REINSURANCE FEASIBILITY STUDY

FEDERAL DEPOSIT INSURANCE CORPORATION

MMC Enterprise Risk

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Section 1: Executive Summary

Introduction

The Federal Deposit Insurance Corporation (FDIC) retained MMC Enterprise Risk to evaluate the feasibility of private sector reinsurance arrangements. Specifically, the FDIC requested that we determine whether such arrangements can provide competitive-market pricing information that would assist the FDIC, 1) in setting deposit insurance premiums that accurately reflect the risks presented by individual banks or groups of banks and, 2) in measuring risks to the deposit insurance funds. The FDIC asked us to determine what types of risk-sharing arrangements would be feasible, and what their costs would be.

Federal Deposit Insurance Corporation

The FDIC is an independent agency of the U.S. Government that was established by Congress in 1933 to insure bank deposits and help maintain sound conditions in the U.S. banking system. The Federal Deposit Insurance Corporation Improvement Act of 1991 required the FDIC to establish and maintain a risk-based premium system and provided the Corporation with authority to reinsure up to ten percent of any loss it incurs with respect to an insured depository institution. The FDIC is presently engaged in a re-evaluation of the U.S. deposit insurance system that includes addressing the sufficiency of current premium pricing, the adequacy of the insurance funds, and the appropriate limits of deposit insurance coverage.

MMC Enterprise Risk

MMC Enterprise Risk (MMC ER) is a business unit within Marsh & McLennan Companies (MMC). This business unit brings together MMC resources from throughout the MMC organization in order to provide an integrated approach to the solution of risk management issues. Some of the resources reside formally within the MMC Enterprise Risk unit, and others are tapped on an as-needed basis. On this project for the FDIC, MMC Enterprise Risk worked closely with its affiliated company, Guy Carpenter & Company, Inc., the world's leading reinsurance intermediary. The MMC organization has developed and placed a number of large,

innovative insurance and reinsurance programs related to credit risk, which in many cases have been first-of-a-kind transactions.

Summary of Key Findings and Recommendations

The following key findings and recommendations are discussed in more detail in Section 4: Findings and Recommendations.

Key Findings

1. The reinsurance marketplace has expressed substantial interest in providing risk-taking capacity to the FDIC for the risk of bank failure. Theoretically, this capacity could exceed $5 billion dollars.
2. With near unanimity, reinsurers have indicated that a structure with a very substantial first-loss retention (deductible) by the FDIC is required for them to provide their maximum capacity.
3. There is very limited interest on the part of reinsurers in participating in the FDIC's losses on a proportional basis, wherein reinsurers agree to share a pre-determined percentage of all FDIC losses in exchange for receiving the same percentage of premiums the FDIC charges to banks (less a credit to the FDIC for expenses).
4. For reinsurers to provide the maximum capacity, they would require that the transaction be explicitly rated AA or AAA by the rating agencies, or require that the transaction otherwise be evaluated as being equivalent to AA or AAA. Transactions with this credit quality have cumulative three-year to five-year loss probabilities equal to approximately 0.08 percent to 0.12 percent.
5. Reinsurers are unable to provide firm, definitive, comments on either structure or pricing without first having had the opportunity to perform an in-depth analysis of the risk the FDIC plans to cede to reinsurers. The outcome of that analysis will influence the ultimate structure of any reinsurance program for the FDIC. As explained in detail in this report, reinsurers' appetite for risk is largely a function of their analysis of the probability of loss of the exposure they are being asked to assume. A reinsurer, for example, may make less or more reinsurance capacity available for a specific reinsurance coverage, depending on its assessment of the probability of loss and its appetite for that risk. Therefore, an initial

concept for a reinsurance structure is likely to change after the risk modeling process is complete. This is normal in reinsurance and especially so for first-time transactions.

6. Reinsurers would expect the FDIC to fund an in-depth risk analysis, at least for a first transaction.
7. All of the reinsurers who focus on financial guarantee coverage are receptive to a transaction.
8. Reinsurers who do not focus on financial guarantee coverage are generally willing to enter into reinsurance transactions that have higher probabilities of loss, as compared to those reinsurers who focus on financial guarantee coverage. However, capacity from this segment of the reinsurance industry would likely be $500 million or less.
9. Some of the reinsurers who focus on financial guarantee coverage, and are potential transaction "leaders," would prefer a transaction that excludes, or substantially limits, coverage of the largest banks, so as to minimize the accumulation of exposure with their existing portfolios.
10. Reinsurers generally prefer not to be exposed to losses from the failure of a single large bank.
11. Most reinsurers suggested that a transaction with the FDIC should be structured with a term of from three years to five years.
12. The reinsurance markets can provide the FDIC with an assessment and pricing of the risk to the deposit insurance funds as a whole. Reinsurance is best suited to providing portfolio pricing for the FDIC's risks. Reinsurers indicated that they would be prepared to provide a risk assessment and pricing of segments of the overall FDIC portfolio (subject to the caveats mentioned in findings 9 and 10 above) as a method of providing differential pricing for different risk categories within the overall FDIC portfolio.
13. The reinsurance markets are not well suited to providing individual bank-by-bank pricing of the default risk of FDIC-insured banks.
14. Reinsurers' pricing of the FDIC's risk will be a function of many factors including; risk of the transaction, reinsurers' cost of capital, reinsurers' expense and profit provisions, and supply and demand. Reinsurers' prices would represent a free-market charge without

government support and, as such, can be expected to be higher than those that would be charged by the FDIC for the same portion of coverage.

15. The terrorist attacks of September 11, 2001 have had a tremendous impact on the insurance industry, and the effects are not yet fully realized as of the writing of this report. Nevertheless, reinsurers contacted for this study, especially those with the potential to provide large capacity to the FDIC, report that they do not expect their interest in a FDIC transaction to have materially changed.

Key Recommendations

1. We recommend that the FDIC move forward to place a pilot reinsurance transaction. Only by going through this process can the details of such transactions be determined and the usefulness to the FDIC be established. We project that over time the reinsurance markets will become increasingly educated with respect to the FDIC's risk and as such, can be expected to continue to develop and refine a product that is increasingly responsive to the needs of the FDIC.
2. The reinsurance transaction should be structured as an "excess of loss" contract, with the retention of a substantial deductible of losses by the FDIC prior to any payment of losses by the reinsurers.
3. The overall size of the transaction should be limited to $1 billion to $2 billion to prevent the price from being driven up by excess demands on potential capital.
4. The transaction should be layered to attract reinsurers with different risk appetites.
5. The exposure from the largest banks should be limited or eliminated from the portfolio, and the FDIC should consider a capital markets approach to the assessment and pricing of the default risk of the largest banks.
6. The reinsurance transaction should have a term of three to five years.

Section 2: Background

The Federal Deposit Insurance Corporation (FDIC) is currently engaged in a re-evaluation of the U.S. deposit insurance system that includes addressing the sufficiency of current premium pricing, the adequacy of insurance funds, and the appropriate limits of deposit insurance coverage. Established as an independent agency of the U.S. Government in 1933 to insure bank deposits and help maintain sound conditions in our banking system, the FDIC has the authority to purchase open market reinsurance covering up to 10 percent of any loss. This authority was granted by the Federal Deposit Insurance Corporation Improvement Act of 1991. The intent behind any purchase of open market reinsurance is to augment the development of a risk-based premium system and to help quantify the risks to the deposit insurance funds.

