contagion.

TABLE 3 FITCH SUPPORT RATING: LARGE COUNTRIES VERSUS SMALL COUNTRIES

Rating	Number of banks		Percentage	
	Large countries	Small countries	Large countries	Small countries
1. Extremely high probability of external support	76	44	52.1	68.8
2. High probability of external support	20	10	13.7	15.6
3. Moderate probability of support	40	5	27.4	7.8
4. Limited probability of support	3	2	2.1	3.1
5. External support, although possible, cannot be relied upon . .	7	3	4.8	4.7
Total	146	64	100.0	100.0

Source: Bankscope – April 2006 + own calculation.

Secondly, some banking groups have begun centralising key operational or risk management functions. When a banking group centralises operational functions, such as back office operations, there is a risk that the authorities hosting a subsidiary of the group will become unable to supervise these functions. In addition, they may be unable to assist a sound subsidiary if the parent company that houses the key operational functions goes bankrupt. As a response to such a contingency, authorities are putting in place a policy to manage the outsourcing risk arising from the centralisation of key activities in parent companies⁽¹⁾.

The centralisation of key risk management functions, such as liquidity risk management, in a banking group raises additional challenges. First, it may question the effectiveness of host country supervision of liquidity risk in branches and subsidiaries. Despite the fact that the authorities hosting foreign branches and subsidiaries are legally responsible for the liquidity of these institutions, they may not be able to control how the liquidity is managed in the parent company. In addition, centralised liquidity management may weaken the legal protections arising from the subsidiary structure, as it may create features that make the group resemble one with a branch structure.

Regarding the problems linked to institution size discussed in Section 1, an additional potential issue that arises in a cross-border setting may make the development of cross-border arrangements for crisis management more complex. Namely, large cross-border banks established in small countries may potentially suffer from a handicap that is sometimes referred to as "too-big-to-save". The comparison across small and large countries in Table 1, of the share of GDP accounted for by the assets of banks, suggests that small countries' authorities who would like to financially support some of their large banks in some extreme tail event might be in a challenging situation⁽²⁾. This putative handicap, however, depends upon the extent to which markets price moral hazard associated with the ambiguity surrounding potential support in large and small countries. Yet, rating agencies (and markets) do not seem to consider the issue of the size of large banks in small countries as particularly relevant. For example, the Fitch Support Rating represents a judgement by Fitch of a potential supporter's propensity to provide support

to an ailing bank and of its ability to provide the support. The potential supporter can be a sovereign state or an institutional owner. A quick examination of Fitch Support Ratings, shown in Table 3, suggests that the probability of a bank receiving external support in small European countries is not fundamentally different from the probability of receiving external support in large European countries. These data thus appear to be more consistent with the view that large banks in small countries are more likely to be too-big-to-fail than too-big-to-save⁽³⁾. Rime (2005) presents similar results. He bases his analysis on issuer ratings (Moody's and Fitch) and concludes that rating agencies do incorporate the too-big-to-fail doctrine in their ratings but do not consider the potential too-big-to-save issue. Nevertheless, the fact that rating agencies currently do not seem to take account of potential too-big-to-save effects does not close the debate on large banks and country size. Indeed, in a crisis involving a large cross-border bank, tensions may surface between countries with asymmetric financial capacities. This constitutes an additional issue that renders cross-border crisis management complex.

Countries with large banks have a vested interest in limiting the moral hazard associated with the ambiguity surrounding the potential public support. Interestingly, Fitch support ratings appear, at least at first sight, to be determined both by geographical features and by banks' activities. For instance, Fitch judges that large investment banking groups, which do not collect retail deposits, are unlikely to enjoy external support (see Table 4). Most of these large investment banks indeed receive a rating of 5, although some of them get a 4. Fitch, on the other hand, assumes that the (foreign) investment banking affiliates of large groups can rely on the support of their parent company, and these affiliates are indeed rated with a 1 (e.g. Lehman Brothers Inc or Citibank International Plc). Commercial banks in continental Europe, on the other hand, all receive very high support ratings. In the US and in the UK, however, commercial banks receive low support ratings, except if they can rely on their parent's support. The ratings in Table 4 provide support for the idea that although public funds may be used to indemnify retail depositors, public funds are less likely to be used to assist ailing banks which are not funded by retail deposits.

