**BANK FOR INTERNATIONAL SETTLEMENTS**

# ON THE USE OF INFORMATION AND RISK MANAGEMENT BY INTERNATIONAL BANKS

Report of a Working Group established by the
Euro-currency Standing Committee
of the central banks of the Group of Ten countries

Basle
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LIST OF MEMBERS

**Bank for International Settlements** 1st October 1998

**Euro-currency Standing Committee**

# On the use of information and risk management by international banks

## MANDATE OF THE WORKING GROUP

In May 1998, the Euro-currency Standing Committee established a working group to conduct a fact-finding exercise. The group was asked to examine two issues:

- whether international banks had the information they needed to assess the risks associated with their exposures to Asia; and
- the extent to which they effectively incorporated their assessments into their risk management frameworks and lending decisions.

## I INTRODUCTION AND SUMMARY[1]

Over the last few years, the character of international financial relationships has been transformed as a result of innovations in financial strategies and risk management techniques. From the perspective of this report, the most notable strategic development has been the much more extensive dealings of banks based in industrial economies with bank and other private sector counterparties in emerging market economies. This shift has been reflected in a revision of the concept of country risk employed by banks' risk managers, highlighted by the Asian financial crisis. In the past, country risk analysis was largely concerned with transfer risk: the ability or willingness of a sovereign government to honour its cross-border foreign currency debt. These obligations represented the predominant form of international banks' foreign currency exposures to emerging market countries. This risk concept provided a reasonable framework for not only the Latin American debt crisis of the 1980s but also the Mexican debt crisis of 1994-95, even though the latter was marked by the presence of sizable foreign currency obligations of private Mexican banks. The Asian crisis helped demonstrate that country risk analysis needs to be extended to incorporate the non-payment of foreign currency obligations by private sector counterparties.

Banks based in the G-10 countries generally believed that they had adequate macroeconomic data to identify problem countries in Asia. However, they noted that

[1] It should be emphasised that the information contained in the report represents an accurate summary of the results of interviews with international banks and does not necessarily correspond to the views of the central banks that conducted the interviews.

the Asian crisis had highlighted a number of gaps in the information needed to assess the risks associated with exposures to emerging market economies. Of particular importance was information on the foreign currency reserves and forward market position of the monetary authorities, on the consolidated indebtedness of private sector borrowers (including offshore finance affiliates), and on derivatives exposures. In addition, banks expressed a strong interest in improved disclosures of information on the financial health and structure of emerging market banking systems, with a particular emphasis on indicators of asset quality such as the amount of non-performing loans.

Banks indicated that the BIS semi-annual consolidated banking statistics were valuable but considered that their usefulness was diminished by poor timeliness and uncertainty regarding how they related to data from other sources. Banks utilise data from a variety of sources and referred most frequently to their reliance on external debt data from the Institute of International Finance (IIF). They were generally not aware that these data from this latter source are partially based on the BIS quarterly banking statistics.

The Asian crisis served to focus the attention of banks' managements on the adequacy of their banks' risk management systems. Some banks rely largely on country limits to control risk while others also use risk management models to measure risk and assess spreads. Banks' risk managers found that their models estimated with historical data, such as those employing historical volatility, failed to accurately predict the extent of possible losses. This led some banks to place greater emphasis on stress testing and scenario analysis. Some banks are also developing procedures to integrate market and credit risk assessments. They cited as a lesson of the Asian crisis the need to take potential liquidity and credit risks into account in the structuring of transactions through, for example, greater reliance on collateral agreements. A number of risk managers noted that the effectiveness of risk management systems could sometimes be reduced when senior management overrode their recommendations for "strategic" reasons.

**Organisation of the working group's information-gathering activities**

The working group conducted its fact-finding exercise through interviews with banks based in the G-10 countries in two stages. The first involved interviews of more than 50 banks by staff members from ECSC member central banks. There was no common criterion for banks selected to be interviewed. In some cases a cross-section of banks were interviewed, in others only banks with substantial exposures to Asian emerging market economies. The interviews, carried out in June and July this year, all employed a common questionnaire as a reference document. The questionnaire is appended to this report. The interviews conducted in the financial centres provided for the collection of views from a large number of institutions as well from various parts of these institutions, including those staff involved in country risk analysis.