The FDIC submitted Solicitation Number 00-00686-C-JT to interested contractors in October, 2000. The solicitation requested that the selected contractor assist the FDIC in determining whether a private reinsurance market arrangement is feasible, and whether such an arrangement would provide commercial market pricing information to the FDIC.

MMC Enterprise Risk responded to this solicitation and submitted a detailed proposal to the FDIC on November 7, 2000. Following review of our proposal and a meeting with the MMC Enterprise Risk project team, the FDIC awarded the contract for this study to MMC Enterprise Risk, which would be working on the project with its sister company, Guy Carpenter & Company, Inc. Section 8 of this report provides background information on the contractor.

Following the award of this contract, MMC Enterprise Risk began the information-gathering process, which is described in Section 3: Reinsurance Marker Survey Process.

Section 3: Reinsurance Market Survey Process

This section of the report describes the process used to gather the information sought by the FDIC as set forth in Section 2 of this report.

Phase One: Information Gathering

The initial phase of the project focused on gathering information from the FDIC that could be used to provide reinsurers with a comprehensive picture of the FDIC. A team of reinsurance professionals, capital market specialists, quantitative analysts and actuaries worked extensively with counterparts at the FDIC to obtain this information.

Phase Two: Information Synthesis

The information gathered in Phase One of the project was then synthesized and compiled into a document to be provided to reinsurers, after approval of the document by the FDIC. This process included the development of a risk profile of the FDIC's bank-failure risk, developed through the modeling of historical data gathered from the FDIC by the MMC Enterprise Risk quantitative team.

The resultant document, "Reinsurance Initiative," is attached to this report. It contains the following information:

- The background of the FDIC
- Recent legislation affecting the FDIC and its Funds
- Purpose of the FDIC in commissioning the reinsurance feasibility study

- Data available from the FDIC for the purpose of evaluating the credit risk of its portfolio of member banks
- Results of MMC Enterprise Risk's modeling of FDIC bank failures and explanation of the modeling approaches used

Normally, reinsurers will do their own modeling analysis of a transaction presented to them. However, this case is unusual because reinsurers were asked only to provide feedback regarding a *potential* transaction. Therefore, the MMC Enterprise Risk project team conducted the analytical work for the reinsurers, to lessen the resource burden on them and thus make it easier for them to provide meaningful feedback.

Phase Three: Selection of the Reinsurer Survey Group and Implementation of the Survey

Twenty-eight reinsurers were selected as the survey group. These companies are *not* a small representative sample of the overall reinsurer population. Rather, they are the leaders in the credit-risk-related reinsurance community. In addition, the survey group includes reinsurers that may not be industry leaders in the credit business but have participated in credit transactions, or have the potential to participate if they so elect. This survey group thus represents most of the monoline financial guarantee insurance and reinsurance companies, most of the small group of multiline reinsurance companies that have developed substantial credit-risk-focused businesses, and a sampling of more traditionally-focused property and casualty reinsurers that have been known to participate on a limited basis in credit-risk transactions or who have expressed an interest in developing more credit-risk-related business. All companies approached were financially strong and could offer meaningful capacity.

Of the 28 companies approached, 10 were either monoline financial guarantee insurers or reinsurers or multiline reinsurers that have developed a substantial credit-risk-related business. The remaining 18 companies are traditional multiline property and casualty reinsurers, though their degree of involvement and expertise in credit-risk-related transactions varies widely.

Of the 28 companies approached, 21 provided feedback. All of the 10 companies with substantial credit business, including the monoline companies, provided feedback. Of the companies not providing feedback:

- One company was acquired by one of the other surveyed reinsurers during the survey process
- Three companies were undergoing internal corporate restructuring, which prevented them from providing clear guidance to the FDIC as to their future interests
- Three companies cited the need to focus limited resources on current business activities

In Section 9, "Background on the Reinsurance Marketplace," we provide a table of Standard & Poor's Top 25 Global Reinsurance Groups for property and casualty companies. These companies account for approximately two-thirds of the total global premium writings. The survey group includes 16 of these 25 companies, or other subsidiaries of the same group, and 8 of the top 10. The survey group also included the monoline financial guarantee insurers and reinsurers that do not appear on the S&P's top 25 list. Certain large reinsurers were not approached because of their known lack of interest in credit-risk transactions. This includes syndicates at Lloyds' of London, as they are prevented, by charter, from underwriting financial guarantees.

After reviewing the information document we provided to them, each reinsurer electing to provide feedback to the FDIC was interviewed at least once, and in certain cases several times, by the members of the project team. The interviews of the reinsurers were designed primarily to ascertain their receptivity to a transaction from the FDIC, their transaction structure preferences,

indications of pricing approaches and parameters, and their risk-bearing capacity for a transaction.

The results of the survey are discussed in the Section 4 of this report.

Section 4: Findings and Recommendations

I. Findings

The results of our survey of the reinsurance marketplace are organized into four broad categories: Capacity, Pricing, Risk Analysis and Ratings, and FDIC Contracting Policies and Capabilities.

A. Capacity

1. *Risk-taking capacity available from the reinsurance markets could exceed $5 billion dollars*

   Our research indicates there is substantial interest within the reinsurance marketplace in providing risk-taking capacity for the FDIC's bank failure risk. The theoretical $5 billion level of capacity, however, would be available only under a narrowly prescribed set of circumstances in which all the major insurance or reinsurance companies with an appetite for credit risk chose to participate in the program.

   Reinsurers have provided more specific information as to the factors affecting the availability of their capacity to the FDIC, as detailed below.

2. *Transaction Structure*

The structure of the transaction was found to be the single most important factor in determining capacity availability from reinsurers. Specific aspects of reinsurers' structural preferences are provided below.

a. *Deductible/retentions*: With near unanimity, reinsurers have indicated that a structure with a very substantial first-loss retention (deductible) paid by the FDIC is required for them to provide their maximum capacity. There is very limited interest on the part of reinsurers in participating in the FDIC's losses on a proportional basis, wherein reinsurers agree to share a pre-determined percentage of all FDIC losses in exchange for receiving the same percentage of premiums the FDIC charges to banks (less a credit to the FDIC for expenses). Capacity on a proportional basis is likely to be limited to no more than $100 million.

Reinsurers' definitions of what constitutes a substantial retention by the FDIC are largely a function of their business orientation. As a general guideline, reinsurers with a substantial focus on providing financial guarantees, that is, primarily the financial guarantee monoline insurance or reinsurance companies or those multiline insurers or reinsurers who choose to operate their credit-risk-related business on the same basis as monoline insurers, are most interested in transactions for which the risk they are asked to assume could be rated by the rating agencies as an "A" risk or better.* This is roughly equivalent to risks with three-year to five-year cumulative loss probabilities of 0.18 percent to

* *See Section 9 for a discussion of the reinsurance market in general and the credit-risk-oriented reinsurers in specific.*

0.45 percent or less.[1] For these types of reinsurers to make their maximum capacity available, they would require the risk be equivalent to, or explicitly rated by the rating agencies as, Aa/AA or Aaa/AAA. Transactions with this credit rating have cumulative three-year to five-year loss probabilities of approximately 0.08 percent to 0.12 percent[1].