Note that the issuance of support ratings by rating agencies reflects the idea that market players take account of potential support by authorities. Rating agencies are in the process of refining their methodologies to assess the probability of support. Moody's, for instance, is reviewing its methodology for banks rating and published in October 2005 a request for comments on a proposal to incorporate joint-default analysis into their banks' ratings,

(1) In Belgium, the CBFA issued a Circular (Circular PPB 2004/5) on sound practices with regards to the outsourcing by financial institutions in 2004. See also e.g. Kaufman (2004) or Reserve Bank of New-Zealand (2004) for the specificities of the policy on outsourcing in New-Zealand.

(2) This is a very complex issue. Indeed, even if the banking sector of a country is exclusively composed of small banks, the country may encounter difficulties if these banks are strongly interrelated, causing a high degree of contagion. In addition, a mere look at assets is not sufficient as it does not give an indication of the potential size of risks.

(3) Admittedly, the support rating is not a perfect measure, as the potential supporter is not necessarily a sovereign state. Also, we have not controlled for other variables which might differentiate the banking sectors in small and large countries.

TABLE 4 FITCH SUPPORT RATING:
SELECTED SAMPLE OF BANKS

Bank Name	Country Name	FitchRatings Support
Investment banks		
Macquarie Bank Ltd	AU	4
Nomura Securities Co, Ltd	JP	4
Bank Morgan Stanley AG	CH	1
Citibank International Plc	GB	1
Standard Bank Plc	GB	2
Bear Stearns Companies Inc	US	5
Charles Schwab Corporation	US	5
Deutsche Bank Securities Inc	US	1
Goldman Sachs Group, Inc	US	5
Lehman Brothers Holdings Inc	US	5
Lehman Brothers Inc	US	1
Merrill Lynch & Co, Inc	US	5
Morgan Stanley	US	5
Commercial banks and savings banks		
Dexia	BE	1
Fortis	BE	1
KBC Bank NV	BE	2
Banque AGF	FR	1
BNP Paribas	FR	1
Dexia Crédit Local SA	FR	1
Société Générale	FR	1
Bayerische Hypo-und Vereinsbank AG	DE	1
Commerzbank AG	DE	1
Deutsche Bank AG	DE	1
Dresdner Bank AG	DE	1
Capitalia SpA	IT	2
Dexia Banque Internationale à Lux. SA	LU	1
Fortis Banque Luxembourg SA	LU	1
ABN Amro Holding NV	NL	1
Fortis Bank Nederland (Holding) NV	NL	1
ING Bank NV	NL	1
Nordea Bank AB	SE	1
Bank of Scotland	GB	1
Barclays Bank Plc	GB	1
HBOS Plc	GB	5
HSBC Bank Plc	GB	1
HSBC Holdings Plc	GB	5
UBS Limited	GB	1
Bank of America Corporation	US	5
Citigroup Inc	US	5
HSBC Finance Corporation	US	1
HSBC USA Inc	US	1
JP Morgan Chase & Co	US	5
JP Morgan Chase Bank, NA	US	1

Source: Bankscope – April 2006.

Note: The following codes for countries are used:

AU: Australia; BE: Belgium; CH: Switzerland; DE: Germany; FR: France;
GB: United Kingdom; IT: Italy; JP: Japan; LU: Luxembourg; NL: Netherlands;
SE: Sweden; US: United States.

to reflect any form of support⁽¹⁾, including national government support. Rating agencies thus provide information relevant for the pricing of moral hazard⁽²⁾.

2.6 Uncertainty in the cross-border context

Similarly to domestic crises, cross-border crises are characterised by uncertainty and must be managed rapidly to avoid spillover effects. Yet, additional sources of uncertainty arise in a cross-border environment, since players are likely to be imperfectly informed about crisis management procedures in other countries and about the situation of the ailing bank affiliates in those countries. Decisions may be taken less quickly because of the greater challenges relating to coordination of national authorities, communication to the ailing bank, and communication to the markets. In addition, coordination will be rendered more difficult to the extent that crisis management procedures and cost sharing have not been defined ex-ante and also to the extent that interests between authorities diverge.