In the second stage, the working group met in July at the BIS with a group of risk managers from four banks. Each bank had sizable exposures to Asian emerging market countries, although banks differed in the fraction of their exposures originating from dealing as opposed to lending activities. This round-table discussion involved

extended exchanges on a small number of issues with highly informed specialists representing banks with advanced risk management capabilities. Topics included the approaches to managing country risk exposures and the framework used for the assignment of bank capital and assessing credit spreads.

The report is organised as follows. Part II discusses banks' usage of financial statistics, especially the BIS banking statistics. Part III reports on banks' approaches to risk management. Part IV provides concluding remarks addressing the two issues raised in the mandate in the light of the interview results. The report contains the questionnaire used in the interviews as Appendix I.

## II USE OF DATA IN COUNTRY RISK ANALYSIS

### Gaps in the data used for country risk assessment

Overall, banks indicated that the existing macroeconomic data needed to assess country risk were adequate but that there were gaps in the financial data necessary to evaluate the vulnerability of countries. One of the lessons of the Asian crisis for many banks was the relevance of measures of available official foreign exchange resources and of short-term public sector obligations denominated in foreign currencies that constitute a drain on resources. They pointed to Korea and Thailand as countries for which the level of official sector foreign exchange resources had been relevant to market outcomes even though neither country's government had much foreign currency debt. Banks stressed the importance of timely and transparent reporting of official foreign exchange reserves and other information needed to assess the short-term liquidity positions of the official sector. They viewed official foreign exchange reserves as a measure of the resources available to finance unexpected withdrawals of financial capital by foreign and domestic investors.

One interviewed bank commented that it had lowered its overall credit limit for a country due to a failure to disclose information covering its foreign exchange reserves and foreign borrowing. At the meeting in Basle, the invited risk managers endorsed banks' conditioning of credit availability on the disclosure by governments of key financial data. However, some expressed scepticism as to whether the same negative credit decision would have been made in the face of opposition by the business units of the bank.

Another shortcoming of available data mentioned by interviewed banks involved data on the outstanding short-term foreign currency exposures of non-financial corporations in emerging markets. These include liabilities arising from foreign currency borrowing (both onshore and through offshore affiliates) and derivatives transactions. One bank noted, based on a post-mortem of its activities, that if data on the short-term foreign currency debt of Korean companies had been available, its internal rating of Korean credit risk would have been marked down and its exposure would have been lowered.

Interviewed banks frequently expressed interest in better financial disclosures by emerging market banks. Particular emphasis was placed on the need for data that could

be used in making judgements concerning the adequacy of bank capital. Some banks asserted that the experience of the Asian crisis supported the case for the adoption of an internationally consistent accounting treatment of non-performing bank assets.

**Use of BIS banking statistics**

In their country risk analysis, the interviewed banks tend to rely on a variety of data sources, including BIS data. The BIS banking data were characterised as useful but generally less valuable than other sources of data. In particular, the banks rely extensively on external debt data from the Institute of International Finance (IIF) but are generally not aware that the BIS quarterly data are a source series for the IIF data on external debt. The IIF estimates of external debt are made on a country-by-country basis, using a variety of national and international sources. In some cases, BIS data are the basis for the estimate of commercial bank lending, and in others they serve as a reference check. The IIF does not provide systematic information on the relationship of its estimates to those of other international sources.

Many of the banks interviewed use the BIS consolidated banking data as a source of market-share information, to identify retrospectively trends in cross-border bank finance and to assess the external indebtedness of countries' non-banking sectors. They expressed support for the improvements to the consolidated banking statistics that have been agreed to by the Standing Committee over the last year. The reduction in the data reporting lag was regarded as the most valuable improvement. The move to quarterly reporting was generally welcomed, although it was noted that this would add to the reporting burden. A number of banks also suggested that the presentation of BIS statistics could be improved to make them more user-friendly.