We found, too, that the monoline and credit-focused reinsurers were generally the most receptive to a transaction. Given their focus and expertise on credit-risk-related transactions, this is not surprising. All of the monoline financial guarantee reinsurers and credit-risk-focused reinsurers that we approached were receptive to a transaction. Their combined capacity may exceed $5 billion for a transaction with a very low probability of a loss occurrence (Aa/AA or Aaa/AAA rated loss probabilities).

Multiline reinsurers that do not have a focus on credit risk have also specified the requirement of a substantial retention or deductible, but would be more comfortable assuming riskier transactions, as measured in higher loss probabilities, than would the monoline and credit-risk-focused multiline reinsurers. For example, they would be interested in transactions with estimated cumulative three-year to five-year loss probabilities from 6.11 percent to 11.23 percent, or lower, equivalent to the estimated annual loss probabilities of Ba/BB rated or better fixed income products.[1] Some of these reinsurers have indicated they would not be interested in transactions with very

[1] *Moody's Investor Services, "Default and Recovery Rates for Corporate Bond Issues:2000," February, 2001.*

low loss probabilities, because they are concerned that such transactions would not result in premiums sufficient to support underwriting costs.

The multiline reinsurers who are not focused on credit risk do not, as a group, have the capacity to provide the substantial limits the financial guarantee companies can provide. We estimate this segment of the reinsurance market could contribute capacity in the range of $200 million to $500 million, if they were presented with a transaction they viewed as an attractive underwriting opportunity.

These findings indicate a tranched, or layered, reinsurance structure with a large retention or deductible retained by the FDIC could be used to maximize the total available capacity. Under such a structure, different layers of risk would be targeted to the different types of reinsurer.

b. *Accumulations:* Each reinsurer's capacity is affected by the extent to which the risk it is asked to assume accumulates with its existing portfolio of risks. Several of the financial-guarantee-oriented companies stated that their capacity available to the FDIC would be reduced were the FDIC to offer a transaction that accumulated with the bank exposure that the reinsurer assumes through other contracts. Several reinsurers noted that they hold risk from large banking institutions whose credit-default risk trades in the private marketplace, either in the form of bank debt, credit default swaps, or insurance. Because of this, these reinsurers said they would be more receptive to a transaction that does not include the largest 100 to 150 banks.

c. *Single bank risk:* Most reinsurers stated they would prefer not to be exposed to loss from a single large bank failure. This results from their belief that they

have a very limited ability to accurately assess the risk of individual banking institutions. Reinsurers said they believe that individual bank risk is sufficiently complex, opaque, and subject to rapid change, that they are far better suited to assessing and assuming the risk on a portfolio basis.

d. *Term*: Most reinsurers said a transaction with the FDIC should be structured with a three- to five-year term. Term length beyond this would almost certainly reduce capacity for any offered transaction. Considerations in the determination of term length focused on the recognition that one year would be too short to provide any stability in pricing and capacity, and would be cumbersome to administer. Most reinsurers expressed discomfort with their ability to assess a risk of this type beyond a five-year time period.

e. *Ratings:* The financial guarantee companies and multiline reinsurers that operate their credit-risk business like the financial guarantee companies, have stated they either much prefer, or require, any transaction they underwrite to be rated by the rating agencies. Given that the largest potential capacity resides with these types of reinsurers, electing not to have a transaction rated would dramatically reduce the available capacity.

3. *Data Quality*

Reinsurers indicated that the ability to accurately quantify the risk they are assuming in a given transaction is important in their decision to underwrite the transaction and to the amount of capacity they are willing to commit. Underwriters' views of what constitutes adequate data are not necessarily consistent. Thus, some underwriters may accept a risk based on the data at the level of detail provided in the document used for the survey (attached "Reinsurance Initiative"), while others may require further detail. Further comment on data availability and quality is provided below in section C.

4. *Fluctuation in the size of the reinsurance marketplace for credit–risk-related transactions*

The potential capacity cited above in this report is an estimate of the capacity available today for the FDIC's bank failure risk. The amount of available capacity can change appreciably, sometimes in a period of less than a year. For example, the September 11, 2001 terrorist attacks on the United States could affect the capacity of reinsurers. Total capacity is a function of the number of reinsurers assuming credit risk and the individual capacity of each company.

In the last several years, capacity in the credit-risk-related markets has grown rapidly, primarily through new entrants to the business. This is a function of two distinct factors that have combined to encourage insurance entrants to the marketplace. First, the rapid growth of the capital markets in recent years, and in particular the growth of more esoteric financing transactions, has markedly increased demand for insurance to provide credit support for transactions. Second, and concurrently, reinsurers have sought new sources of income as opportunities for profit in their traditional classes of business have diminished due to rate cutting and the incursion of new competitors (for example, investors in catastrophe bonds). With the growing convergence of insurance markets and the capital markets, reinsurers have responded by adding specialized resources from the capital markets that are enabling them to assume risks outside their traditional sphere of expertise.

The number of credit-risk-related insurance and reinsurance companies has grown considerably in the last five years and is still growing (several financial guarantee insurers or reinsurers are in the process of formation). Nevertheless, past experience has shown that the owners of reinsurance capital can quickly re-deploy their capital if they find a better use for it.

The number of potential reinsurers is relatively small, numbering only a few dozen. The number of reinsurers with the wherewithal to provide substantial capacity (defined for this study as $500 million and above) on an individual transaction is about ten. The withdrawal of a small number of potential reinsurers could significantly effect total capacity available in the future.

To date, no reinsurers have advised that they are withdrawing, or reducing their interest in a FDIC transaction as a result of the September 11 attacks. It is, however, possible that such announcements will result as the impact on industry and individual companies is more fully understood in the months ahead.

5. *Strong Leaders* As discussed in Section 9 ("Background on the Reinsurance Marketplace") the reinsurance marketplace operates primarily on a lead/follow basis. This enables reinsurers that do not possess the detailed expertise of a particular class of business to rely on, or "follow," the pricing and other terms and conditions negotiated by reinsurers who are acknowledged to have a strong expertise in a particular class of business. A number of reinsurers expressed interest in participating on a transaction for the FDIC, but lacked the expertise to independently underwrite such a transaction. Specifically, they stated they lacked expertise with respect to bank-failure risk.

   Our research suggests there are currently only four to six reinsurers with the combination of expertise and capacity needed to be considered as credible, high-quality leaders. Each of these reinsurers has the existing expertise to assess bank-failure risk and has capacity that can exceed $1 billion on an individual transaction. The presence of several acknowledged experts as lead underwriters on a FDIC transaction would substantially increase the likelihood that following markets will agree to subscribe to

the transaction. Conversely, the impact of the absence of acknowledged leaders as participants on a transaction could be so severe that a transaction requiring significant capacity could not be successfully executed.

6. *Pricing is a critical determinate of available capacity.* This is discussed in detail below. For any given transaction most reinsurers will have some base level of pricing, below which they will not participate in a transaction. Above that base level of pricing, many reinsurers will increase their offer of capacity as the price increases.

B. Pricing

One of the main purposes of the FDIC's exploration of the reinsurance market is "to obtain market information that would allow the FDIC to more accurately quantify fund exposure and *price deposit insurance"* (emphasis added).[2] The survey of reinsurers has provided the following findings:

1. *The reinsurance markets can be effective in providing price information on a portfolio-wide basis.*

   Reinsurers are willing to provide pricing on catastrophe loss levels for the banking industry as a whole (or for the industry as a whole limiting or excluding the very largest banks). This pricing would represent the charge required to remove a portion of systematic risk that is now borne by the banking industry (through deposit insurance premiums and surcharges) or by the taxpayer. Such pricing information can serve as a component of the FDIC's own pricing of individual banks.