The additional layers of complexity arising in the context of cross-border crises and highlighted in this section give rise to three challenges for cross-border crisis management:

- (1) to harmonise conflicting laws;
- (2) to reinforce supervisory co-ordination, especially as supervisory co-ordination helps also to reinforce co-ordination in crisis times;
- (3) to identify potential conflicts of interest resulting from national mandates and to design resolution mechanisms that mitigate these conflicts of interest. This also implies reconciling the legal and operational structures of banks with the effective supervisory responsibilities of home and host authorities.

The next section identifies past and current initiatives aimed at meeting these objectives.

(1) The joint-default analysis would be based on a sequential support model, which would assess the parent and the government probability of support (see Moody's, 2005).

(2) O'hara and Shaw (1990) study the consequences on bank equity of the testimony before Congress of the Comptroller of the Currency in 1984. In that statement, the Comptroller of the Currency acknowledged that the 11 largest banks in the US were too-big-to-fail. They find that positive returns for the concerned banks followed that statement. On the other hand, they find negative wealth effect for the remaining banks. The magnitude of these effects depend upon bank solvency and size. Morgan and Stiroh (2005) investigate the bond spreads-ratings relationship. They find a flatter relationship for too-big-to-fail banks, suggesting that investors take account of potential support in bond spreads.

3. Past and current initiatives in cross-border supervision and crisis management.

Sections 1 and 2 have identified crucial issues relating to the management of domestic and cross-border crises, leading to three challenges for improving cross-border crisis management. Improvements resulting from these challenges, however, are not likely to be exclusively focused on crisis management but may concern banking supervision as well, since supervisory arrangements have a direct impact on crisis management and vice-versa. Efforts to date have indeed concentrated almost solely on supervision of cross-border institutions, and few explicit provisions for managing crises of cross-border banks have been put in place. Further improvements could come from the formulation of explicit crisis resolution arrangements. This section briefly reviews several initiatives that have contributed to improving cross-border crisis management and potential directions for future initiatives.

3.1 Harmonizing conflicting laws

A number of European directives have recently been issued which help to reduce conflicts in the EU legislative framework relating to banking supervision and crisis management. Many of these directives have resulted from the Financial Services Action Plan (FSAP). They include the Winding up directive, the Directive on deposit guarantee schemes, the Directive on financial collateral and the Financial conglomerates directive. The European Commission, however, has recently noted that the transposition of Community law resulting from the FSAP is currently too slow.

3.2 Reinforcing supervisory coordination and fostering convergence of supervisory practices

The existing supervisory framework in the EU, established through the European banking Directives and in accordance with the Basel Concordat of 1975, rests on the principles of home country control, of mutual recognition and of a single banking licence. This framework, from which crisis management responsibilities are derived, could not work without some supervisory co-operation.

Indeed, reinforcing supervisory co-operation and fostering convergence in supervisory practices have constituted the cornerstones of past and recent initiatives.

Initiatives to foster supervisory co-operation and co-ordinate practices have been taken at the global level, mainly through the Basel Committee on Banking Supervision (BCBS). In 1990 the BCBS issued recommendations with regard to the exchange of information between supervisors, defining the information needs of the parent authorities, as well as the information needs of the host authorities. More recently, the Concordat has been supplemented with recommendations on minimum standards for the supervision of international banking groups and their cross-border establishments (1992), recommendations on the supervision of cross-border banks (1996) and a consultative document on a revised version of the Core Principles for Effective Banking Supervision (2006). In parallel, the BCBS has also published high-level principles for the cross-border implementation of the New Accord (2003), principles for the home-host recognition of the advanced measurement approach for operational risk capital (2004) and a consultative document on home and host information sharing for effective Basel II Accord implementation (2005).

