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Commercial Bank Risk Management: an Analysis of the Process

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Commercial Bank Risk Management: An Analysis of the Process [1]

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Abstract: Throughout the past year, on-site visits to financial service firms were conducted to review and evaluate their financial risk management systems. The commercial banking analysis covered a number of North American super-regionals and quasi-money center institutions as well as several firms outside the U.S. The information obtained covered both the philosophy and practice of financial risk management. This paper outlines the results of this investigation. It reports the state of risk management techniques in the industry. It reports the standard of practice and evaluates how and why it is conducted in the particular way chosen. In addition, critiques are offered where appropriate. We discuss the problems which the industry finds most difficult to address, shortcomings of the current methodology used to analyze risk, and the elements that are missing in the current procedures of risk management.

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I. Introduction

The past decade has seen dramatic losses in the banking industry. Firms that had been performing well suddenly announced large losses due to credit exposures that turned sour, interest rate positions taken, or derivative exposures that may or may not have been assumed to hedge balance sheet risk. In response to this, commercial banks have almost universally embarked upon an upgrading of their risk management and control systems.

Coincidental to this activity, and in part because of our recognition of the industry's vulnerability to financial risk, the Wharton Financial Institutions Center, with the support of the Sloan Foundation, has been involved in an analysis of financial risk management processes in the financial sector. Through the past academic year, on-site visits were conducted to review and evaluate the risk management systems and the process of risk evaluation that is in place. In the banking sector, system evaluation was conducted covering many of North America's super-regionals and quasi-money center commercial banks, as well as a number of major investment banking firms. These results were then presented to a much wider array of banking firms for reaction and verification.

The purpose of the present paper is to outline the findings of this investigation. It reports the state of risk management techniques in the industry -- questions asked, questions answered and questions left unaddressed by respondents.[1] This report can not recite a litany of the approaches used within the industry, nor can it offer an evaluation of each and every approach. Rather, it reports the standard of practice and evaluates how and why it is conducted in the particular way chosen. But, even the best practice employed within the industry is not good enough in some areas. Accordingly, critiques also will be offered where appropriate. The paper concludes with a list of questions that are currently unanswered, or answered imprecisely in the current practice employed by this group of relatively sophisticated banks. Here, we discuss the problems which the industry finds most difficult to address, shortcomings of the current methodology used

[1] A companion paper reports on risk management practices for insurance firms. See Babbel and Santomero (1997).

to analyze risk and the elements that are missing in the current procedures of risk management and risk control.

II. Risk As a Central Ingredient To the Industry's Franchise

A. What Type of Risk Is Being Considered ?

Commercial banks are in the risk business. In the process of providing financial services, they assume various kinds of financial risks. Over the last decade our understanding of the place of commercial banks within the financial sector has improved substantially. Over this time, much has been written on the role of commercial banks in the financial sector, both in the academic literature[2] and in the financial press[3]. These arguments will be neither reviewed nor enumerated here. Suffice it to say that market participants seek the services of these financial institutions because of their ability to provide market knowledge, transaction efficiency and funding capability. In performing these roles they generally act as a principal in the transaction,. As such, they use their own balance sheet to facilitate the transaction and to absorb the risks associated with it.

To be sure, there are activities performed by banking firms which do not have direct balance sheet implications. These services include agency and advisory activities such as (i) trust and investment management, (ii) private and public placements through "best efforts" or facilitating contracts, (iii) standard underwriting through Section 20 Subsidiaries of the holding company, or (iv) the packaging, securitizing, distributing and servicing of loans in the areas of consumer and real estate debt primarily. These items are absent from the traditional financial statement because the latter rely on generally accepted accounting procedures rather than a true economic balance sheet. Nonetheless, the overwhelming majority of the risks facing the banking firm is in on-balance-sheet businesses. It is in this area that the discussion of risk

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[2]There are amply reviews of the role of banks within the financial sector. See, for example, Bhattacharya and Thakor (1993), Santomero (1984), or more recently Allen and Santomero (1997).

[3]There are many surveys and articles here. See, for example, Economist (1993), Salomon Brothers and Goldman Sachs Equity Research Reports on the banking sector.

management and the necessary procedures for risk management and control has centered. Accordingly, it is here that our review of risk management procedures will concentrate.

B. What Kinds Of Risks Are Being Absorbed ?

The risks contained in the bank's principal activities, i.e., those involving its own balance sheet and its basic business of lending and borrowing, are not all borne by the bank itself. In many instances the institution will eliminate or mitigate the financial risk associated with a transaction by proper business practices; in others, it will shift the risk to other parties through a combination of pricing and product design.

The banking industry recognizes that an institution need not engage in business in a manner that unnecessarily imposes risk upon it; nor should it absorb risk that can be efficiently transferred to other participants. Rather, it should only manage risks at the firm level that are more efficiently managed there than by the market itself or by their owners in their own portfolios. In short, it should accept only those risks that are uniquely a part of the bank's array of services. Elsewhere, Oldfield and Santomero (1997), it has been argued that risks facing all financial institutions can be segmented into three separable types, from a management perspective. These are:

(i) risks that can be eliminated or avoided by simple business practices,

(ii) risks that can be transferred to other participants, and,

(iii) risks that must be actively managed at the firm level.

In the first of these cases, the practice of risk avoidance involves actions to reduce the chances of idiosyncratic losses from standard banking activity by eliminating risks that are superfluous to the institution's business purpose. Common risk avoidance practices here include at least three types of actions. The standardization of process, contracts and procedures to prevent inefficient or incorrect financial decisions is the first of these. The construction of portfolios that benefit from diversification across borrowers and that reduce the effects of any one loss experience is another. Finally, the implementation of incentive-compatible contracts with the institution's management to require that employees be held accountable is the third. In each

case the goal is to rid the firm of risks that are not essential to the financial service provided, or to absorb only an optimal quantity of a particular kind of risk.

There are also some risks that can be eliminated, or at least substantially reduced through the technique of risk transfer. Markets exist for many of the risks borne by the banking firm. Interest rate risk can be transferred by interest rate products such as swaps or other derivatives. Borrowing terms can be altered to effect a change in their duration. Finally, the bank can buy or sell financial claims to diversify or concentrate the risks that result in from servicing its client base. To the extent that the financial risks of the assets created by the firm are understood by the market, these assets can be sold at their fair value. Unless the institution has a comparative advantage in managing the attendant risk and/or a desire for the embedded risk they contain, there is no reason for the bank to absorb such risks, rather than transfer them.

However, there are two classes of assets or activities where the risk inherent in the activity must and should be absorbed at the bank level. In these cases, good reasons exist for using firm resources to manage bank level risk. The first of these includes financial assets or activities where the nature of the embedded risk may be complex and difficult to communicate to third parties. This is the case when the bank holds complex and proprietary assets that have thin, if not non-existent, secondary markets. Communication in such cases may be more difficult or expensive than hedging the underlying risk.[4] Moreover, revealing information about the customer may give competitors an undue advantage. The second case included proprietary positions that are accepted because of their risks, and their expected return. Here, risk positions that are central to the bank's business purpose are absorbed because they are the raison d'etre of the firm. Credit risk inherent in the lending activity is a clear case in point, as is market risk for the trading desk of banks active in certain markets. In all such circumstances, risk is absorbed and needs to be monitored and managed efficiently by the institution. Only then will the firm systematically achieve its financial performance goal.

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[4]This point has been made in a different context by both Santomero and Trester (1997) and Berger and Udell (1993).

C. Why Do Banks Manage These Risks At All ?

It seems appropriate for any discussion of risk management procedures to begin with why these firms manage risk. According to standard economic theory, managers of value maximizing firms ought to maximize expected profit without regard to the variability around its expected value. However, there is now a growing literature on the reasons for active risk management including the work of Stulz (1984), Smith, Smithson and Wolford (1990), and Froot, Sharfstein and Stein (1993) to name but a few of the more notable contributions. In fact, the recent review of risk management reported in Santomero (1995) lists dozens of contributions to the area and at least four distinct rationales offered for active risk management. These include managerial self-interest, the non-linearity of the tax structure, the costs of financial distress and the existence of capital market imperfections. Any one of these justify the firms' concern over return variability, as the above-cited authors demonstrate.