The interviewed banks expressed a decided preference for having data reported both on an ultimate risk basis and on an immediate borrower basis since information on the reallocation of country exposures should allow a more complete assessment of country risk. The most frequently cited example of where such information would have been useful was with regard to the exposures of offshore financing affiliates of Korean companies.

Banks in a number of financial centres expressed interest in having data on banks' credit exposures by country associated with financial derivative contracts added to the consolidated banking statistics. The panel of risk managers at the working group's meeting in Basle welcomed such data but commented that their backward-looking character could limit their usefulness as predictors of future developments. In this regard, they noted that one lesson of the Asian crisis was the need for banks to take into account in their risk assessments the consequences for credit exposures of an abrupt change in a country's policies, for example an abrupt abandonment of a highly managed exchange rate.

On balance, additional information on banks' cross-border claims with a maturity of under one year in the BIS consolidated banking statistics was not regarded as a high priority since significant changes in maturity profiles of a country's external debt position can be detected with available maturity information. This view is

consistent with the Standing Committee's decision not to include a more detailed maturity breakdown. The comments by interviewed banks suggest that selective additions to the list of countries reporting consolidated data could be valuable.

## III APPROACHES TO RISK MANAGEMENT

### Lessons of the Asian crisis

Interviewed banks and risk managers indicated that the Asian crisis highlighted the need to more effectively incorporate in the analysis of country risk several additional sources of risk. Specifically, there is a need to consider credit risks associated with private sector counterparties, the potential loss of liquidity in a crisis and contagion effects. In addition, banks found that reliance on historical volatilities to measure risk can sometimes contribute to an underestimation of risk.

A number of interviewed banks mentioned that the Asian crisis had led them to revise their working definitions of country risk. Before the Asian crisis, country risk was typically defined as transfer risk: the risk of government actions involving restrictions on capital movements or currency convertibility. The crisis had highlighted the need to enlarge this definition to include the credit risk associated with non-payment by private sector institutions due to macroeconomic developments. Bank experiences with Thailand were influential in this regard since a formal debt moratorium was never called.

Most banks use a system of country risk ratings to assess country risk that relies largely on the monitoring of real and financial macroeconomic indicators. They commented that they were generally satisfied with this approach. However, some qualified this view by noting that they had been surprised by the speed with which an individual country's access to international financial markets had deteriorated and by the loss of market liquidity. Their monitoring systems had sometimes not given them sufficient warning to arrange for an exit from their country risk exposures. Several noted that better information on foreign currency reserves and short-term debt might have been helpful in this regard.

Banks also conceded that they had over-relied on historic volatilities of the foreign exchange values of the Asian emerging market countries' currencies in their measures of potential credit exposure (PCE) and value-at-risk (VaR). This was especially true for countries where the monetary authorities had routinely intervened in exchange markets to influence the foreign exchange value of their currencies.

The interviewed banks offered widely differing views of what constitutes contagion risk. Some banks emphasised the need for a bank to review exposures to countries in similar circumstances when a country moves into financial crisis. Others spoke of the use of correlations to identify countries that should be examined if a country moved into crisis but noted the difficulty inherent in developing a robust statistical model of contagion risk.

The risk managers meeting with the working group in Basle described how the Asian crisis had highlighted the value of private information from various departments of their banks for identifying potential risks and sources of contagion, especially in the light of the gaps in existing data. For example, a risk manager at a large international bank could have become aware that Korean banks had become important purchasers of Brazilian debt because her bank had extensive emerging market debt trading relationships with Korean banks. Having received such private information, the risk manager might raise the bank's internal capital charge to business units holding illiquid Brazilian debt if the bank downgraded its country risk rating for Korea. This is because the deterioration in circumstances captured by such a downgrade might induce Korean banks to sell off holdings of Brazilian debt. The example points to a potential source of competitive advantage for large international banks which are dealers in emerging market securities. This is recognised at those banks which give their risk managers the authority and duty to collect information from trading and other business units of the banks. In turn, risk managers are also charged to disseminate useful private information within the bank through risk management mechanisms such as capital charges and exposure limits.