At the European level, an important role is being played by the Committee of European Banking Supervisors (CEBS), whose mandate is to “advise the European Commission on banking policy issues and promote convergence of supervisory practise across European Union [and] (...) also foster and review common implementation and consistent application of Community legislation”⁽¹⁾. The range of CEBS initiatives to improve co-operation and convergence of practices includes the following:

- In order to improve **co-operation**, CEBS has recently published guidelines on cooperation between supervisors of EU banking groups and investment firms (CEBS, 2006). These guidelines are devised to promote an efficient supervisory framework for groups that operate in several EU jurisdictions, by enhancing the operational networking of national supervisors. In addition, according to its Charter⁽²⁾, CEBS is also in the process of improving procedures for information exchanges.
- In order to enhance **convergence of supervisory practices**, CEBS has published a document on the application of the supervisory review process under Pillar 2 of the Basel II Accord. CEBS has also published guidelines setting out a framework to deal with cross-border applications for approval to use the Advanced Measurement Approach and the Internal Rating Based Approach.

(1) See CEBS website: www.c-eps.org

(2) CEBS charter mentions that “considering that close co-operation as well as information exchange between regulatory authorities are essential for the successful supervision of the European banking sector and that synergies between banking supervision and central bank oversight should be taken into account, (...) The Committee will develop effective operational network mechanisms to facilitate the exchange of information in normal times and at times of stress and to enhance day-to-day consistent supervision and enforcement in the Single banking Market”.

CEBS has also acted as a catalyst in a series of other projects. For instance, CEBS has recently published guidelines on a common reporting framework to be used by credit institutions and investment firms in reporting their solvency ratios to supervisory authorities under the Capital requirements directive (CRD), as well as guidelines for the implementation of the framework for consolidated financial reporting. Harmonisation of reporting also remains one of the objectives of the Commission of the European Communities (2005), which expressed its intention to develop common reporting requirements and potentially common prudential databases by 2009. Indeed, from 2009, all EU banks, insurance undertakings and major investment companies should be able to send one complete reporting package to the competent authority at the consolidated level.

Other bilateral and multilateral initiatives have recently contributed to improving supervisory networks. Authorities in several countries have negotiated bilateral and multilateral Memoranda of Understanding (MoU). The allocation of supervisory responsibilities is sometimes defined in MoU, which may include practical considerations regarding the exchange of information, joint inspections, organization of contacts between supervisors, etc. (see e.g. Majaha-Jartby and Olafsson, 2005). MoU may be drafted with respect to a specific cross-border (cross-sector) group or may be more general, describing expected behaviour of authorities in specific situations. In accordance with their competencies, authorities such as central banks or treasuries, in addition to supervisory authorities, may be parties to these MoU. However, MoU do not prevail over national laws and do not modify responsibilities of national authorities (see e.g. Wymeersch, 2005).

The reinforcement of supervisory coordination and convergence of supervisory practices are essential for mitigating potential conflicts of interest between national authorities. These activities also help to create networks of authorities. Creation of such networks is a necessary – although not sufficient – condition for diminishing conflicts of interest in the management of cross-border crises, as trust appears to be an essential element in the management of a crisis. The economic literature on “social capital” confirms this view and suggests indeed that social connections may help agents to interact co-operatively⁽¹⁾. One of the objectives of networks of supervisors is to create this social capital. However, if a significant crisis were to arise, conflicts of interest could potentially take the upper hand over trust. More robust mechanisms are probably needed for identifying conflicts of interest and solving or mitigating them.

(1) Glaeser et al. (2000) use experimental economics to show that trust may facilitate the co-operation necessary to achieve a public good.

3.3 Looking forward: Identification of conflicts of interest and design of a robust crisis resolution mechanism

There would appear to exist some prerequisites for defining a robust mechanism for dealing with cross-border crises. The development of such a mechanism could be structured around three steps: (1) agreement on conditions for potential recourse to public funds; (2) clear definition of crisis responsibilities and (3) test of the proposed framework. In addition, a clear definition of objectives, roles and responsibilities of agencies in charge of crisis management at the national level could facilitate the development of procedures for cross-border crisis management.

Agreement on conditions for potential recourse to public funds: As crisis management may require public funds, it would be desirable to agree ex-ante on the conditions under which public funds would be used and how costs, if any, would be allocated. The design of such a mechanism would therefore need to answer at least two questions:

- (a) In which cases could public funds (taxpayers’ money) be used, and which cases must be solved without public funds?
- (b) How to share costs in the cases where public funds are used?