D. How Are These Risks Managed ?

In light of the above, what are the necessary procedures that must be in place to carry out adequate risk management? In essence, what techniques are employed to both limit and manage the different types of risk, and how are they implemented in each area of risk control? It is to these questions that we now turn. After reviewing the procedures employed by leading firms, an approach emerges from an examination of large-scale risk management systems. The management of the banking firm relies on a sequence of steps to implement a risk management system. These can be seen as containing the following four parts:

(i) standards and reports,
(ii) position limits or rules,
(iii) investment guidelines or strategies,
(iv) incentive contracts and compensation.

In general, these tools are established to measure exposure, define procedures to manage these exposures, limit individual positions to acceptable levels, and encourage decision makers to manage risk in a manner that is consistent with the firm's goals and objectives. To see how each of these four parts of basic risk management techniques achieves these ends, we elaborate on each part of the process below. In Section IV we illustrate how these techniques are applied to manage each of the specific risks facing the banking community.

(i) Standards and Reports

The first of these risk management techniques involves two different conceptual activities, i.e., standard setting and financial reporting. They are listed together because they are the *sine qua non* of any risk system. Underwriting standards, risk categorizations, and standards of review are all traditional tools of risk management and control. Consistent evaluation and rating of exposures of various types are essential to understand the risks in the portfolio, and the extent to which these risks must be mitigated or absorbed.

The standardization of financial reporting is the next ingredient. Obviously outside audits, regulatory reports, and rating agency evaluations are essential for investors to gauge asset quality and firm level risk. These reports have long been standardized, for better or worse. However, the need here goes beyond public reports and audited statements to the need for management information on asset quality and risk posture. Such internal reports need similar standardization and much more frequent reporting intervals, with daily or weekly reports substituting for the quarterly GAAP periodicity.

(ii) Position Limits and Rules

A second technique for internal control of active management is the use of position limits, and/or minimum standards for participation. In terms of the latter, the domain of risk taking is restricted to only those assets or counterparties that pass some prespecified quality standard. Then, even for those investments that are eligible, limits are imposed to cover exposures to counterparties, credits, and overall

position concentrations relative to various types of risks. While such limits are costly to establish and administer, their imposition restricts the risk that can be assumed by any one individual, and therefore by the organization as a whole. In general, each person who can commit capital will have a well-defined limit. This applies to traders, lenders, and portfolio managers. Summary reports show limits as well as current exposure by business unit on a periodic basis. In large organizations with thousands of positions maintained, accurate and timely reporting is difficult, but even more essential.

(iii) Investment Guidelines and Strategies

Investment guidelines and recommended positions for the immediate future are the third technique commonly in use. Here, strategies are outlined in terms of concentrations and commitments to particular areas of the market, the extent of desired asset-liability mismatching or exposure, and the need to hedge against systematic risk of a particular type.

The limits described above lead to passive risk avoidance and/or diversification, because managers generally operate within position limits and prescribed rules. Beyond this, guidelines offer firm level advice as to the appropriate level of active management, given the state of the market and the willingness of senior management to absorb the risks implied by the aggregate portfolio. Such guidelines lead to firm level hedging and asset-liability matching. In addition, securitization and even derivative activity are rapidly growing techniques of position management open to participants looking to reduce their exposure to be in line with management's guidelines.

(iv) Incentive Schemes

To the extent that management can enter incentive compatible contracts with line managers and make compensation related to the risks borne by these individuals, then the need for elaborate and costly controls is lessened. However, such incentive contracts require accurate position valuation and proper internal control systems.[5] Such tools which include position posting, risk analysis, the allocation of costs, and setting

[5]The recent fiasco at Barings is an illustration of this point .

of required returns to various parts of the organization are not trivial. Notwithstanding the difficulty, well-designed systems align the goals of managers with other stakeholders in a most desirable way.[6] In fact, most financial debacles can be traced to the absence of incentive compatibility, as the cases of the deposit insurance and maverick traders so clearly illustrate.

III. Risks In Providing Banking Services

How are these techniques of risk management employed by the commercial banking sector? To explain this, one must begin by enumerating the risks which the banking industry has chosen to manage and illustrate how the four-step procedure outlined is applied in each area. The risks associated with the provision of banking services differ by the type of service rendered. For the sector as a whole, however the risks can be broken into six generic types: *systematic* or *market risk, credit risk, counterparty risk, liquidity risk, operational risk,* and *legal risks*. Here, we will discuss each of the risks facing the banking institution, and in Section IV we will indicate how they are managed.

Systematic risk is the risk of asset value change associated with systematic factors. It is sometimes referred to as *market risk*, which is in fact a somewhat imprecise term. By its nature, this risk can be hedged, but cannot be diversified completely away. In fact, systematic risk can be thought of as undiversifiable risk. All investors assume this type of risk, whenever assets owned or claims issued can change in value as a result of broad economic factors. As such, systematic risk comes in many different forms. For the banking sector, however, two are of greatest concern, namely variations in the general level of interest rates and the relative value of currencies.

Because of the bank's dependence on these systematic factors, most try to estimate the impact of these particular systematic risks on performance, attempt to hedge against them and thus limit the sensitivity to variations in undiversifiable factors. Accordingly, most will track *interest rate risk* closely. They measure

[6]See Jensen and Meckling (1976), and Santomero (1984) for discussions of the shortcomings in simple linear risk sharing incentive contracts for assuring incentive compatibility between principals and agents.

and manage the firm's vulnerability to interest rate variation, even though they can not do so perfectly. At the same time, international banks with large currency positions closely monitor their *foreign exchange risk* and try to manage, as well as limit, their exposure to it.

In a similar fashion, some institutions with significant investments in one commodity such as oil, through their lending activity or geographical franchise, concern themselves with *commodity price risk*. Others with high single-industry concentrations may monitor specific *industry concentration risk* as well as the forces that affect the fortunes of the industry involved.

Credit risk arises from non-performance by a borrower. It may arise from either an inability or an unwillingness to perform in the pre-committed contracted manner. This can affect the lender holding the loan contract, as well as other lenders to the creditor. Therefore, the financial condition of the borrower as well as the current value of any underlying collateral is of considerable interest to its bank.

The real risk from credit is the deviation of portfolio performance from its expected value. Accordingly, credit risk is diversifiable, but difficult to eliminate completely. This is because a portion of the default risk may, in fact, result from the systematic risk outlined above. In addition, the idiosyncratic nature of some portion of these losses remains a problem for creditors in spite of the beneficial effect of diversification on total uncertainty. This is particularly true for banks that lend in local markets and ones that take on highly illiquid assets. In such cases, the credit risk is not easily transferred, and accurate estimates of loss are difficult to obtain.

Counterparty risk comes from non-performance of a trading partner. The non-performance may arise from a counterparty's refusal to perform due to an adverse price movement caused by systematic factors, or from some other political or legal constraint that was not anticipated by the principals. Diversification is the major tool for controlling nonsystematic counterparty risk.

Counterparty risk is like credit risk, but it is generally viewed as a more transient financial risk associated with trading than standard creditor default risk. In addition, a counterparty's failure to settle a trade

can arise from other factors beyond a credit problem.

Liquidity risk can best be described as the risk of a funding crisis. While some would include the need to plan for growth and unexpected expansion of credit, the risk here is seen more correctly as the potential for a funding crisis. Such a situation would inevitably be associated with an unexpected event, such as a large charge off, loss of confidence, or a crisis of national proportion such as a currency crisis.

In any case, risk management here centers on liquidity facilities and portfolio structure. Recognizing liquidity risk leads the bank to recognize liquidity itself as an asset, and portfolio design in the face of illiquidity concerns as a challenge.

Operational risk is associated with the problems of accurately processing, settling, and taking or making delivery on trades in exchange for cash. It also arises in record keeping, processing system failures and compliance with various regulations. As such, individual operating problems are small probability events for well-run organizations but they expose a firm to outcomes that may be quite costly.

Legal risks are endemic in financial contracting and are separate from the legal ramifications of credit, counterparty, and operational risks. New statutes, tax legislation, court opinions and regulations can put formerly well-established transactions into contention even when all parties have previously performed adequately and are fully able to perform in the future. For example, environmental regulations have radically affected real estate values for older properties and imposed serious risks to lending institutions in this area. A second type of legal risk arises from the activities of an institution's management or employees. Fraud, violations of regulations or laws, and other actions can lead to catastrophic loss, as recent examples in the thrift industry have demonstrated.