The interviewed banks did not have much to say regarding the Basle capital accord's risk weights. The standard comment made by the limited number of banks that directly addressed this topic was that it did not influence the size or composition of their country risk exposures.[2]

**Effects on risk management practices**

In response to the Asian crisis, banks strengthened monitoring in an effort to identify problems earlier and to adjust exposure in a prompter and more systematic fashion in response to measured changes in risk. The monitoring of risk tended to become more regional in focus rather than being done on a country-by-country basis. Some banks also sought to better integrate their analysis of credit and market risk. Overall, the Asian crisis identified a need at some banks to centrally assemble and analyse country risk information. This, in turn, led some banks to divert scarce system development resources (especially in the area of information technology) in order to improve the management and analysis of the flow of information on country risk.

Efforts to strengthen country risk analysis described by some banks typically involved more careful monitoring of a set of macroeconomic indicators and the prompter adjustment of exposures. These indicators include variables such as real effective exchange rates, merchandise trade, credit growth and asset prices. If critical values of the indicator variables for a country are exceeded, the bank initiates reviews of a country's risk rating, its credit limits and documentation and collateral requirements.

Most banks engage in periodic assessments of country risk. Country risk reviews are typically overseen by banks' credit risk departments. These reviews were

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[2] The question in the questionnaire on the effects of the Basle capital requirements did not explore this issue at a deep level. In many cases, the persons interviewed at the banks may not have been those best placed to address the issue. Other documents, published by ISDA (Credit and regulatory capital, 1998) and the IIF (Report of the working group on capital adequacy), suggest that the incentives created by the weights may have an influence.

typically conducted on a country-by-country basis but since the start of the Asian crisis have had a more regional focus. Most banks set market and credit risk limit structures separately with market risk assessments typically conducted by trading desks that set market risk limits applicable to liquid trading positions. Some risk managers commented that the country credit limits set through the risk management process can be, and sometimes are, overridden by senior management in the interest of achieving strategic objectives such as maintaining long-term business relationships.

Banks pointed to a number of the lessons relating to the loss of market liquidity during the Asian crisis that have been incorporated in changes in business practices. For example, one bank referred to a tightening of the internal guidelines governing the types of credit that could be extended to counterparties in emerging market countries. The revision had been undertaken in response to the absence of secondary market liquidity that had hampered the bank's management of credit exposures during the crisis.

**Measures to strengthen management of risk by some banks**

Developments in risk management modelling techniques have allowed some banks to implement a number of measures to strengthen their management of risk. Several banks explained how they analysed credit and market risk on an integrated basis, although the scope to do this was limited by a lack of data in some areas. Banks described how risk management models could be used to assess the adequacy of spreads and allocate capital. In addition, some banks use stress tests and scenario analysis to assess the sensitivity of their exposures to potential changes in market and credit conditions, limiting the need to rely on historical volatilities.

One of the interviewed banks emphasised that a lesson of the Asian crisis was the need to jointly consider credit and market risk and used the example of "wrong-way" transactions, such as those associated with cross-currency swaps, to illustrate why this was the case. In wrong-way derivatives transactions the extent to which a bank is "in-the-money" may be negatively correlated with changes in the credit quality of its counterparty. The example of a wrong-way derivative cited by the respondent involved one in which its emerging market counterparty (for example, an Indonesian corporation) owed US dollars (or other hard currency) at the future re-exchange date of a currency swap. The failure to jointly consider credit and market risk amounts to an assumption that the two sources of risk are uncorrelated. For banks that use VaR-type methodologies in the internal allocations of capital, the assumption of zero correlation leads to an underestimate of the capital that needs to be allocated, and credit spreads required, to compensate for risk. The bank believes that this analysis supports its case for requiring higher spreads for transactions with emerging market counterparties. It is considering making its analysis publicly available in an effort to educate the market.