[2] *From the FDIC Request for Proposal – Statement of Work*

Reinsurers also indicated that pricing could be further segmented by having reinsurers price different segments of the FDIC portfolio. The FDIC could achieve this by constructing subset portfolios, each with different risk characteristics.

As explained in the section above concerning capacity, reinsurers are unwilling or unable to provide proportional risk-bearing capacity that shares losses with the FDIC from the first dollar of loss. Further, they have said they do not want to be exposed to the risk of individual bank failures, because they are not prepared to price banks on an *individual* basis. They are, however, prepared to provide capacity for high layers, which are in excess of substantial loss amounts to be retained by the FDIC, across the portfolio of covered banks. Such layers may be thought of as catastrophic loss layers.

Reinsurers provided insight to their rationale for this approach. Essentially, they believe that for the vast majority of FDIC-insured banks, the FDIC, as compared to the reinsurers, is much better able to assess the insolvency risk of *individual* banks. Reinsurers pointed out that only the largest 100 to 200 banks insured by the FDIC provide substantial financial information to the public and have debt instruments that are actively traded in the market. Other than for these banks, the reinsurers believe that they do not have the information needed to make informed pricing decisions on each of the almost 10,000 smaller banks. Further, they have stated that even if detailed information were available for each of the smaller banks, they do not have the ability to synthesize such a large volume of information into accurate underwriting decisions.

Reinsurers have also noted the FDIC's CAMELS ratings for individual banks cannot be disclosed to reinsurers. They are aware that CAMELS ratings, as a predictor of impending bank failure, are superior to pure financial data on its own. Without CAMELS ratings, reinsurers would be forced to rely largely on pure financial data.

In summary, reinsurance markets can provide pricing on catastrophe loss levels for a portfolio of FDIC-insured banks. The portfolio would exclude, or limit, the exposure from the largest banks, for which sufficient information is available to make an assessment of risk on a bank-by-bank basis. Reinsurance would provide the FDIC with market pricing information on the portfolio of approximately 10,000 smaller banks.

2. *Reinsurers' prices would represent a free-market charge without government support and, as such, can be expected to be higher, for a given reinsured risk, than those that would be charged by the FDIC.*

Reinsurers' pricing of the FDIC's risk will be a function of many factors, including risk of the transaction, reinsurers' cost of capital, expense and profit provisions, and supply and demand. This is in contrast with the FDIC approach, which combines risk pricing and public policy elements. Current FDIC guidelines specify that banks pay insurance premiums ranging from .04 percent to .31 percent of assessable deposits when the insurance fund is below the statutory target of 1.25 percent of insured deposits. The law requires that when the reserve ratio is below the statutory target, the FDIC must either charge premiums that are sufficient to return the fund to the target within one year or charge premiums not less than .23 percent until the target is achieved. When the fund ratio is at or above the statutory target, most banks by law do not pay insurance premiums. With both FDIC insurance funds currently above the 1.25 percent target, about 93 percent of all FDIC-insured institutions are not paying for deposit insurance.

Without a specific transaction to price, reinsurer feedback on pricing should be viewed only as a very rough guide to their basic price expectations. Nevertheless, we received

some pricing information from the reinsurers. As an example, the pricing of so-called "super-senior" tranches of collateralized debt obligation (CDOs), which have an annual expected loss probability of considerably less than 1 basis point (less than one chance in 10,000), are currently priced at about 8 to 9 basis points per year. Several reinsurers indicated that, because of lack of industry diversification (all the risk emanates from one industry – banking), pricing for an equivalent layer for the FDIC would likely be closer to 20 basis points per year.

In theory, we would expect that, over the long term, the premiums charged by the reinsurers would exceed those charged by the FDIC for any given layer of risk. This fundamental pricing difference results from the fact that the reinsurers will require a higher capital charge than would the FDIC. For example, for a layer of coverage with an annual expected loss of 1.0 percent, reinsurers would expect to receive a premium of at least 2.0 percent of the limit of liability, and likely much closer to 4.0 percent.

In summary, for the likely range of layers, the FDIC can expect to pay prices that range from 0.2% to 4.0% of the maximum limit of loss recoverable. In dollar terms, in simple examples of realistic structures, if the FDIC placed 100 percent of a $2 billion layer of coverage, which the reinsurance markets priced at 20 basis points, the premium for the layer would be $4,000,000. A riskier layer, with $500,000,000 of coverage priced at 200 basis points, would cost $10,000,000.

3. *Factors affecting pricing*

   a. *Capacity requirements*: As noted in the capacity section, above, pricing is an important factor in determining capacity. It is also true that capacity needs affect pricing. If the FDIC were to offer a transaction that had limits that required substantially all potential capacity available from the marketplace,

prices would be expected to be substantially higher than if the FDIC sought capacity that was a fraction of the overall market. This is because the market clearing price moves higher to attract capacity from those reinsurers who have higher prices.

b. *Reinsurance market cycles:* Market cycles unquestionably affect pricing. For the past 12 to 18 months, reinsurance pricing generally has been gradually increasing. We cannot forecast how long this will continue, nor how much more the prices will harden, though it is expected that the attacks of September 11 will raise prices across all lines of business more rapidly than would otherwise have been the case. Prior to this current period, reinsurance pricing had been decreasing since the early to mid-90s.

c. *Data quality:* Reinsurers will add charges for uncertainty. Poor data quality or lack of complete information will drive prices higher.

d. *Concentration risk*: If the FDIC elects to place a transaction into the market that accumulates directly with existing bank exposures carried in the reinsurers' portfolios, these reinsurers will demand prices that are higher than for the assumption of a transaction that provides risk diversification, all other things held equal.

e. *Lead/follow market structure*: As discussed above and in Section 9 ("Background on the Reinsurance Marketplace") the reinsurance market does not traditionally determine price through an auction marketplace. If the FDIC elects to approach the reinsurance market in a way that differs from the traditional lead/follow practice, "following" reinsurers may not participate, thus removing capacity. Though "following" reinsurers are not expected to

contribute large amounts of capacity, removal of any capacity could lead to an increase in price.

C. Risk Analysis and Ratings

1. Risk Analysis

All reinsurers indicated that substantial risk analysis would be required prior to the commencement of pricing and negotiation of terms and conditions. The reinsurers raised several issues regarding the risk analysis process.

a. *Data quality:* Reinsurers generally commented that the type of information provided to them (see attached "Reinsurance Initiative" for a copy of the information booklet provided to reinsurers) in the survey process was consistent with what they would need for a risk assessment process. They indicated, however, that for an actual transaction this analysis would need to be performed by them or by their designees.

One knowledgeable reinsurer (a potential leader) voiced a concern that the banking industry, and the regulation of it, had changed sufficiently since the last banking crisis to limit the usefulness of past bank failure history as a guide to future failure probabilities. Nevertheless, they would still require as much detailed historical information as possible so that a baseline failure history could be developed.