All financial institutions face all these risks to some extent. Non-principal, or agency activity involves operational risk primarily. Since institutions in this case do not own the underlying assets in which they trade, systematic, credit and counterparty risk accrues directly to the asset holder. If the latter experiences a financial loss, however, legal recourse against an agent is often attempted. Therefore, institutions engaged in

only agency transactions bear some legal risk, if only indirectly.

Our main interest, however, centers around the businesses in which the bank participates as a principal, i.e., as an intermediary. In these activities, principals must decide how much business to originate, how much to finance, how much to sell, and how much to contract to agents. In so doing, they must weigh both the return and the risk embedded in the portfolio. Principals must measure the expected profit and evaluate the prudence of the various risks enumerated to be sure that the result achieves the stated goal of maximizing shareholder value.

IV. Bank Risk Management Systems

The banking industry has long viewed the problem of risk management as the need to control four of the above risks which make up most, if not all, of their risk exposure, viz., credit, interest rate, foreign exchange and liquidity risk. While they recognize counterparty and legal risks, they view them as less central to their concerns.[7] Where counterparty risk is significant, it is evaluated using standard credit risk procedures, and often within the credit department itself. Likewise, most bankers would view legal risks as arising from their credit decisions or, more likely, proper process not employed in financial contracting.

Accordingly, the study of bank risk management processes is essentially an investigation of how they manage these four risks. In each case, the procedure outlined above is adapted to the risk considered so as to standardize, measure, constrain and manage each of these risks. To illustrate how this is achieved, this review of firm-level risk management begins with a discussion of risk management controls in each area. The more difficult issue of summing over these risks and adding still other, more amorphous, ones such as legal, regulatory or reputational risk, will be left to the end.

A. Credit Risk Management Procedures

In presenting the approach employed to manage credit risk, we refer to the four-step process outlined

[7]Some banking firms would also list regulatory and reputational risk in their set of concerns. Nonetheless, all would recognize the first four as key, and all would devote most of their risk management resources to constraining these key areas of exposure.

in Section II D above, drawing different pieces from different organizations. The institutions are not named, but are selected because of the representative nature of their documentation of the process.

We begin with standards and reports. As noted above, each bank must apply a consistent evaluation and rating scheme to all its investment opportunities in order for credit decisions to be made in a consistent manner and for the resultant aggregate reporting of credit risk exposure to be meaningful. To facilitate this, a substantial degree of standardization of process and documentation is required. This has lead to standardized ratings across borrowers and a credit portfolio report that presents meaningful information on the overall quality of the credit portfolio. In Table 1, a credit-rating procedure is presented that is typical of those employed within the commercial banking industry.

The form reported here is a single rating system where a single value is given to each loan, which relates to the borrower's underlying credit quality. At some institutions, a dual system is in place where both the borrower and the credit facility are rated. In the latter, attention centers on collateral and covenants, while in the former, the general credit worthiness of the borrower is measured. Some banks prefer such a dual system, while others argue that it obscures the issue of recovery to separate the facility from the borrower in such a manner. In any case, the reader will note that in the reported system all loans are rated using a single numerical scale ranging between 1 and 10.[8] For each numerical category, a qualitative definition of the borrower and the loan's quality is offered and an analytic representation of the underlying financials of the borrower is presented. Such an approach, whether it is a single or a dual rating system allows the credit committee some comfort in its knowledge of loan asset quality at any moment of time. It requires only that new loan officers be introduced to the system of loan ratings, through training and apprenticeship to achieve a standardization of ratings throughout the bank.

Given these standards, the bank can report the quality of its loan portfolio at any time, along the lines

[8]There is nothing unique about 10 grades. Some have 8, others have 12. The most important thing here is that there are sufficient gradations to permit accurate characterization of the underlying risk profile of a loan, or a portfolio of loans.

of the report presented in Table 2. Notice that total receivables, including loans, leases and commitments and derivatives, are reported in a single format. Assuming the adherence to standards, the entirety of the firm's credit quality is reported to senior management monthly via this reporting mechanism. Changes in this report from one period to another occur for two reasons, viz., loans have entered or exited the system, or the rating of individual loans has changed over the intervening time interval. The first reason is associated with standard loan turnover. Loans are repaid and new loans are made. The second cause for a change in the credit quality report is more substantive. Variations over time indicate changes in loan quality and expected loan losses from the credit portfolio. In fact, credit quality reports should signal changes in expected loan losses, if the rating system is meaningful. Studies by Moody's on their rating system have illustrated the relationship between credit rating and ex post default rates.[9] A similar result should be expected from internal bank-rating schemes of this type as well. However, the lack of available industry data to do an appropriate aggregate migration study does not permit the industry the same degree of confidence in their expected loss calculations.

For this type of credit quality report to be meaningful, all credits must be monitored, and reviewed periodically. It is, in fact, standard for all credits above some dollar volume to be reviewed on a quarterly or annual basis to ensure the accuracy of the rating associated with the lending facility. In addition, a material change in the conditions associated either with the borrower or the facility itself, such as a change in the value of collateral, will trigger a re-evaluation. This process, therefore, results in a periodic but timely report card on the quality of the credit portfolio and its change from month to month.

Generally accepted accounting principles require this monitoring. The credit portfolio is subject to fair value accounting standards, which have recently been tightened by The Financial Accounting Standards Board (FASB). Commercial banks are required to have a loan loss reserve account (a contra-asset) which

[9]See Moody's (1996) and Santomero and Babbel (1997) for evidence of the relationship between credit rating and default rates.

accurately represents the diminution in market value from known or estimated credit losses. As an industry, banks have generally sought estimates of expected loss using a two-step process, including default probability, and an estimate of loss given default. This approach parallels the work of Moody's referred to above.[10] At least quarterly, the level of the reserve account is re-assessed, given the evidence of loss exposure driven directly from the credit quality report, and internal studies of loan migration through various quality ratings.[11]

Absent from the discussion thus far is any analysis of systematic risk contained in the portfolio. Traditionally mutual funds and merchant banks have concerned themselves with such risk exposure, but the commercial banking sector has not. This appears to be changing in light of the recent substantial losses in real estate and similar losses in the not-too-distant past in petrochemicals. Accordingly, many banks are beginning to develop concentration reports, indicating industry composition of the loan portfolio. This process was initially hampered by the lack of a simple industry index. SIC codes were employed at some institutions, but most found them unsatisfactory. Recently, however, Moody's has developed a system of 34 industry groups that may be used to report concentrations. Table 3 reports such an industry grouping to illustrate the kind of concentration reports that are emerging as standard in the banking industry. Notice that the report indicates the portfolio percentages by sector, as well as commitments to various industries. For the real estate portfolio, geography is also reported, as Table 4 suggests. While this may be insufficient to capture total geographic concentration, it is a beginning.

For the investment management community, concentrations are generally benchmarked against some market indexes, and mutual funds will generally report not only the absolute percentage of their industry

[10]See Altman (1993) for a discussion of both the FASB standards and the methods employed to evaluate the level of the reserve account.

[11]Accurately estimating loan losses from a loan quality report is, in fact, quite difficult because of the limited information available to the bank on future loan losses and the change in loan quality over time. To see how the statistical properties of the time series of loan ratings can be used to obtain loan loss estimates, see Kim and Santomero (1993).

concentration, but also their positions relative to the broad market indexes. Unfortunately, there is no comparable benchmark for the loan portfolio. Accordingly, firms must weigh the pros and cons of specialization and concentration by industry group and establish subjective limits on their overall exposure. This is generally done with both guidelines and limits set by senior management. Such a report is not the result of any analytical exercise to evaluate the potential downside loss, but rather a subjective evaluation of management's tolerance, based upon rather imprecise recollections of previous downturns. In addition, we are seeing the emergence of a portfolio manager to watch over the loan portfolio's degree of concentration and exposure to both types of risk concentration discussed above.

Most organizations also will report concentration by individual counterparty. To be meaningful, however, this exposure must be bankwide and include all related affiliates. Both of these requirements are not easily satisfied. For large institutions, a key relationship manager must be appointed to assure that overall bank exposure to a particular client is captured and monitored. This level of data accumulation is never easy, particularly across time zones. Nonetheless, such a relationship report is required to capture the disparate activity from many parts of the bank. Transaction with affiliated firms need to be aggregated and maintained in close to real time.