Some banks asserted that the Asian crisis had spurred new approaches to assessing and setting credit spreads and for internally assigning capital charges to various business units. Specifically, banks expressed discontent with the level of spreads in the market but since they operate in financial markets as price takers they must accept the credit spreads set by the market. They noted that deals had frequently been done in Asian emerging market countries at positive funding spreads but

inadequate credit risk spreads given the measured amount of economic capital at risk. In the light of this situation, the ability to use risk management and measurement systems to allocate capital and assess the adequacy of credit risk spreads available in the market can be valuable. They commented that because they had capital allocation systems in place they were able to identify deals where spreads were inadequate for senior management. While management had the authority to approve such deals, they had to provide justification, for example, that the deals qualified as "strategic investments" or were needed to maintain long-term business relationships. Many of the interviewed banks are in the process of implementing quantitative risk management systems for the market and credit risk of traded instruments. Only a few of these banks currently have plans to extend these efforts to country risk due, in part, to data limitations.

A number of banks commented that stress tests represented an alternative to relying on historical volatility-based risk management techniques such as PCE and VaR which had proved inadequate in the Asian crisis. At one large bank, business units are subjected to supplemental capital charges based on exposures revealed by stress tests. A second bank mentioned that stress test results had been used to identify concentrations of risk that then can be addressed through the use of "overlay macro hedges" by corporate risk management (for example, by purchasing deep out-of-the money puts).

Banks' discussion of the role of stress tests in risk management prompted comments on the use of credit derivatives to manage country risk exposures for Asia. For example, in theory, a bank might transfer a first loss position involved in its exposure to a portfolio of credits from an emerging market country to counterparties via credit derivative transactions. Bank commentators did not foresee that such transactions could be done on a large scale in the medium term. The scope for applying credit risk modelling techniques to emerging market exposures in order to use credit derivatives is limited since the high-quality financial data required for credit risk modelling will not be available in the foreseeable future.[3] This negative judgement is supported by the many comments by interviewed banks on the unreliable character of the financial accounts of banks and companies based in Asian emerging markets.

**Aggregate measures of off-balance-sheet exposures**

Interviewed banks were asked whether an extension of the consolidated banking statistics to include data on derivatives exposures to emerging market countries would be useful. They commented that the potential value of such data had been highlighted by published aggregate data for US banks. These data had revealed, albeit with a significant publication lag, the development of large derivatives-related credit exposures to Asian emerging market countries during the crisis. Observations were also made by some banks that the lack of aggregate data for the derivatives-related credit exposures of major international banks had, to a certain extent, complicated the organisation of the rollover of Korean interbank debt. They noted, however, that the monitoring of such

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[3] Annex II of the International Swaps and Derivatives Association report on Credit Risk and Regulatory Capital (March 1998) sets out information needed to support the use of credit risk models. It also reports on a survey of credit data availability for the US and European companies and finds that sufficient data exist only for modelling to begin.

exposures was complicated by their sensitivity to the movements credit and market risk factors.

In addition, risk managers at major international banks commented on the value of aggregating market values of off-balance-sheet positions under alternative assumptions concerning exchange rates (for example, symmetric deviations of the exchange rates of the emerging market currencies from the current value of their US dollar exchange rates). They thought that aggregated stress test results could be potentially interesting because the resulting information on market share could be used to gauge the liquidity of an exposure that the bank had assumed. Another point concerns how one might consider the interaction of market and credit risk changes for credit defaults. The risk managers responded that, hypothetically, the consideration of "knock-on" effects would be interesting. They noted that internally they were assessing such effects through their own credit risk modelling efforts. They went on to comment that the likely value at this time of considering such knock-on effects within the context of aggregate stress tests would be small.