The FDIC should give consideration to providing the CAMELS data in more narrowly defined groupings. Several reinsurers pointed out it would be helpful to have as much dis-aggregated CAMELS data as possible. Currently, we have only provided reinsurers with very broadly grouped CAMELS data, with no identification of an individual bank's own CAMELS rating. The FDIC and

analysis phase of this project. At the time, the best available data for reinsurers was the broadly grouped information. We understand it will not be possible to make available individual bank CAMELS ratings.

b. *Resource commitment by reinsurers:* A common theme among many of the reinsurers surveyed is a hesitancy to commit the necessary resources to analyze the FDIC risk portfolio in the absence of any assurance that a transaction will result. As a result, these reinsurers have indicated they would expect the FDIC to fund the analysis, while the reinsurers would retain control of the analysis. This could be structured as an underwriting fee paid to the reinsurers, or the FDIC could directly fund the research.

One reinsurer suggested an underwriting fee be paid to the reinsurers only if a transaction were not consummated.

If the FDIC is required to assume the cost of the initial analysis, to whom would the fee be paid and how large would the fee be? The practical possibilities are:

- Designate a small number of reinsurers as leaders, and pay fees only to them. Following reinsurers would not be paid.

- Allow the lead reinsurers to form a joint analysis group. This effort would be staffed at the direction of, and guided by, interested reinsurers. The analysis group would act on behalf of the reinsurers to prepare the risk analysis for all reinsurers.

  Some reinsurers suggested individuals from the reinsurers themselves and/or outside consultants could staff the analysis group. Reinsurers would be free to do their own analysis but would carry that cost themselves.

Reinsurers have not estimated the cost for this analysis. Our own estimate of this cost, however, is that it would be a minimum $200,000 and more likely in the region of $500,000 and possibly higher. We anticipate the time required to create the working group and to do the actual analysis would be approximately six months.

Some reinsurers indicated that FDIC funding of the analysis costs would not be necessary for future renewals of the reinsurance program. As such, the risk analysis expense can be considered a start-up cost.

2. *Rating agencies*

Most of the reinsurers who have the capability of being lead reinsurers, and even some who do not, strongly prefer or require any transaction to be rated by at least one, and preferably two, of the rating agencies.

D. FDIC Contracting Policies and Capabilities

1. *FDIC contracting policies*

Many reinsurers already have experience dealing with governmental organizations in the United States and foreign countries. Only one reinsurer in our survey group indicated it would not be interested in participating on a FDIC-sponsored transaction because of the perceived extra burden placed on them by doing business with a governmental agency. Therefore, we do not expect the FDIC contracting policies will be a significant impediment to doing a transaction with the reinsurance community.

The above notwithstanding, if the FDIC elects to move forward with a transaction, we recommend careful attention be given to minimizing the burden that is placed on reinsurers by the contracting process. This is especially important in light of the desire to encourage the participation of as many reinsurers as possible in the transaction.

2. *Organizational capabilities within the FDIC to place reinsurance*

In the near term, MMC Enterprise Risk knows of no capability absent within the FDIC that would prevent the FDIC from implementing the placement of a pilot reinsurance transaction. The FDIC does not, however, currently have in-house reinsurance expertise. During the pilot period, this expertise can be provided through the services of a reinsurance intermediary, or other outside reinsurance consultant. Over time, if the pilot reinsurance project develops into a more permanent program, the FDIC may wish to consider acquiring in-house reinsurance expertise.

II. Recommendations

1. We recommend that the FDIC move forward to place a pilot reinsurance transaction. Only by going through this process can the details of such transactions be determined and the usefulness to the FDIC be established. A pilot transaction will provide an open-market view of the FDIC's risk on an overall portfolio basis. In addition, segmentation of the portfolio by defined risk categories can be utilized to provide more finely detailed pricing information. Over time the reinsurance markets will become increasingly educated as regards the FDIC's risk and, as such, can be expected to continue to develop and refine their reinsurance product so that it is increasingly responsive to the full range of FDIC needs.

2. For a transaction to enjoy the broad support of the reinsurance markets, with sufficient capacity to be meaningful to the FDIC, the reinsurance transaction should be structured as an "excess of loss" contract, with the retention by the FDIC of a substantial deductible of losses prior to payment of losses by the reinsurers. Feedback from reinsurers was clear and consistent on this point.

   Also based on the feedback from reinsurers, additional recommendations are shown in items 3 through 6 below.

3. Limit the overall size of the transaction to $1 billion to $2 billion.

   Substantially more than $2 billion in capacity appears to be available, as discussed above. The FDIC's goal, however, should be to create strong demand for the transaction from as many reinsurers as possible. The intent is to have the transaction priced as inexpensively as possible and with as many reinsurers as possible. One way to help meet this objective is to limit the "supply" of the transaction available to the market. The transaction, however, should not be so small that reinsurers will not invest the time to underwrite the transaction.

While it may be possible to place a transaction with only two or three reinsurers, we do not believe this would be perceived as representing a broad-based "market price."

4. Layer the transaction to attract reinsurers with different risk appetites.

Based on their feedback, reinsurers' interest in a transaction is very limited for layers with expected loss probabilities of greater than 1 percent per year. Therefore, we recommend a structure with an initial layer that has an attachment point that is close to the 1 percent probability of loss. Above the initial layer there would be additional layers with progressively lower probabilities of loss, up to and including a layer with a probability of loss that would allow the layer to be rated as AA or better. A more precise layering of the transaction will depend on the decision regarding which banks are (or are not) included in the covered portfolio and on the modeled loss probabilities associated with each layer.

The initial layer would likely not be rated by the rating agencies. This would not have a significant impact on the placement, because the reinsurers most interested in this layer are the multiline reinsurers for whom ratings are not necessary. Moving up the credit spectrum, to single A, to AA, and to AAA rated transactions, the available capacity will grow dramatically and will come largely from the financial-guarantee-oriented reinsurers.

Each layer would be partially, but not fully, reinsured. There are two reasons for this. First, the maximum each layer would be reinsured is for 95% of the limit. This is because reinsurers generally require that a ceding entity (in this case the FDIC) retain a portion of the risk they are ceding, in order to ensure a commonality of interests with the reinsurers. Second, it is likely that the limits of the layers required to span the range of loss probabilities, as indicated above, would be sufficiently large that reinsurers would not have the capacity to absorb the full limit.

5. Limit or eliminate the exposure of the largest banks from the portfolio to be reinsured, and consider a capital markets approach to the assessment and pricing of the default risk of the largest banks.

   Some of the reinsurers with significant capacity would have exposure accumulations on the largest banks. Further, reinsurers uniformly indicated a desire that a claim not be triggered by the failure of only one or a small number of bank failures. Therefore, removing the large banks from the covered portfolio would generate the greatest amount of reinsurer demand. As an alternative, the FDIC can consider limiting the amount of loss any single bank can contribute to a reinsurance claim. If this were done, the portfolio of the largest banks may need to be addressed through some other mechanism. Several reinsurers are of the view this may be most effectively done through the capital markets rather than the reinsurance markets.

   Reinsurers are best suited to providing reinsurance on a portfolio-wide basis where the largest banks' exposures are limited or even excluded from coverage. For these large banks there is substantial information in the public domain that has made possible a rapidly developing and already substantial credit default market, in which this risk is hedged and traded.

6. The term of a reinsurance transaction should be three to five years.

   Reinsurers were in general agreement that the term of the transaction should be three to five years, with reinsurance costs fixed during the term of the contract.

Another option would be to permit premiums to increase or decrease each year, based on current market conditions and perceptions of exposures. We do not recommend this type of structure, however, as it would add an unwarranted degree of complexity for a pilot transaction.