An example of this type of report is offered here as Table 5, drawn from one particular client report. Each different lending facility is reported. In addition, the existing lines of credit, both used and open, need to be reported as well. Generally, this type of credit risk exposure or concentration report has both an upper and lower cut-off value so that only concentrations above a minimum size are recorded, and no one credit exposure exceeds its predetermined limit. The latter, an example of the second technique of risk management is monitored and set by the credit committee for the relationship as a whole.

B. Interest Rate Management Procedures

The area of interest rate risk is the second area of major concern and on-going risk monitoring and management. Here, however, the tradition has been for the banking industry to diverge somewhat from other

parts of the financial sector in their treatment of interest rate risk. Most commercial banks make a clear distinction between their trading activity and their balance sheet interest rate exposure.

Investment banks generally have viewed interest rate risk as a classic part of market risk, and have developed elaborate trading risk management systems to measure and monitor exposure. For large commercial banks and European-type universal banks that have an active trading business, such systems have become a required part of the infrastructure. But, in fact, these trading risk management systems vary substantially from bank to bank and generally are less real than imagined. In many firms, fancy value-at-risk models, now known by the acronym VaR, are up and running. But, in many more cases, they are still in the implementation phase. In the interim, simple ad hoc limits and close monitoring substitute for elaborate real-time systems. While this may be completely satisfactory for institutions that have little trading activity and work primarily on behalf of clients, the absence of adequate trading systems elsewhere in the industry is a bit distressing.

For institutions that do have active trading businesses, value-at-risk has become the standard approach. This procedure has recently been publicly displayed with the release of Riskmetrics by J. P. Morgan, but similar systems are in place at other firms. In that much exists in the public record about these systems[12], there is little value to reviewing this technique here. Suffice it to say that the daily, weekly, or monthly volatility of the market value of fixed-rate assets are incorporated into a measure of total portfolio risk analysis along with equity's market risk, and that of foreign-denominated assets.

For balance sheet exposure to interest rate risk, commercial banking firms follow a different drummer -- or is it accountant? Given the generally accepted accounting procedures (GAAP) established for bank assets, as well as the close correspondence of asset and liability structures, commercial banks tend not to use market value reports, guidelines or limits. Rather, their approach relies on cash flow and book values, at the expense of market values. Asset cash flows are reported in various repricing schedules along the line of Table 6. This

[12]See, for example, the work of , Jorion (1997), Marshall and Siegel (1996), Fallon (1996), and Phelan (1997).

system has been labelled traditionally a "gap reporting system", as the asymmetry of the repricing of assets and liabilities results in a gap. This has classically been measured in ratio or percentage mismatch terms over a standardized interval such as a 30-day or one-year period.

This is sometimes supplemented with a duration analysis of the portfolio, as seen in Table 7. However, many assumptions are necessary to move from cash flows to duration. Asset categories that do not have fixed maturities, such as prime rate loans, must be assigned a duration measure based upon actual repricing flexibility. A similar problem exists for core liabilities, such as retail demand and savings balances. Nonetheless, the industry attempts to measure these estimates accurately, and include both on- and off-balance sheet exposures in this type of reporting procedure. The result of this exercise is a rather crude approximation of the duration gap.[13]

Most banks, however, have attempted to move beyond this gap methodology. They recognize that the gap and duration reports are static, and do not fit well with the dynamic nature of the banking market, where assets and liabilities change over time and spreads fluctuate. In fact, the variability of spreads is largely responsible for the highly profitable performance of the industry over the last two years. Accordingly, the industry has added the next level of analysis to their balance sheet interest rate risk management procedures.

Currently, many banks are using balance sheet simulation models to investigate the effect of interest rate variation on reported earnings over one-, three- and five-year horizons. These simulations, of course, are a bit of science and a bit of art. They require relatively informed repricing schedules, as well as estimates of prepayments and cash flows. In terms of the first issue, such an analysis requires an assumed response function on the part of the bank to rate movement, in which bank pricing decisions in both their local and national franchises are simulated for each rate environment. In terms of the second area, the simulations require precise prepayment models for proprietary products, such as middle market loans, as well as standard

[13]See Saunders (1996) or Hempel, Simonson and Coleman (1994) for a discussion of duration gap, its construction and its usefulness.

products such as residential mortgages or traditional consumer debt. In addition, these simulations require yield curve simulation over a presumed relevant range of rate movements and yield curve shifts.

Once completed, the simulation reports the resultant deviations in earnings associated with the rate scenarios considered. Whether or not this is acceptable depends upon the limits imposed by management, which are usually couched in terms of deviations of earnings from the expected or most likely outcome. This notion of Earnings At Risk, EaR, is emerging as a common benchmark for interest rate risk. However, it is of limited value as it presumes that the range of rates considered is correct, and/or the bank's response mechanism contained in the simulation is accurate and feasible. Nonetheless, the results are viewed as indicative of the effect of underlying interest rate mismatch contained in the balance sheet. Reports of these simulations, such as contained in Table 8, are now commonplace in the industry.

Because of concerns over the potential earnings outcomes of the simulations, treasury officials often make use of the cash, futures and swap markets to reduce the implied earnings risk contained in the bank's embedded rate exposure. However, as has become increasingly evident, such markets contain their own set of risks. Accordingly, every institution has an investment policy in place which defines the set of allowable assets and limits to the bank's participation in any one area; see, for example, Table 9. All institutions restrict the activity of the treasury to some extent by defining the set of activities it can employ to change the bank's interest rate position in both the cash and forward markets. Some are willing to accept derivative activity, but all restrict their positions in the swap caps and floors market to some degree to prevent unfortunate surprises. As reported losses by some institutions mount in this area, however, investment guidelines are becoming increasingly circumspect concerning allowable investment and hedging alternatives.

C. Foreign Exchange Risk Mananagement Procedures

In this area there is considerable difference in current practice. This can be explained by the different franchises that coexist in the banking industry. Most banking institutions view activity in the foreign exchange market beyond their franchise, while others are active participants. The former will take virtually no principal

risk, no forward open positions, and have no expectations of trading volume. Within the latter group, there is a clear distinction between those that restrict themselves to acting as agents for corporate and/or retail clients and those that have active trading positions.

The most active banks in this area have large trading accounts and multiple trading locations. And, for these, reporting is rather straightforward. Currencies are kept in real time, with spot and forward positions marked-to-market. As is well known, however, reporting positions is easier than measuring and limiting risk. Here, the latter is more common than the former. Limits are set by desk and by individual trader, with monitoring occurring in real time by some banks, and daily closing at other institutions. As a general characterization, those banks with more active trading positions tend to have invested in the real-time VaR systems discussed above, but there are exceptions.

Limits are the key elements of the risk management systems in foreign exchange trading as they are for all trading businesses. As Table 10 illustrates by example, it is fairly standard for limits to be set by currency for both the spot and forward positions in the set of trading currencies. At many institutions, the derivation of exposure limits has tended to be an imprecise and inexact science. For these institutions, risk limits are set currency-by-currency by subjective variance tolerance. Others, however, do attempt to derive the limits using a method that is analytically similar to the approach used in the area of interest rate risk.

Even for banks without a VaR system in place, stress tests are done to evaluate the potential loss associated with changes in the exchange rate. This is done for small deviations in exchange rates as shown in Table 10, but it also may be investigated for historical maximum movements. The latter is investigated in two ways. Either historical events are captured, and worse-case scenario simulated, or the historical events are used to estimate a distribution from which the disturbances are drawn. In the latter case, a one or two standard deviation change in the exchange rate is considered. While some use these methods to estimate volatility, until recently most did not use covariability in setting individual currency limits, or in the aggregating exposure across multiple correlated currencies.

Incentive systems for foreign exchange traders are another area of significant differences between the average commercial bank and its investment banking counterpart. While, in the investment banking community trader performance is directly linked to compensation, this is less true in the banking industry. While some admit to significant correlation between trader income and trading profits, many argue that there is absolutely none. This latter group tends to see such linkages leading to excess risk taking by traders who gain from successes but do not suffer from losses. Accordingly, to their way of thinking, risk is reduced by separating foreign exchange profitability and trader compensation.

D. Liquidity Risk Management Procedures

Two different notions of liquidity risk have evolved in the banking sector. Each has some validity. The first, and the easiest in most regards, is a notion of liquidity risk as a need for continued funding. The counterpart of standard cash management, this liquidity need is forecastable and easily analyzed. Yet, the result is not worth much. In today's capital market banks of the sort considered here have ample resources for growth and recourse to additional liabilities for unexpectedly high asset growth. Accordingly, attempts to analyze liquidity risk as a need for resources to facilitate growth, or honor outstanding credit lines are of little relevance to the risk management agenda pursued here.