## IV. CONCLUDING REMARKS

The interview results permit a tentative evaluation of banks' response to the two issues identified in the mandate of the working group: (i) whether banks had the information to assess the risks associated with their exposures to Asia; and (ii) whether they effectively incorporated their assessments into their risk management and lending decisions.

On balance, banks' indicated that existing macroeconomic data and indicators were adequate to assess country risk but that there were gaps in the financial data needed to evaluate the vulnerability of countries. These gaps were with respect to the foreign currency reserve and derivatives positions of the monetary authority the short-term foreign currency debt of the public and private sectors, off-balance-sheet derivatives exposures and the financial condition of emerging market banks. In addition, a number of banks suggested that the usefulness of the BIS banking statistics for assessing risk could be enhanced through an analysis of how they are related to other international financial statistics and a more user-friendly presentation.

Banks' comments also allow an assessment of whether the available information was effectively incorporated into risk management frameworks. Banks noted that they typically adjust country exposures as macroeconomic indicators deteriorate. However, they indicated that the Asian crisis involved novel sources of risk that had not been fully taken into account. These include the relative importance of the credit risk of private sector counterparties, the loss of market liquidity in a crisis and contagion effects. In addition, a number of banks noted that the practice of estimating risk on the basis of historical volatilities contributed to an underestimation of market risk and that exposures associated with existing derivative contracts could rise sharply in a crisis.

A number of banks mentioned enhancements to risk management that they were considering, or implementing, in light of the crisis to more effectively assess risk.

These include efforts to monitor credit and market risk on an integrated basis for the whole bank (although this is hampered by data limitations); the use of risk management models to assess the adequacy of spreads and assign capital; and the use of stress tests to assess the sensitivity of their exposure (especially for off-balance sheet items) to potential changes in market and credit conditions.

**APPENDIX I**

# QUESTIONNAIRE ON THE USE OF INFORMATION AND RISK MANAGEMENT BY INTERNATIONAL BANKS

The purpose of this questionnaire is to examine whether international banks have sufficient information to assess the risks associated with their exposures to emerging market countries, and how these banks incorporate these assessments into their risk-management framework and lending decisions. The results of the questionnaire should provide insights into the lessons from Asia in a number of areas. Answers concerning the use of information to assess country risk could indicate where additional disclosure by countries and financial institutions would improve market discipline and banks' management of their country risk exposures. A comparison of the risks identified by international banks *ex-ante* with those that proved important *ex-post* should provide insights into whether the relative importance of these risks might have changed significantly. Answers to questions on banks' risk management should indicate how exposures to Asia were adjusted in response to perceived increases in risk. In particular, they should yield insights into how banks with modest individual exposures to a country adjusted these exposures in response to the risks associated with a relatively high aggregate level of cross-border lending to that country. They should also provide insights into the effectiveness of banks' risk management frameworks during the Asian crisis, and into the usefulness of stress tests to assess the sensitivity of on and off-balance sheet exposures to exchange rate and interest rate movements. Finally, the interview results could be shared with international banks to help them assess their use of information and their risk management practices.

## I The use of information to assess country risk (for senior country risk analysts)

1. Gaps in the coverage of existing data

   (a) Identify the gaps in coverage of existing data and indicate how they affect your ability to assess country risk?

2. Creditor country data: the BIS financial statistics

   (a) Do you make systematic use of the BIS quarterly and consolidated semi-annual banking statistics in your country risk analysis? How do you use them and for what purpose?

   (b) Which of the following improvements in the BIS statistics would you find most useful in your analysis of country risk (indicate why):

      (i) data on banks' exposures to the ultimate borrower ("ultimate risk basis") as well as to the immediate borrower (as in the current statistics)

      (ii) aggregation of creditor data to construct a measure of the external debt of emerging market countries

      (iii) more timely reporting

      (iv) more frequent reporting

      (v) more detailed information on maturity?

3. Debtor Country Data

   (a) How much and for what purposes do you rely on data from emerging market countries?