Section 5: Annotated Action Plan

Based on the findings discussed above, we provide an annotated action plan for the FDIC. This is intended to provide a road map leading through to a transaction.

Phase 1: The FDIC determines whether to move forward towards the implementation of a transaction. If the decision is made to move forward, then the FDIC proceeds to Phase 2.

Phase 2: The FDIC selects a reinsurance intermediary to represent the FDIC. The role of the intermediary would include:

1. Working with the FDIC to refine the broad outlines of a transaction for the FDIC;
2. Working with the FDIC to design the method for approaching the worldwide reinsurance marketplace;
3. Working with the FDIC to develop credit criteria for reinsurers, in order to ensure that only qualified reinsurers provide reinsurance to the FDIC;
4. Managing contacts with reinsurers on behalf of the FDIC;
5. Working with the FDIC to create preliminary marketing documents to be used to acquaint reinsurers with the goals and objectives of the FDIC and to provide them with sufficient information to generate their interest in working with the FDIC;
6. Working on behalf of the FDIC, as reinsurers begin their risk assessment phase, to oversee the smooth operation of this phase including advising and assisting the FDIC on negotiations with respect to the costs to be borne by the FDIC;
7. Refining the transaction structure, with input from reinsurers and the FDIC, during the risk assessment phase;
8. Soliciting pricing and terms on behalf of the FDIC, from reinsurers, for the specified transaction;
9. Negotiating pricing and terms and conditions on behalf of the FDIC with reinsurers;
10. Preparing draft reinsurance documents for the FDIC;

11. Managing the execution of all documents by the FDIC and reinsurers;
12. Arranging for payment of premium and claims between reinsurers and the FDIC.

We recommend the selection of a reinsurance intermediary to act on the FDIC's behalf. As explained in Section 9 ("Background on the Reinsurance Marketplace"), reinsurance can be placed on a direct basis between the ceding company and the reinsurers. We do not recommend this approach for the FDIC, given the FDIC's limited experience in the reinsurance market and the administrative complexities of dealing with multiple reinsurers. Intermediaries have the experience and infrastructure to efficiently handle this kind of project.

We also recommend the use of a single reinsurance intermediary for this transaction, rather than multiple intermediaries. The number of potential reinsurers of the FDIC is sufficiently small that there is little benefit to be gained by having multiple intermediaries. In addition, the use of multiple intermediaries would require increased management time for the FDIC due to the coordination of the activities of multiple parties.

If the FDIC proceeds to Phase 2, we expect that the selection of the intermediary will follow normal FDIC contracting procedures with the selection based on a combination of price and competency to successfully complete the task.

We recommend that the FDIC negotiate a fee-for-service contract with the selected intermediary. This would provide the FDIC with significant flexibility regarding the terms of the contract. Further, a fee-for-service contract would eliminate any appearance of a conflict of interest that the intermediary might have, in regard to the size of the reinsurance premium. The size of the fee would depend primarily on the services provided, rather than on the size of the transaction. Reinsurance intermediaries typically earn income in one of two ways: a fee for service, or brokerage (usually as a percentage of premiums). Each of these methods is discussed below.

Brokerage is paid directly by the reinsurance company to the intermediary. Brokerage is, however, a cost to the client because the amount of the brokerage is built into the premium that is charged to the reinsured. On excess of loss reinsurance transactions, including the type of transaction we recommend for the FDIC, the brokerage amount is typically ten percent of the premium. Brokerage is generally paid to intermediaries when the reinsurance premium is paid to reinsurers. Therefore, if premiums are paid over time on a scheduled basis, intermediaries earn their fees in accordance with the schedule.

There is no consistent standard for *fees for service*. These arrangements are negotiated between the client and the intermediary. Many different arrangements have been used. Some are a flat fee for service, some provide for up-front work fees plus success fees when a transaction is closed. Fee arrangements can include an ongoing servicing fee if claims and premiums are being handled through the intermediary. Fee arrangements can also include a brokerage sharing approach, under which the intermediary places reinsurance with standard brokerage rates (for example, ten percent of premium), and then shares a portion of that brokerage with the reinsured.

Timeframe for completion of Phase 2: two months.

Phase 3: The FDIC and the intermediary prepare to bring the transaction to market. The reinsurance intermediary would work with the FDIC in developing credit criteria for qualified reinsurers. This is important, as a reinsurance transaction will cause the FDIC to assume the credit risk of the reinsurers.

Time frame for completion of Phase 3: two months.

Phase 4: The intermediary approaches reinsurers to solicit interest in the transaction.

Time frame for completion of Phase 4: one month.

Phase 5: Reinsurers perform their risk assessment.

Timeframe for completion of Phase 5: six months.

Phase 6: Reinsurance "leaders" provide terms and conditions to the FDIC. Negotiations are concluded and terms and conditions of the contract, including price are set.

Timeframe for completion of Phase 6: one to two months.

Phase 7: The intermediary presents the proposed transaction to the full reinsurance marketplace.

Timeframe for completion of Phase 7: one to two months.

Phase 8: Reinsurer's percentage participation in the various layers are finalized, binding documentation is completed, contract wordings are prepared and issued, and premiums are paid.

Timeframe for completion of Phase 8: one to two months.

Note: The timeframes could be compressed with a focused commitment of all parties. The timeframe for an initial, first-of-a-kind transaction such as this will always be longer than the timeframe for subsequent renewals of the transaction.

Section 6: MMC Project Team

The following people conducted this project:

- *Christopher McGhee*, managing director of MMC Enterprise Risk and Guy Carpenter & Company, Inc., who served as the managing partner of this project
- *Walter Wright*, principal of MMC Enterprise Risk, who served as the project coordinator
- *William Godfrey*, managing director, Guy Carpenter & Company, Inc.
- *Joseph Peiser*, managing director, MMC Enterprise Risk
- *Michael Fine*, managing director, Guy Carpenter & Company, Inc.
- *James Hall*, vice president, MMC Enterprise Risk
- *Douglas May*, vice president, Guy Carpenter & Company, Inc.
- *Mark Rakotomalala*, vice president, MMC Enterprise Risk

In addition to these team members, many other members of the MMC organization supported the project. The project team is especially appreciative of the actuarial analysis of the FDIC's loss experience, provided by:

- *John Major*, Senior Vice President, Guy Carpenter & Company, Inc.
- *Shajy Mathai,* Senior Vice President, Guy Carpenter & Company, Inc.
- *Maya Belubekian*, Assistant Vice President, Guy Carpenter & Company, Inc.

Section 7: Acknowledgments

The MMC Enterprise Risk team expresses its gratitude to the representatives of the FDIC with whom we worked on this interesting project.

We had many useful discussions with Art Murton, Fred Carns, and Gary Ternullo. These discussion were very helpful in the development of our understanding of the FDIC's general goals and objectives for this project, as well as for obtaining a clearer understanding of the FDIC's position on specific reinsurance issues. In addition, they were very helpful in arranging for us to meet with researchers at the FDIC in providing data and information for our study.

We especially thank Gary Ternullo for his continuous support on this project. He kept in touch with the project team on a regular basis, providing help and encouragement throughout the course of the project.

Section 8: The MMC Organization

MMC Enterprise Risk

MMC Enterprise Risk is a business unit within Marsh & McLennan Companies (MMC). This business unit brings together MMC resources from throughout the MMC organization in order to provide an integrated approach to the solution of risk management issues. MMC is publicly traded on the New York Stock Exchange, and its headquarters are in New York, New York.