(a) The recourse to public funds to manage a crisis usually constitutes a last resort. In theory, public funds should be used to indemnify retail depositors only when the deposit insurance scheme is publicly funded. In other cases, authorities should try to limit their role to the provision of emergency liquidity assistance, if necessary, and to the role of a “powerful broker” in facilitating a market-based solution to the crisis. These latter mechanisms also present the advantage of limiting moral hazard. As such mechanisms are by nature ad-hoc, however, the range of measures that could be implemented and the nature of critical functions that should be protected should be further studied.

In practice, however, despite authorities’ ability to make use of these mechanisms, in some extreme situations the use of public funds may nevertheless be required to avoid very large disruptions in the banking sector. Yet, even in these situations, it remains essential to try to restrict the use of public funds to the indemnification of retail depositors. Different ways to do this should be explored. First, ensuring the continuity of critical functions is one avenue that could be pursued. Second, the Purchase and

Assumption (P&A) regime implemented in the US could be further studied, especially as this regime, in which a healthy financial institution *purchases* (some of) the assets of an ailing bank (e.g. loans) and *assumes* (some of) its liabilities (e.g. insured deposits and secured liabilities), enables authorities to protect insured depositors⁽¹⁾ without necessarily extending their protection to uninsured depositors. Third, the restriction on the recourse to public funds suggests that some sort of firewalls could be put in place to prevent a shock arising from a complex financial group's potentially riskier activities from affecting the bank's retail depositors. This principle would facilitate the design of cross-border cost sharing agreements. Some large and complex financial institutions have adopted organisational structures that potentially limit excessive contagion from wholesale activities to retail activities, for instance by locating some of their activities in subsidiaries rather than in a department of the same legal entity⁽²⁾. From a public good perspective, an advantage associated with this structure is that while such an organisational design does not prevent the mother company from supporting a legally isolated business line in a stressful environment, it would help to cap the public support in the extreme cases where public funds would be at risk. In a cross-border setting, an agreement to better define the limits of potential public support is an important condition, although not the only one, for a more integrated financial supervisory architecture.

(b) The presence of different national pools of tax-payers suggests that it would be desirable to define ex-ante a mechanism to allocate costs in *tempore non suspecto*, in order to avoid tensions between national authorities in a crisis. The question of the burden sharing in case of crisis is addressed in Goodhart and Schoenmaker (2006). Three important features of cost sharing schemes would need to be addressed:

1. Should the mechanism be bank-specific or not ?
2. Should the mechanism be prefinanced or not ?
3. Which rule should be used to allocate costs ?

(1) On the P&A regime, see e.g. chapter 3 of FDIC (1998). The range of possible P&A resolution structures implemented by the FDIC varies from the basic P&A to more complex structures requiring a bridge bank or a loss sharing P&A. In a basic P&A transaction, cash and cash equivalents are passed to the acquirer, together with some of the insured deposits. Besides cash, loans may also be passed to the acquirer (such as in loan purchase P&As or in modified P&As). Put options on certain assets that are transferred may be offered by the FDIC to the acquirer in order to induce the acquirer to accept a larger share of the assets. In order to decrease the amount of assets it holds, the FDIC may also organise, in some cases, a bid that concerns all the assets of the ailing bank (whole bank P&As). Instead of selling assets at a discounted price, in loss sharing P&As, the FDIC accepts to assume some of the future losses of the transferred pool of assets. In a bridge bank structure, the acquirer is the FDIC (see box 1 for more information on bridge bank structures). See also Covitz et al. (2004) for the impact of the introduction of the P&A regime on subordinated debt issuance decisions in the US and on its implications for market discipline.

(2) Such structures were implemented for reasons which are not directly linked to financial stability. For instance, the asset management business line is often incorporated in a subsidiary. This may be less the case for investment banking.

These choices are important, as they influence the incentives for authorities to co-operate.

1. In a bank-specific mechanism, only the countries in which the bank requiring assistance is active (according to the allocation rule) would provide finance. If the mechanism is not bank specific, all the countries participating in the cost sharing mechanism are "jointly liable" in case of a crisis. The choice of this feature would not only affect the crisis management setting but would likely have an important bearing on the supervisory architecture.
2. With prefinancing, participants allocate premiums to a fund that could be tapped on short notice by an authority which, ideally, would internalize all the domestic and cross-border knock-on effects resulting from the crisis. The funds could also be supplied only if a crisis arises, according to a predetermined sharing rule.