The liquidity risk that does present a real challenge is the need for funding when and if a sudden crisis arises. In this case, the issues are very different from those addressed above. Standard reports on liquid assets and open lines of credit, which are germane to the first type of liquidity need, are substantially less relevant to the second. Rather, what is required is an analysis of funding demands under a series of "worst case" scenarios. These include the liquidity needs associated with a bank-specific shock, such as a severe loss, and a crisis that is system-wide. In each case, the bank examines the extent to which it can be self-supporting in the event of a crisis, and tries to estimate the speed with which the shock will result in a funding crisis. Reports center on both features of the crisis with Table 11 illustrating one bank's attempt to estimate the immediate funding shortfall associated with a downgrade. Other institutions attempt to measure the speed with

which assets can be liquidated to respond to the situation using a report that indicates the speed with which the bank can acquire needed liquidity in a crisis. Response strategies considered include the extent to which the bank can accomplish substantial balance sheet shrinkage and estimates are made of the sources of funds that will remain available to the institution in a time of crisis. Results of such simulated crises are usually expressed in days of exposure, or days to funding crisis.

Such studies are, by their nature, imprecise but essential to efficient operation in the event of a substantial change in the financial conditions of the firm. As a result, regulatory authorities have increasingly mandated that a liquidity risk plan be developed by members of the industry. Yet, there is a clear distinction among institutions, as to the value of this type of exercise. Some attempt to develop careful funding plans and estimate their vulnerability to the crisis with considerable precision. They contend that, either from prior experience or attempts at verification, they could and would use the proposed plan in a time of crisis. Others view this planning document as little more than a regulatory hurdle. While some actually invest in backup lines without "material adverse conditions" clauses, others have little faith in their ability to access them in a time of need.

E. Other Risks Considered But Not Modeled

Beyond the basic four financial risks, viz., credit, interest rate, foreign exchange and liquidity risk, banks have a host of other concerns as was indicated above. Some of these, like operating risk, and/or system failure, are a natural outgrowth of their business and banks employ standard risk avoidance techniques to mitigate them. Standard business judgment is used in this area to measure the costs and benefits of both risk reduction expenditures and system design, as well as operational redundancy. While generally referred to as risk management, this activity is substantially different from the management of financial risk addressed here.

Yet, there are still other risks, somewhat more amorphous, but no less important. In this latter category are legal, regulatory, suitability, reputational and environmental risk. In each of these risk areas, substantial time and resources are devoted to protecting the firm's franchise value from erosion. As these risks are less financially measurable, they are generally not addressed in any formal, structured way. Yet, they are not ignored at the senior management level of the bank.

VI. Risk Aggregation and the Knowledge of Total Exposure

Thus far, the techniques used to measure, report, limit, and manage the risks of various types have been presented. In each of these cases, a process has been developed, or at least has evolved, to measure the risk considered, and techniques have been deployed to control each of them. The extent of the differences across risks of different types is quite striking. The credit risk process is a qualitative review of the performance potential of different borrowers. It results in a rating, periodic re-evaluation at reasonable intervals through time, and on-going monitoring of various types or measures of exposure. Interest rate risk is measured, usually weekly, using on- and off-balance sheet exposure. The position is reported in repricing terms, using gap, as well as effective duration, but the real analysis is conducted with the benefit of simulation techniques. Limits are established and synthetic hedges are taken on the basis of these cash flow earnings forecasts. Foreign exchange or general trading risk is monitored in real time with strict limits and

accountability. Here again, the effects of adverse rate movements are analyzed by simulation using ad hoc exchange rate variations, and/or distributions constructed from historical outcomes. Liquidity risk, on the other hand, more often than not, is dealt with as a planning exercise, although some reasonable work is done to analyze the funding effect of adverse news.

The analytical approaches that are subsumed in each of these analyses are complex, difficult and not easily communicated to non-specialists in the risk considered. The bank, however, must select appropriate levels for each risk and select or, at least articulate, an appropriate level of risk for the organization as a whole. How is this being done?

The simple answer is "not very well." Senior management often is presented with a myriad of reports on individual exposures, such as specific credits, and complex summaries of the individual risks, as outlined above. The risks are not dimensioned in similar ways, and management's technical expertise to appreciate the true nature of both the risks themselves and the analyses conducted to illustrate the bank's exposure is limited. Accordingly, over time, the managers of specific risks have gained increased authority and autonomy. In light of recent losses, however, things are beginning to change.

As the organizational level, overall risk management is being centralized into a Risk Management Committee, headed by someone designated as the Senior Risk Manager. The purpose of this institutional response is to empower one individual or group with the responsibility to evaluate overall firm-level risk, and determine the best interest of the bank as a whole. At the same time, this group is holding line officers more accountable for the risks under their control, and the performance of the institution in that risk area. Activity and sales incentives are being replaced by performance compensation, which is based not on business volume, but on overall profitability.

At the analytical level, aggregate risk exposure is receiving increased scrutiny. To do so, however, requires the summation of the different types of risks outlined above. This is accomplished in two distinct,

but related ways. The first of these, pioneered by Bankers Trust, is the RAROC system of risk analysis.[14] In this approach, risk is measured in terms of variability of outcome. Where possible, a frequency distribution of returns is estimated, from historical data, and the standard deviation of this distribution is estimated. Capital is allocated to activities as a function of this risk or volatility measure. Then, the risky position is required to carry an expected rate of return on allocated capital which compensates the firm for the associated incremental risk. By dimensioning all risk in terms of loss distributions, and allocating capital by the volatility of the proposed activity, risk is aggregated and priced in one and the same exercise.

A second approach is similar to the RAROC, but depends less on a capital allocation scheme and more on cash flow or earnings effects of the implied risky position. This was referred to as the Earnings At Risk methodology above, when employed to analyze interest rate risk. When market values are used, the approach becomes identical to the VaR methodology employed for trading exposure. This method can be used to analyze total firm-level risk in a similar manner to the RAROC system. Again, a frequency distribution of returns for any one type of risk can be estimated from historical data. Extreme outcomes can then be estimated from the tail of the distribution. Either a worst-case historical example is used for this purpose, or a one- or two standard deviation outcome is considered. Given the downside outcome associated with any risk position, the firm restricts its exposure so that, in the worst-case scenario, the bank does not lose more than a certain percentage of current income or market value. Therefore, rather than moving from volatility of value through capital, this approach goes directly to the current earnings implications from a risky position. The approach, however, has two very obvious shortcomings. If EaR is used, it is cash flow based, rather than market value driven. And, in any case, it does not directly measure the total variability of potential outcomes through an a priori distribution specification. Rather it depends upon a subjectively prespecified range of the risky environments to drive the worst-case scenario.

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[14]See Salomon Brothers (1993) and Wee and Lee (1995) for the most complete public information on Bankers Trust RAROC systems.

Both measures, however, attempt to treat the issue of trade-offs among risks, using a common methodology to transform the specific risks to firm-level exposure. In addition, both can examine the correlation of different risks and the extent to which they can, or should be viewed as, offsetting. As a practical matter, however, most, if not all, of these models do not view this array of risks as a standard portfolio problem. Rather, they separately evaluate each risk and aggregate total exposure by simple addition. As a result, much is lost in the aggregation. Perhaps over time this issue will be addressed.

VI. Areas Where Further Work Will Improve the Methodology

The banking industry is clearly evolving to a higher level of risk management techniques and approaches than had been in place in the past. Yet, as this review indicates, there is significant room for improvement. Before the areas of potential value added are enumerated, however, it is worthwhile to reiterate an earlier point. The risk management techniques reviewed here are not the average, but the techniques used by firms at the higher end of the market. The risk management approaches at smaller institutions, as well as larger but relatively less sophisticated ones, are less precise and significantly less analytic. In some cases they would need substantial upgrading to reach the level of those reported here. Accordingly, our review should be viewed as a glimpse at best practice, not average practices.

Nonetheless, the techniques employed by those that define the industry standard could use some improvement. By category, recommended areas where additional analytic work would be desirable are listed below.

A. CREDIT RISK

- The evaluation of credit rating continues to be an imprecise process. Over time, this approach needs to be standardized across institutions and across borrowers. In addition, its rating procedures need to be made compatible with rating systems elsewhere in the capital market.