MMC's worldwide business operations are focused in three areas, as discussed below.

Risk and Insurance Services:

Marsh & McLennan Securities Corp. (MMSC) is the investment banking arm of the Marsh & McLennan group of companies. MMSC is formally a part of MMC Enterprise Risk. MMSC provides selected investment banking and capital markets services, including corporate finance, mergers and acquisitions, restructuring, insurance risk transfer, and financial risk transfer. The firm is an NASD registered broker-dealer organized into two specialized business units, Corporate Finance and Capital Markets. Each unit contains experienced professionals with reinsurance, insurance, investment banking, capital markets, legal and modeling skills who are dedicated to meeting the objectives of their clients.

Guy Carpenter & Company, Inc. is the largest firm in the world totally dedicated to reinsurance intermediary activity. The Company works with insurance and reinsurance clients around the world to identify and quantify risk and then to structure and place programs to address these risks in accordance with client risk management strategies. Markets assuming risks on behalf of clients include traditional insurance and reinsurance companies, finite risk insurers and capital markets worldwide.

Marsh Inc. is the world's leading risk and insurance services firm. Insurance broking is conducted under various forms of the Marsh name and includes the total range of services to identify, value, control, transfer and finance risk.

Seabury & Smith, Inc. provides insurance program management services in the United States and Canada, and designs and administers specialized insurance programs.

Consulting:

William M. Mercer, Incorporated is a market leader in human resource, employee benefit and compensation consulting. The Risk, Finance, and Insurance practice, which was formerly within this company, specializes in providing actuarial consulting services regarding property/casualty, life, and health insurance. This part of William M. Mercer is now formally a part of MMC Enterprise Risk.

National Economic Research Associates, Inc. (*NERA*), the leading firm of consulting economists, specializes in providing solutions to problems involving competition, regulation, finance and public policy.

Mercer Management Consulting, Inc. is a leader in helping enterprises achieve sustained shareholder value growth through the development of innovative business designs.

Investment Management:

Putnam Investments, Inc., one of the oldest and largest money management organizations in the United States, offers a full range of both equity and fixed income products, invested domestically and globally, for individual and institutional investors. Putnam manages more than 110 mutual funds, has over 900 institutional clients and 10 million individual shareholder accounts. Putnam has assets under management of more than $400 billion.

Section 9: Background on the Reinsurance Marketplace

The purpose of this section of the report is to provide a description of reinsurance and the reinsurance market, and to explain how reinsurance transactions are placed.

Reinsurance can be underwritten both by reinsurance companies, which generally specialize in reinsurance, and by insurance companies, which underwrite business on a primary basis but also underwrite some reinsurance business. In this report, we consistently use the term "reinsurer" to refer to the company that is assuming the risk of another insurance company or reinsurance company, and use the term "insurer" or "reinsured" to refer to the company that is ceding its risk to the "reinsurer." Otherwise, the distinction between reinsurance companies and insurance companies is generally not important for this discussion, and the context in which we use these terms will make their meaning apparent.

Evolution of Reinsurance

The first reinsurance transaction was consummated over 600 years ago and involved a marine risk in Genoa, Italy. The reinsurance industry as we know it today began in London in 1688, with the sharing of risk conducted at John Lloyd's coffeehouse. This eventually grew into the institution we know today as Lloyd's of London. Today, as we begin the twenty-first century, reinsurance has grown into a worldwide collection of reinsurance companies and intermediaries. While reinsurance started with marine risks, today every line of business written by a primary insurance company can be reinsured. The reinsurance market evolves to meet the needs of insurers. As an example, the reinsurance market is now providing reinsurance support for clients who have developed new insurance products to address cyber risks.

Reinsurance is recognized as a major contributor to the overall financial stability of the insurance industry. Purchasing reinsurance has become a complex and technical process. It is extremely important to the profitability and stability of the insurance industry.

What is Reinsurance?

Reinsurance is a mechanism for spreading an insurance company's risk. It is an agreement through which, for consideration, the reinsurance company agrees to indemnify the insurance company against all or part of the loss which the latter may sustain under the insurance policies it has issued. The reinsurance company is commonly referred to as the "reinsurer." The insurance company is commonly referred to as the "reinsured" or as the "ceding company."

There are four primary reasons for an insurance company to purchase reinsurance:

1. Catastrophe Protection – Reinsurance can protect the insurance company from excessive losses resulting from natural catastrophes or other causes of very large ("catastrophic") losses.
2. Capacity – Reinsurance can supplement the risk bearing capacity of the insurance company, enabling the insurance company to insure more or larger risks.
3. Stability – Reinsurance can be used to help stabilize underwriting results.
4. Financing – Reinsurance can be used to reduce liabilities on the balance sheet of an insurance company. As a result, the insurance company has the ability to underwrite new risks it otherwise may not have had the financial strength to assume.

In addition to these four primary purposes of reinsurance, there are other reasons that apply in situation specific cases, such as:

5. Creating partnerships with reinsurers to share the risks of new lines of business
6. Removing the liabilities of a line of business the company wishes to exit
7. Acquiring reinsurer partners who will provide confirmation of the pricing policies of the ceding company

Types of Reinsurance

There are two general forms of reinsurance: excess of loss and pro rata. "Excess of loss" means that the reinsured company retains a predetermined amount of loss before the reinsurance company responds. For example, the reinsured company might retain $500,000 on each and every claim. Alternatively, it might retain a total of $25 million of losses arising from a catastrophe. The price for the layer of losses that is protected by reinsurance (such as the layer of losses excess of $500,000 per claim, or the layer of losses excess of a total of $25 million arising from a catastrophe) is usually determined as a function of the expected losses to the layer. The reinsurer charges a rate that is typically expressed as a percentage of the insurance company's written premium for the entire portfolio of insurance policies that is the subject of the reinsurance contract.

"Pro rata," or proportional, reinsurance means that the insurance company shares all losses with the reinsurer on a pro rata basis. For example, the insurance company might retain 60 percent of all losses, and cede the remaining 40 percent of all losses to the reinsurance company. The price for the pro-rata reinsurance coverage is the pro-rata share of the premiums, less an amount to compensate the insurer for their cost of acquiring and managing the original policies.

Either of these basic approaches, excess of loss or pro-rata, can be used separately or in combination for the purposes described above. However, pro rata is the preferred choice for confirmation of pricing adequacy. This is because reinsurers will not enter into a pro-rata agreement if they disagree with the insurance company's pricing of the insurance policies they wish to cede. In excess of loss reinsurance, on the other hand, reinsurers can entirely disregard the underlying pricing, and simply charge the rate they deem adequate to assume the given layer of risk. In practice, however, few excess of loss arrangements are viable over time if the underlying policies are significantly underpriced.

Distribution Systems

Every ceding company has two main distribution systems to choose from: direct and brokered. The "direct writers" (those reinsurance companies that use the direct distribution system) maintain their own sales staff who interact directly with executives of the insurance companies. Insurance companies that elect to deal directly with reinsurers generally have reinsurance professionals on staff who will be responsible for negotiations of the terms and conditions of the reinsurance agreements.

The reinsurance companies in the "broker market" (those reinsurance companies that use the broker distribution system) underwrite business through reinsurance brokers, who serve as intermediaries between the insurance companies and reinsurance companies. The reinsurance intermediary is hired by and represents the insurance company. The broker is generally responsible for all aspects of the transaction including drafting contract wordings, premium distribution and claim collection.