Both prefinancing and ex-ante cost sharing mechanisms may be problematic. First, as the amount of funds that would be necessary to manage a crisis is uncertain, *prefinancing* may be difficult because the fund could be quickly exhausted in a severe crisis. Should the fund be depleted, participants who were not affected by the crisis might be reluctant to refinance the fund. In addition, setting up such a fund might create moral hazard problems for banks and for authorities in charge of supervision.

Ex-ante cost sharing agreements, on the other hand, are also complex to implement. The crisis "game" is played only once or very infrequently, so there may only be limited possibilities to punish deviations (though repeated interactions in the course of supervision in normal times and throughout the evolution of the crisis might introduce some ways to punish deviations). In addition, contracts are necessarily incomplete, as they can not take account of all possible contingencies. Cost-sharing mechanisms might also reveal themselves to be inconsistent with Community rules preventing state aid to ailing firms. Goodhart (2005) argues that at the national level, authorities in charge of crisis management could decide to solve the emergency situation first and to check consistency with EU directives at a later stage. This would seem to be more problematic to accomplish with funds managed directly at the EU level.

3. The choice of a rule to allocate the costs of a crisis is conceptually and practically difficult but is nevertheless critical, as it will influence the incentives and behaviour of both banks and authorities. An additional question regarding such a rule, however, is whether it should be based on (risk-weighted) assets, liabilities, or on some other criterion.

Definition of crisis management responsibilities:

The preceding analysis suggests that the current framework for crisis management could be improved. Any new framework, however, would need to be compatible with the funding mechanism and should provide a clear allocation of responsibilities. As the design of the funding mechanism is intrinsically linked to the allocation of responsibilities, the compatibility between these two components should be assured. In addition, compatibility of the funding mechanism and the allocation of responsibilities with the supervisory architecture should be also checked, as they are fundamentally interrelated.

The current institutional design leaves too much room for unconstructive ambiguity and for tensions⁽¹⁾. In order to reduce these, it might be necessary to consider automatic procedures for triggering crisis management, such as prompt corrective action rules. Allocation of responsibilities also implies not only clearly defining the legal responsibilities of each authority but also ensuring the will of each authority to perform the assigned tasks in case of crisis and the capacity of these authorities to perform the assigned tasks. In addition, the allocation of responsibilities should have an undisputable legal basis.

Test of the proposed crisis resolution mechanism:

Some authors have argued that a small cross-border crisis (small enough to avoid any serious problem but large enough to highlight potential weaknesses of current

arrangements) could be desirable (see e.g. Goodhart, 2005). Well-designed stress-tests however also allow identification of weaknesses of proposed crisis management arrangements before they come into force. Such exercises have the added benefit of reinforcing networks of crisis management authorities, which may reduce obstacles to communication and coordination in an actual crisis. Finally, stress-tests can allow identification of situations in which conflicts of interest are likely to materialize and indicate which components of national legal frameworks could be conflicting. Yet, the extent to which these stress-tests are really informative depends on the willingness of participants to act as if they were facing a real crisis. For example, participants may have ex-ante incentives to act cooperatively during exercises but less cooperatively in real crises.

This three-step approach is likely to deliver several different frameworks for crisis management. Some of these frameworks may require institutional or legal changes, especially as one may have reached the limits of what is legally possible to undertake in order to improve cross-border crisis management in the current environment. The feasibility of each resulting framework may therefore be assessed as a function of the necessary changes it would imply. In addition, it is essential to understand that a necessary condition for the system to work is that the allocation of responsibilities be compatible with the agreement on the conditions for potential recourse to public funds and vice-versa. Yet, although a cost allocation scheme should be part of that agreement, it would seem essential to explore any avenue that would allow limiting the recourse to public funds, especially as public funds should only be used in a very restrictive number of cases. Pursuing such an avenue could help to reduce the different sources of moral hazard that are currently excessively present within the financial system and thereby reinforce market discipline.

(1) Note that "the need to clarify and optimise home-host responsibilities as integration accelerates" is one of the challenges identified by the Commission of the European Communities (2005).