- Credit losses, currently vaguely related to credit rating, need to be closely tracked. As in the bond market, credit pricing, credit rating and expected loss ought to be demonstrably closer. However, the industry currently does not have a sufficiently broad data base on which to perform the migration analysis that has been studied in the bond market.

- The issue of optimal credit portfolio structure warrants further study. In short, analysis is needed to evaluate the diversification gains associated with careful portfolio design. At this time, banks appear to be too concentrated in idiosyncratic areas, and not sufficiently managing their credit concentrations by either industrial or geographic areas.

B. INTEREST RATE RISK

- While simulation studies have substantially improved upon gap management, the use of book value accounting measures and cash flow losses continues to be problematic. Movements to improve this methodology will require increased emphasis on market-based accounting. However, such a reporting mechanism must be employed on both sides of the balance sheet, not just the asset portfolio.

- The simulations also need to incorporate the advances in dynamic hedging that are used in complex fixed income pricing models. As it stands, these simulations tend to be rather simplistic, and scenario testing rather limited.

C. FOREIGN EXCHANGE RISK

- The VaR approach to market risk is a superior tool. Yet, much of the banking industry continues to use rather ad hoc approaches in setting foreign exchange and other trading limits. This approach can and should be used to a greater degree than it is currently.

D. LIQUIDITY RISK

- Crisis models need to be better linked to operational details. In addition, the usefulness of such exercises is limited by the realism of the environment considered.

- If liquidity risk is to be managed, the price of illiquidity must be defined and built into illiquid positions. While this logic has been adopted by some institutions, this pricing of liquidity is not commonplace.

E. OTHER RISKS

- As banks move more off balance sheet, the implied risk of these activities must be better integrated into overall risk management and strategic decision making. Currently, they are ignored when bank risk management is considered.

F. AGGREGATION OF RISKS

- There has been much discussion of the RAROC and VaR methodologies as an approach to capture total risk management. Yet, frequently, the decisions to accept risk and the pricing of the risky position are separated from risk analysis. If aggregate risk is to be controlled, these parts of the process need to be integrated better within the banking firm.

- Both aggregate risk methodologies presume that the time dimensions of all risks can be viewed as equivalent. A trading risk is similar to a credit risk, for example. This appears problematic when market prices are not readily available for some assets and the time dimensions of different risks are dissimilar. Yet, thus far no one firm has tried to address this issue adequately.

- Finally, operating such a complex management system requires a significant knowledge of the risks considered and the approaches used to measure them. It is inconceivable that Boards of Directors and even most senior managers have the level of expertise necessary to operate the evolving system. Yet government regulators seem to have no idea of the level of complexity, and attempt to increase accountability even as the requisite knowledge to control various parts of the firm increases.

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TABLE 1
A TYPICAL CREDIT RATING SYSTEM

The following are definitions of the risk levels of Borrowing Facility:

1. **Substantially Risk Free**
Borrowers of unquestioned credit standing at the pinnacle of credit quality. Basically, governments of major industrialized countries, a few major world class banks and a few multinational corporations.

2. **Minimal Risk**
Borrowers of the highest quality. Almost no risk in lending to this class. Cash flows over at least 5 years demonstrate exceptionally large and/or stable margins of protection and balance sheets are very conservative, strong and liquid. Projected cash flows (including anticipated credit extensions) will continue a strong trend, and provide continued wide margins of protection, liquidity and debt service coverage. Excellent asset quality and management. Typically large national corporations.

3. **Modest Risk**
Borrowers in the lower end of the high quality range. Very good asset quality and liquidity; strong debt capacity and coverage; very good management. The credit extension is considered definitely sound; however, elements may be present which suggest the borrower may not be free from temporary impairments sometime in the future. Typically larger regional or national corporations.

4. **Below Average Risk**
The high end of the medium range between the definitely sound and those situations where risk characteristics begin to appear. The margins of protection are satisfactory, but susceptible to more rapid deterioration than class 3 names. Some elements of reduced strength are present in such areas as liquidity, stability of margins and cash flows, concentration of assets, dependence upon one type of business, cyclical trends, etc., which may adversely affect the borrower. Typically good regional or excellent local companies.

5. **Average Risk**
Borrowers with smaller margins of debt service coverage and where definite elements of reduced strength exist. Satisfactory asset quality and liquidity; good debt capacity and coverage; and good management in all critical positions. These names have sufficient margins of protection and will qualify as acceptable borrowers; however, historic earnings and/or cash flow patterns may be sometimes unstable. A loss year or a declining earnings trend may not be uncommon. Typically solid local companies. May or may not require collateral in the course of normal credit extensions.

6. **Management Attention Risk**
Borrowers who are beginning to demonstrate above average risk through declining earnings trends, strained cash flow, increasing leverage, and/or weakening market fundamentals. Also, borrowers which are currently performing as agreed but could be adversely impacted by developing factors such as, but not limited to: Deteriorating industry conditions, operating problems, pending litigation of a significant nature, or declining collateral quality/adequacy. Such borrowers or weaker typically require collateral in normal credit extensions.

Borrowers generally have somewhat strained liquidity; limited debt capacity and coverage; and some management weakness. Such borrowers may be highly leveraged companies which lack required margins or less leveraged companies with an erratic earnings records. Significant declines in earnings, frequent requests for waivers of covenants and extensions, increased reliance on bank debt, and slowing trade payments are some events which may occasion this categorization.

7. **Potential Weakness**
Borrower exhibits potential credit weakness or a downward trend which, if not checked or corrected, will weaken the asset or inadequately protect the bank's position. While potentially weak, the borrower is currently marginally acceptable; no loss of principal or interest is envisioned. Included could be turnaround situations, as well as those previously rated 6 or 5, names that have shown deterioration, for whatever reason, indicating a downgrading from the better categories. These are names that have been or would normally be criticized "Special Mention" by regulatory authorities.

8. **Definite Weakness; No Loss**
A borrower with well defined weakness(es) that jeopardize the orderly liquidation of the debt. Borrowers that have been or would normally be classified "Substandard" by regulatory authorities. A substandard loan is inadequately protected by the current sound worth and paying capacity of the obligor. Normal repayment from this borrower is in jeopardy, although no loss of principal is envisioned. There is a distinct possibility that a partial loss of interest and/or principal will occur if the deficiencies are not corrected.

9. **Potential Loss**
A borrower classified here has all weaknesses inherent in the one classified above with the added provision that the weaknesses make collection of debt in full, on the basis of currently existing facts, conditions, and values, highly questionable and improbable. Serious problems exist to the point where a partial loss of principal is likely. The possibility of loss is extremely high, but because of certain important, reasonably specific pending factors, which may work to the advantage and strengthening of the assets, its classification as an estimated loss is deferred until its more exact status may be determined. Pending factors include proposed merger, acquisition, or liquidation, capital injection, perfecting liens on additional collateral, and refinancing plans.

10. **Loss**
Borrowers deemed incapable of repayment of unsecured debt. Loans to such borrowers are considered uncollectible and of such little value that their continuance as active assets of the bank is not warranted. This classification does not mean that the loan has absolutely no recovery or salvage value, but rather it is not practical or desirable to defer writing off this basically worthless asset even though partial recovery may be effected in the future.