Today, in practice, very few reinsurers maintain only one distribution channel. Most direct writers, while producing the largest portion of their premium volume directly, will entertain business through brokers. At the same time, most broker-market reinsurers will entertain business on a direct basis for a few special clients. The choice lies with the client.

Lead/Follow Market

The reinsurance industry is a dynamic business that has historically addressed the needs of insurance companies and governmental insurance operations through an array of products and capacity. Unlike many markets, reinsurance does not generally operate on an auction basis, using instead what is referred to as the "lead – follow" system. In this system, "leaders" negotiate terms and conditions of a reinsurance contract. Once these are set, the contract is syndicated with "following" reinsurers who either accept or reject the agreed terms and conditions set by the contract leader or leaders. "Followers" have little input on the contract terms. Once the terms and conditions are set, all reinsurers, including the "followers," receive the same terms and conditions under the contract, including price. This developed as a way to allow reinsurers to participate on reinsurance without having a highly specialized expertise in specific classes of business. Instead, under the "lead – follow" approach, following reinsurers could rely on the expertise of certain acknowledged experts in specific classes of business. As a result, certain reinsurers might be leaders in some classes of business while being followers in others. In recent years, it has also generally become true that lead reinsurers have significant financial capacity, strong actuarial pricing capabilities, and innovative underwriting practices.

In a typical transaction, an insurance company would approach (either directly or through a reinsurance intermediary) a group of leader reinsurers with acknowledged expertise in the class of business they wish to reinsure. The lead reinsurers would be provided with a comprehensive underwriting proposal, including all the necessary data to underwrite the exposures for which the insurance company intends to purchase reinsurance as well as a narrative that explains the goals the insurance company would like to accomplish through the reinsurance transaction. The lead reinsurers are also provided with a proposed reinsurance structure, which the leaders are asked to price. Lead reinsurers may also elect to request changes in the transaction structure.

The insurance company and their intermediary (if one is involved) then analyze the terms and conditions offered by the various lead reinsurers. The insurance company's goal is to arrive at a set of terms and conditions that allow it to purchase the required capacity from the reinsurance

markets at the best terms and conditions available. In some cases a single leader's quotations will be accepted, while in others, the price is set by the consensus of a group of leaders. It is frequently the case that the lowest quote does not determine the terms and conditions for the contract, as these terms and conditions may not be sufficient to generate the support of enough following reinsurers to complete the placement.

Once contract terms are agreed between the client and at least one lead reinsurer, following reinsurers are offered the opportunity to participate for a percentage share of the transaction. Following reinsurers receive the same information provided to the lead reinsurers. On the basis of this information and their confidence in the lead reinsurers, the following reinsurers elect to accept or decline to participate in the transaction. The follow-market reinsurers also generally offer less capacity than the lead reinsurer(s).

Global Reinsurance Marketplace

Statistics on the size of the worldwide reinsurance market are not accurately tracked by any organization. Nevertheless, Guy Carpenter estimates worldwide reinsurance premiums are annually in excess of $120 billion. Approximately 43 percent of the volume is written by U.S. reinsurers. Table 1 below shows Standard & Poor's Top 25 Global Reinsurance Groups for property and casualty companies. This indicates that the top twenty-five reinsurance groups write roughly sixty-five percent of the total property and casualty written premiums.

TABLE 1
($ in Thousands)

	Company	1999 Net Reinsurance Premiums Written
1	Munich Reinsurance Group	$13,566,142
2	Swiss Reinsurance Group	12,838,750
3	Berkshire Hathaway Reinsurance Group	9,452,500
4	Employers Reinsurance Group	6,921,061
5	Gerling Global Reinsurance Group	3,937,862
6	Lloyd's	3,799,211
7	Assicurazioni Generali Reinsurance Group	3,533,442
8	Allianz	3,299,013
9	SCOR Reinsurance Group	2,720,603
10	Hannover Reinsurance Group	2,564,375
11	Zurich Reinsurance Group	1,878,040
12	Transatlantic Holdings	1,498,524
13	AXA Reinsurance Group	1,141,575
14	Partner Re Ltd.	1,326,410
15	CNA Reinsurance Group	1,275,000
16	Everest Reinsurance Group	1,095,569
17	St. Paul Reinsurance Group	1,056,401
18	XL Capital Reinsurance Group	970,000
19	Toa Reinsurance Company Ltd.	965,507
20	Korean Reinsurance Company	837,056
21	Tokio Marine and Fire Insurance Group	831,794
22	Overseas Partners Ltd.	819,683
23	Caisse Centrale de Reassurance	793,284
24	Hartford Reinsurance Company	702,961
25	QBE Reinsurance Group	587,500
	Total:	**$78,412,262**

Source: Table from Standard & Poor's

Table 1 shows that the reinsurance business is highly concentrated in a relatively small number of companies. The reinsurance marketplace is also truly global. Of the top ten reinsurers, eight are foreign owned. All eight have substantial operations in the U.S.

Credit Reinsurers

A specialized subset of the reinsurance market are those companies that focus exclusively on credit risk or which have developed a significant focus on credit risk. The credit market includes companies that are exclusively writers of financial guarantee business, known as monoline insurance and reinsurance companies, and standard property and casualty reinsurance companies, known as multiline reinsurance companies.

The monoline financial guarantee insurance and reinsurance companies are the largest markets for credit-risk-related reinsurance transactions. As shown in Table 2 below, total capital exceeds $11 billion.

TABLE 2

($ in Thousands)

	1999 Total Capital (policyholder's surplus & contingency reserve)
ACE Financial Guarantee Corp.	$80,819
Ambac Assurance Corp.	2,420,455
Financial Guaranty Insurance Co.	1,993,134
MBIA Insurance Corp.	4,152,096
Financial Security Assurance Inc.	1,335,276
ACE Guarantee Re Inc.	448,316
Enhance Reinsurance Co.	422,970
RAM Reinsurance Co. Ltd.	120,340
Asset Guaranty Insurance Ltd.	121,804
Sub-total: Primary bond insurers	9,981,781
Sub-total: Reinsurers	1,113,430
Total	**$11,095,211**

Source: Standard & Poor's Bond Insurance Book 2000

The monoline companies only underwrite financial guarantee insurance. Their main business is to provide credit enhancement to municipal and corporate bonds and, for the most part, they require that transactions be rated by the rating agencies. Because their own ratings are critical to the bond markets, the monolines face stringent review by the rating agencies. The size of the monoline industry is increasing, as several new monoline financial guarantee companies are currently in the process of formation.

The multiline reinsurers are recent entrants into the credit market. This has been a result of the convergence of the insurance industry and the capital markets. A number of major multiline companies have established underwriting teams who review specialized insurance and credit transactions. While the methods used by the credit teams in multiline reinsurers to price credit risk are similar to the methods employed by the monoline companies, the multiline reinsurers frequently do not require that a transaction be rated by the rating agencies. In addition, the capital structure of multiline companies is generally not as leveraged as that of monoline companies. As a result multilines can assume risks with higher probabilities of loss, albeit with commensurately higher premiums.

The monoline companies and the multilines that have set up credit operations make up the bulk of the financial capacity in this area. We refer to property and casualty companies who have set up credit operations as "credit-focused multiline reinsurers."