References

- Acharya V. I (2003), "Is the International Convergence of Capital Adequacy Regulation Desirable?", *Journal of Finance*, 28, 2745-2781.
- Ashcraft A. (2004), "Are bank holding companies a source of strength to their banking subsidiaries?", Federal Reserve Bank of New York, Staff Reports, 189.
- Bagehot W. (1873), *Lombard street, a description of the Money Market*, London: HS King.
- Basel Committee on Banking Supervision (1979), "Consolidated Supervision of Banks International Activities".
- Basel Committee on Banking Supervision (1983), "Principles for the Supervision of Banks Foreign Establishments".
- Basel Committee on Banking Supervision (1990), "Information Flows between Banking Supervision Authorities".
- Basel Committee on Banking Supervision (1992), "The Insolvency Liquidation of a Multinational Bank".
- Basel Committee on Banking Supervision (1996), "The Supervision of Cross-border banking".
- Basel Committee on Banking Supervision (2003), "High-level Principles for the Cross-border Implementation of the New Accord".
- Basel Committee on Banking Supervision (2004), "Principles for the home-host recognition of AMA operational risk capital".
- Basel Committee on Banking Supervision (2005), "Home-host Information Sharing for Effective Basel II Implementation: Consultative Document".
- Basel Committee on Banking Supervision (2006), "Core Principles for Effective Banking Supervision – consultative document".
- Bliss R. (2005), "Multiple Regulators and Insolvency regimes: Obstacles to Efficient Supervision and Resolution", Forthcoming in *The Structure of Financial Regulation*, ed. D. Mayes and G. Woods.
- Bonin J. and P. Wachtel (2004), "Dealing with Financial Fragility in Transition Economies", Presented at the Federal Reserve Bank of Chicago Conference on *Systemic Financial Crises: Resolving Large Bank Insolvencies*, September 30.
- Borchgrevink H. and T. G. Moe (2004), "Management of Financial Crises in Cross-Border Banks", *Norges Bank Economic Bulletin*, 04-Q4, 157-165.
- Boyd J., C. Chang and B. Smith (1998), "Moral Hazard under Commercial and Universal Banking", *Journal of Money Credit and Banking*, 30, 3, 426-468.
- Calzolari G. and G. Loranth (2005), "Regulation of Multinational Banks: A Theoretical Inquiry", *CEPR Discussion Paper*, 4232.
- Commission of the European Communities (2005), "White Paper Financial Services Policy 2005-2010".
- Committee on banking Regulations and Supervisory Practices (1975), "Report to the Governors on the Supervision of Banks' Foreign Establishments".
- Committee of European Banking Supervisors (2006), "CEBS Guidelines on Supervisory Cooperation for Cross-border Banking and Investment Firm Groups".