TABLE 2
BANK LEVEL LOAN CREDIT QUALITY REPORT

		RISK RATING												
	RATING	0	1	2	3	4	5	6	7	8	9	10	**TOTAL**	
TYPE	**RESERVABLES**													
LOANS AND LEASES	1a. COMMERCIAL LOANS AND LEASES	2	4	201	252	511	2,000	3,374	937	1,856	231	48	9,426	1a
	1b. CONSUMER LOANS	0	5,139	0	0	1,629	521	65	15	45	0	0	7,414	1b
	1c. OTHER LOANS AND LEASES							481					481	1c
	TOTAL LOANS AND LEASES	2	5,143	201	252	2,140	2,521	3,920	952	1,901	231	48	17,311	
	1d. LESS: GROSS COMMERCIAL LOAN C/O ESTIMATE									0	-17	-47	-64	1d
	1e. LESS: GROSS COMMERCIAL LOAN C/O ESTIMATE									-24	0	0	-24	1e
	TOTAL LOAN AND LEASE CHARGE-OFFS	0	0	0	0	0	0	0	0	-24	-17	-47	-89	
	LOANS AND LEASE RESERVABLES	2	5,143	201	252	2,140	2,521	3,920	952	1,877	214	0	17,222	
OREO	2a. OREO									184	12	6	202	2a
	2b. LESS: OREO CHARGE-OFF ESTIMATE									0	0	-6	-6	2b
	OREO RESERVABLES	0	0	0	0	0	0	0	0	184	11	1	196	
CONTINGENT EXPOSURE	3a. UNUSED COMMITMENTS				1,959	1,959	980	980					5,878	3a
	@ 50%	0	0	0	980	980	490	490	0	0	0	0	2,939	
	3b. COMMERCIAL LETTERS OF CREDIT	0	1	1	3	19	51	83	5	2	0	0	165	3b
	@ 20%	0	0	0	1	4	10	17	1	1	0	0	33	
	3c. STAND-BY LETTERS OF CREDIT	18	1	27	44	76	141	183	78	50	15	0	632	3c
	@ 100%	18	1	27	44	76	141	183	78	50	15	0	632	
	3d. SWAPS	0		0	0	0	0	0	0	0	0	0	1	3d
	@ 100% OF CREDIT EQUIVALENT EXPOSURE	0		0	0	0	0	0	0	0	0	0	1	
	3e. BANKER'S ACCEPTANCES	0	0	0	13	1	47	80	6	0	0	0	146	3e
	@ 100%	0	0	0	13	1	47	80	6	0	0	0	146	
	CONTINGENT EXPOSURE RESERVABLES	18	1	27	1,037	1,060	688	770	85	51	15	0	3,751	
RESERVABLES	**TOTAL RESERVABLES**	20	5,144	288	1,288	3,200	3,209	4,690	1,037	2,111	240	1	21,169	

All items in millions of dollars

TABLE 3
CREDIT EXPOSURE BY 34 MINOR INDUSTRY SECTORS

MOODY'S GROUP	Outstandings			Unfunded Commitments			Commitments			Utilization Rate
	% of Total	Term to Mat.	Risk Rating	% of Total	Term to Mat.	Risk Rating	% of Total	Term to Mat.	Risk Rating	
Aerospace and Defense	0.5	2.8	4.8	0.9	2.7	3.6	0.7	2.7	4.1	42
Automobile	2.8	2.9	4.5	2.6	1.8	3.6	2.7	2.4	4.1	60
Banking	3.1	1.3	3.6	14	1.3	2.6	7.7	1.3	2.8	23
Beverage, Food and Tobacco	4.3	2.9	4.7	4.7	2	3.3	4.5	2.5	4.1	55
Buildings and Real Estate	24.2	3	5	10.6	1.7	4.2	18.5	2.7	4.8	76
Cargo Transport	2.5	5.8	4.7	1.9	1.8	3.1	2.2	4.4	4.1	64
Chemicals, Plastics and Rubber	2.3	2	4.4	2.7	1.8	3.6	2.5	1.9	4	53
Containers, Packaging and Glass	0.7	2.4	5	0.6	2.2	4	0.7	2.3	4.6	61
Diversified Natural Resources, Precious Metals and Minerals	0.7	1.6	5.1	0.6	1	4.8	0.7	1.4	5	59
Diversified/Conglomerate Manufacturing	0.6	2.7	4.7	0.6	2.5	4.3	0.6	2.6	4.5	59
Diversified/Conglomerate Sevice	5.1	2.2	4.3	2.9	0.9	3.6	4.1	1.8	4.1	71
Ecological	0.6	2.6	4.3	0.6	2.3	4	0.6	2.5	4.2	55
Electronics	2.5	2	4.4	5	1.7	3.9	3.6	1.8	4.1	41
Farming and Agriculture	2.8	2.4	4.7	1.6	1.1	3.5	2.3	2	4.4	71
Finance	3.4	3.3	3.5	3.6	1.3	2.5	3.5	2.4	3.1	56
Government	1.4	3.3	4.2	0.8	2	2.9	1.1	2.9	3.8	69
Grocery	0.9	3.2	5	1	2.4	3.8	0.9	2.8	4.4	53
Healthcare, Education and Childcare	5.1	3.3	4.6	5.2	1.9	3.6	5.2	2.7	4.2	57
Home/Office Furnishings, Housewares, Durable Consum. Prod.s	2.2	2.1	4.6	2	1.4	3.7	2.1	1.8	4.3	60
Hotels, Motels, Inns and Gaming	1.3	3.4	5.3	0.4	4.2	4.3	1	3.6	5.1	82
Insurance	1.6	2.5	3.4	4	1.2	2	2.6	1.7	2.5	36
Leisure, Amusement, Motion Pictures, Entertainment	2.7	3.1	4.6	2.3	2.3	3.6	2.6	2.8	4.2	62
Machinery (Non-Agri.,Non-Constr.,Non-Elec.)	2.7	2.3	4.7	2.4	1.6	3.8	2.6	2	4.4	60
Mining, Steel, Iron, Non-Precious Metals	2.9	1.9	4.8	2.8	1.7	4	2.9	1.8	4.4	59
Oil and Gas	2.6	4.1	4.1	3.4	2.6	3.6	3	3.3	3.9	52
Other	2.2	3.3	4.7	1	2.5	3.2	1.6	3.1	4.3	76
Personal/Non-Durable Consumer Prod.s	1.6	1.9	4.7	1.7	2.1	3.6	1.6	1.9	4.2	56
Personal, Food and Miscellaneous Serv.s	1.2	2.7	4.7	0.7	1.3	3.7	1	2.3	4.5	71
Printing, Publishing and Broadcasting	6.4	2.7	4.8	5.1	2.9	3.5	5.9	2.8	4.3	63
Retail Stores	2.3	2.1	4.3	3.7	1.8	3.5	2.9	2	3.8	46
Telecommunications	1	2.9	4.2	2	1.9	2.6	1.4	2.3	3.2	40
Textiles and Leather	2.5	1.6	4.6	2	1.6	4.1	2.3	1.6	4.4	63
Transportation	1.8	3.1	4.3	1.6	2.3	3.4	1.7	2.8	4	60
Utilities	1.6	2.9	3.5	4.7	1.9	2.7	2.9	2.2	2.9	32

"% of total" is the percentage concentration in loan portfolio at the end of the reporting period.

"Term to mat" is the term to maturity in years, as a weighted average of industry group.

"Risk Rating" is based upon a ten point scale.

TABLE 4
COMPOSITION OF LOAN PORTFOLIO BY GEOGRAPHIC AREA
Distribution of domestic commercial real estate loans by region

	Geographic Region						
Project Type	**Central Atlantic**	**Southeast**	**Midwest**	**West**	**Southwest**	**Northeast**	**Total**
Office complexes	$196	$46	$46	$36	$12	$6	$342
Retail	155	70	45	22	11	-	303
Hotels	72	49	10	6	12	-	149
Industrial	50	2	2	5	3	-	62
Apartments	31	-	17	-	3	-	51
Undeveloped land	6	18	10	9	-	-	43
Health care	11	9	-	4	4	-	28
Residential	17	-	-	3	4	-	24
Other project types	56	-	-	-	-	-	56
Total	$594	$194	$130	$85	$49	$6	$1,058

All items in millions of dollars

TABLE 5
EXPOSURE SUMMARY FOR ONE SPECIFIC EXISTING FACILITY

	PRODUCT/PURPOSE	RISK RATING	APPROVED AMOUNT	FACILITIES IN USE	LOAN PRICING		DOCUMENT DATE
					STRUCTURE /RATE	INDEX /SPREAD	
A	Advised Line of Credit	6	5,000				2
	Finance A/R and Inventory						5/30/95
	Limit: Loans Revolving		3,000	2,000	Variable	Base	
	Finance Accounts Receivable					plus 50	
	Limit: LC's/ Revolving		2,000	0			
	Finance Accounts Receivable						
B	Commercial Mortage	6	3,000	3,000	Fixed	--	3
	Acquire Commercial Property				7%	--	1/2/95
C	Commercial Mortgage	5	1,629	1,629	Fixed	--	1
	Renovate Commercial Property				8%	--	3/10/95
D	Miscellaneous Credit	5/5	900	100	Variable	Base-FFB	0
			9/31/94			plus 50	
	Total Credit Availability (TCA)		10,529	6,729			
E Related Exposure (Not included in TCA):							
	Advised Line of Credit	6	200	0	Variable	Base	0
	Finance Accounts Receivable					plus 100	--