   (b) What are the shortcomings of debtor country data in terms their quality and timeliness and did these increase around the time of the Asian crisis?

   (c) What improvements to these data, and by which countries, would be most useful?

4. Shortcomings of data in the assessment of country risk during the Asian crisis

   (a) Prior to the crisis, how good was your information on (indicate the source of data):

      (i) the level and rate of increase of private and public external debt

      (ii) the stock of international debt held off-shore

      (iii) off-balance sheet debt

      (iv) the distribution and size of international bank exposures

      (v) the size and share of very short maturity debt

      (vi) central banks' on and off-balance sheet foreign currency positions?

   (b) In hindsight, how important were these data for assessing country risk and to what extent were you hampered by a lack of such data, both before and during the crisis?

## II Incorporation of country risk analysis into banks' risk management framework (for senior risk managers and/or senior country risk analysts)

1. Management of country risk

   (a) How do you integrate country risk analysis into your risk management framework and how is it reflected in your bank's assessment of its exposure to market and credit risk?

   (b) What considerations determine the size, form and timing of any adjustment in exposures in response to a rise in country risk?

   (c) How is information on aggregate lending to a country (as reflected in the BIS semi-annual consolidated banking statistics) reflected in your exposure to that country?

   (d) To what extent do you adjust exposures in one country in response to a change in risk in "connected" countries? What is the basis for

this linkage (geographic region, similarity of economic structure, etc.)? Were such linkages important in the Asian crisis?

2. Setting of country exposure limits

(a) Describe the framework employed by your bank for setting regional and country risk limits and for assessing the adequacy of spreads?

(b) In setting limits and assessing spreads, what determines the extent to which you rely on internal assessments by country analysts versus outside sources of information (credit ratings, vendor-supplied analysis, etc.)? Is the relative cost of these sources a factor?

3. Relative importance of different country risk factors in the Asian crisis

(a) Prior to the Asian crisis which or these risks did you consider more important:

(i) Exchange rate risk

(ii) Credit risk

(iii) Liquidity risk

(iv) Operational risk

(v) Political risk

(vi) Transfer risk (risk of capital controls or a moratorium)

(vii) Other?

(b) During the Asian crisis, which of these risks proved to be most important?

## III International banks' risk management framework (for senior risk managers)

1. Risk management framework

   (a) Describe your risk management framework? Are different categories of risk managed independently or in an integrated fashion across your bank?

   (b) To what extent do you manage these risks using quantitative risk management models?

2. Regulatory consideration relevant to risk management

   (a) Is the information provided to regulators also useful in your bank's internal assessment and management of risk? If so, what is this information and how is it used?

   (b) How are your country exposures and the composition of your lending influenced by features of the Basle capital accord, including:

      (i) risk weightings

      (ii) The "Zone 1/Zone 2" distinction?

3. Use of sensitivity analysis

   (a) Describe the techniques used to assess the sensitivity of your bank's on and off-balance sheet country risk exposures to changes in exchange rates?

   (b) Do you make use of stress testing? If not, how difficult would it be to implement stress tests within your current risk management framework?

4. Lessons of Asia for risk management

   (a) Did the Asian crisis reveal any shortcomings in your risk management practices and has it led you to reassess these practices?

(b) During the crisis, were changes in off-balance sheet exposures an important source of the change in total exposure? Have you adjusted your management of these exposures as a result of the crisis?

## IV Useful Background information on the international exposures of the banks being interviewed

1. Banks' exposure to emerging market countries

(a) How large is the bank's total international exposure in dollars? And relative to:

(i) the bank's assets

(ii) the bank's capital

(iii) the exposure to emerging market countries

(iv) the exposure to Asia?

(b) What is the bank's exposure to Asian and emerging market countries relative to other banks headquartered in the same country?

(c) What portion of the bank's emerging market exposure was incurred through local networks?

(d) How have these exposures changed since June 1997 as a result of the Asian crisis?

**Euro-currency Standing Committee**

**Secretariat**

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