- Contact Group on the Legal and Institutional Underpinnings of the International Financial System, (2002), "Insolvency Arrangements and Contract Enforceability".
- Covitz D. D. Hancock and M. Kwast (2004), "A Reconsideration of the Risk Sensitivity of U.S. Banking Organization Subordinated Debt Spreads: A Sample Selection Approach", FRBNY Economic Policy Review, September, 73-92.
- Deguée J.-P. (2001), "La Directive 2001/24/CE sur l'Assainissement et la Liquidation des Etablissements de Crédit: une Solution aux Défaillances Bancaires Internationales?", *European Banking and Financial Law Journal*, 2001-2002/2, 241-311.
- Dell'Ariccia G. and R. Marquez (2006), "Competition Among Regulators and Credit Market Integration", *Journal of Financial Economics*, Vol. 79, pp. 401-430.
- Dewatripont M. and J. Tirole (1994), *The Prudential Regulation of Banks*, Cambridge: MIT Press.
- Economic and Financial Committee (2000), "Report on Financial Crisis Management".
- Eisenbeis R. and G. Kaufman (2005), "Cross Border Banking: Challenges for Deposit Insurance and Financial Stability in the European Union", Presented at the Federal Reserve Bank of Chicago and the World Bank on *Cross-Border Banking – Regulatory Challenges*, October 6-7.
- European Financial Services Round Table (2004), "Towards a Lead Supervisor for Cross-Border Financial Institutions in the European Union – Recommendations of the European Financial Services Round Table".
- European Financial Services Round Table (2005), "On the Lead Supervisor Model and the Future of Financial Supervision in the EU, Follow-Up Recommendations of the EFR".
- FDIC (1998), *Resolutions Handbook: Methods for Resolving Troubled Financial Institutions in the United States*, Washington.
- Freixas X. (2003), "Crisis management in Europe", in *Financial Supervision in Europe*, ed. by Kremers J., D. Schoenmaker D. and P. Wiert, Edward Elgar Publishing.
- Glaeser E., D. Laibson, J. Scheinkman and C. Soutter (2000), "Measuring Trust", *Quarterly Journal of Economics*, 115, 811-846.
- Goodhart C. (2005), "A Single Currency and a Team of 13 Central Banks", in *The Eurosystem, the Union and Beyond: the Single Currency and Implications for Governance*, proceeds of the ECB colloquium held in honour of Tommaso Padoa-Schioppa on 27 April 2005, p. 25-29.
- Goodhart C. and D. Schoenmaker (2006), "Burden Sharing in a Banking Crisis in Europe", London School of Economics, Financial Markets Group, *Special Paper Series*, 164.
- Harr T. and T. Rønde (2003), "Branch or Subsidiary? Capital Regulation of Multinational Banks", Mimeo, University of Copenhagen.
- Herring R. (2003), "International Financial Conglomerates: Implications for Bank Insolvency Regimes", Mimeo, Wharton School, University of Pennsylvania.
- Hoggarth G., Reidhill, J. and Sinclair, P. (2004) "Resolution of Banking Crises: Theory and Evidence", Bank of England, *Working Paper*, 229.
- Holthausen C. and T. Rønde (2003), "Cooperation in International Banking Supervision", Mimeo, European Central Bank.

- Hüpkes E. (2004), "Protect Functions, not Institutions", *Financial Regulator*, vol.9, 3, 43-49.
- Kaufman G. (2004), "Bank Regulation and Foreign-Owned Banks", *Reserve Bank of New-Zealand Bulletin*, June, p. 65-74.
- Lamfalussy A. (2004), "Central Banks and Financial Stability", 2nd Pierre Werner Lecture delivered in Luxembourg on 26 October 2004.
- Majaha-Jartby J. and T. Olafsson (2005), "Regional Financial Conglomerates: A Case for Improved Supervision", *IMF Working Paper*, 124.
- Mayes D. (2004), "Handling Cross-Border Banks", Mimeo, Bank of Finland.
- McCreevy C. (2005), "The Future of Banking Policy in the Union", Speech delivered at the Informal First Meeting of the European Banking Committee, 22 March.
- Mitchell J. (2001) "Bad Debts and the Cleaning of Banks Balance Sheets: An Application to Transition Economies," *Journal of Financial Intermediation*, Vol. 10, 1-27.
- Moody's (2005), "Request for Comment "Incorporation of Joint-Default Analysis for Systemic Support into Moody's Bank Rating Methodology".
- Morgan D. and K. Stiroh (2005), "Too Big to Fail after All These Years", Federal Reserve Bank of New York, Staff Reports, 220.
- O'hara M and W. Shaw (1990), "Deposit Insurance and Wealth effects: the Value of Being "Too Big to Fail", *The Journal of Finance*, 45, 5, 1587-1600.
- Reserve Bank of New-Zealand (2004), "Financial Stability Report".
- Rime B. (2005), "Do "too-big-to-fail" Expectations Boost Large Banks Issuer Ratings?", Mimeo, Swiss National Bank.
- Schoenmaker D. and S. Oosterloo (2005), "Financial Supervision in an Integrating Europe: Measuring Cross-border Externalities", *International Finance*, 8: 1, 1-27.
- Schwarcz S. (2005), "The Confused U.S. Framework for Foreign-Bank Insolvency: an Open Research Agenda", *Review of Law & Economics*, 1, 1, 81-95.
- Srejber E. and M. Nordeus (2005), "The Future Relationship between Financial Stability and Supervision in the EU", *Economic Review*, 4, 49-61.
- Wymeersch E. (2005), "The Future of Financial Regulation and Supervision in Europe", Mimeo.
- Working Group on NewBank Implementation (2005), "Report to the Federal Reserve Board", December.