All units in thousands of US dollars

TABLE 6
INTEREST RATE SENSITIVITY
TYPICAL GAP REPORT

	Prime loans and funding source	0-3 months	>3-6 months	>6-12 months	>1-5 years	>5 years	Non-market	Total
ASSETS								
Investment Securities	$ -	$533	$711	$3,085	$7,354	$1,315	$40	$13,058
Federal funds sold and securities purchased under resale agreements	-	1,668	-	-	-	-	-	1,668
Loans:								
Commercial	4,015	1,747	316	125	222	66	412	6,912
Real estate 1-4 family first mortgages	115	1,565	1,223	913	2,519	1,024	99	7,458
Other real estate mortgages	2,572	2,171	591	537	1,478	359	578	8,286
Real estate construction	732	112	1	12	18	-	235	1,110
Consumer	729	4,071	226	303	628	93	2,053	8,103
Lease financing	-	85	94	175	850	8	-	1,212
Foreign:	-	18	-	-	-	-	-	18
Total Loans (2)	8,163	9,769	3,162	2,065	5,715	1,550	3,386	33,099
Other earning assets:	-	-	-	-	-	-	52	52
Total earning assets	8,163	11,990	3,162	5,150	13,069	2,865	3,478	47,877
Noninterest-earning assets:	-	-	-	-	-	-	4,636	4,636
Total assets	8,163	11,990	3,162	5,150	13,069	2,865	8,114	52,513

All units in millions of US dollars

(Table continued on next page)

TABLE 6 continued

	Prime loans and funding source	0-3 months	>3-6 months	>6-12 months	>1-5 years	>5 years	Non-market	Total
LIABILITIES AND STOCKHOLDERS' EQUITY								
Deposits:								
Interest-bearing checks	$ -	$ -	$ -	$ -	$ -	$ -	$4,789	$4,789
Savings deposits	-	-	-	-	-	-	$2,544	$2,544
Market rate savings	8,163	5,905	1,005	2,011	-	-	-	17,084
Saving certificates	-	2,128	1,357	1,069	2,437	150	14	7,155
Other time deposits	-	65	13	31	191	13	2	315
Deposits in foreign offices:	-	38	-	-	-	-	-	38
Total interest bearing deposits	8,163	8,163	2,375	3,111	2,628	163	7,349	31,925
Federal funds purchased and securities sold under repurchase agreements	-	1,079	-	-	-	-	-	1,079
Commercial paper and other short-term borrowings	-	188	-	-	-	-	-	188
Senior debt	-	1,527	26	318	343	42	-	2,256
Subordinated debt	-	1,895	-	-	-	-	70	1,965
Total liabilities	8,163	12,825	2,401	3,429	2,971	205	7,419	37,413
Noninterest-bearing liabilities	-	-	-	-	-	-	10,785	10,785
Stockholders' equity	-	-	-	-	-	-	4,315	4,315
Total liability and stockholders'equity	8,163	12,825	2,401	3,429	2,971	205	22,519	52,513
Gap before interest rate financial contracts	-	-835.00	761	1,721	10,098	2,660	-14,405	-
Interest-bearing interest rate swaps	-	-652.00	193	214	245	-	-	-
Gap adjusted for interest rate financial contracts	$ -	($1,487)	$954	$1,935	$10,343	$2,660	$14,405	$ -
Cumulative gap	$ -	($1,487)	$533	$1,402	$11,745	$14,405	$ -	
Adjustments:								
Exclude noninterest-earning assets, noninterest-bearing liabilities and stockholders'equity	-	-	-	-	-	-	$10,464	
Move interest-bearing checking and savings deposits from nonmarket to shortest maturity	-	-7333	-	-	-	-	$7,333	
Adjusted cumulative gap	$ -	($8,820)	($7,866)	($5,931)	$4,412	$7,072	$10,464	

(1) The nonmarket column consists of marketable equities securities.

(2) The nonmarket column consists of nonaccrual loans of $1,494 million, fixed-rate credit card loans of $2,062 million (including $39 milli commercial credit card loans) and overdrafts of $130 million.

TABLE 7
A DURATION ANALYSIS OF INTEREST RATE RISK EXPOSURE

	On Balance Sheet			Off Balance Sheet		Combined On & Off	
As of December 31, 1995 $ (millions)	**Balance**	**Rate**	**Effective Duration Years**	**Notional Amount(1)**	**Net Spread**	**Adjusted Rate**	**Adjusted Effective Duration**
Assets:							
Variable rate prime loans	$16,179.00	6.75(%)	0.29	$15,133.00	2.07(%)	8.73(%)	1.74
Other variable loans/investments	14,963.00	7.00	0.19	0.00		7.01	0.19
Total variable rate assets	31,342.00	6.90	0.24	15,133.00	2.07	7.91	1.00
Fixed rate loans	27,889.00	9.64	2.19	58.00	-5.15	9.63	2.19
Other fixed investements	12,259.00	6.82	2.95	1,205.00	-1.49	6.67	2.82
Total fixed rate assets	40,148.00	8.78	2.42	1,263.00	-1.66	8.73	2.38
Other assets	8,629.00		1.34	0.00			1.34
Total assets	$79,919.00	7.10	1.45	$16,396.00	1.78	7.47	1.73
Liabilities:							
Contractually repriceable	$27,479.00	2.41	2.08	$5,638.00	1.98	2.00	1.73
Variable borrowings	10,250.00	2.76	0.05	198.00	-8.90	2.93	0.08
Total variable liabilities	37,729.00	2.51	1.53	5,836.00	1.61	2.26	1.28
Total fixed liabilities	20,003.00	4.61	1.49	8,624.00	2.33	3.61	0.75
Non-interest bearing DDA	13,677.00		3.42	0.00			3.42
Total deposits/borrowings	71,409.00	2.62	1.88	14,460.00	2.04	2.21	1.54
Other liabilities	1,476.00		0.06	0.00			0.06
Total liabilities	$72,885.00	2.57	1.84	$14,460.00	2.04	2.17	1.51

(1) $5.6 billion of basis swaps are excluded from variable rate prime notional amounts, but included in effective duration calculations.

TABLE 8
NET INTEREST MARGIN SIMULATION

	Rate Scenario					
	Unchanged	**+100 bps**	**+200 bps**	**Limit**	**-200 bps**	**Limit**
12 Months Net Interest Income:						
(a) W/ Deposit rates unchanged from 9/94	$1,577.00	$1,560.50	$1,540.80		$1,545.40	
Total earning assets	32,892	32,912	32,420		32,346	
Net rate	4.79(%)	4.74(%)	4.75(%)		4.78(%)	
Change in net interest income		-16.50	-36.20	+/- 78.90	-31.60	+/- 78.9
% Net interest income		-1.0(%)	-2.3(%)	+/- 5.0(%)	-2.0(%)	+/- 5.0(%)
(b) W/ Deposit rates reflecting 50 basis point tightening in unchanged	$1,551.00	$1,560.50	$1,540.80		$1,545.40	
Total earning assets	32,892	32,912	32,420		32,346	
Net rate	4.72(%)	4.74(%)	4.75(%)		4.78(%)	
Change in net interest income		9.50	-10.20	+/- 78.90	-5.60	+/- 78.9
% Net interest income		0.6(%)	-0.6(%)	+/- 5.0(%)	-0.4(%)	+/- 5.0(%)
Portfolio Equity:						
Market value	$5,727.00		$5,241.00		$6,109.00	
Change in market value			-486	+/- 857	382	+/- 857
% Shareholder's equity			11.1(%)	+/- 20.0(%)	8.7(%)	+/- 20.0(%)
Duration (years)	4.20		4.30		2.90	

TABLE 9
INVESTMENT POLICY

A. Introduction

The purpose of this policy is to provide the basis for the bank to responsibly manage the investments in accordance with the philosophy and objectives stated below. Unless stated otherwise, the terms "investment" and "investment portfolio" will refer to both cash management activities and longer-term investment securities. The term "capital " will refer to the sum of Undivided Earnings, Paid in Capital, Regular Reserve, and the Allowance for Loan Losses.

B. Investment Philosophy

The bank recognizes a fiduciary responsibility to customers to invest all funds prudently and in accordance with ethical and prevailing legal standards. It recognizes that the investment portfolio must complement the loan portfolio and together they must be matched with liabilities. In addition, the policy will support the overall business and asset/liability strategies of the institution.

Certain general tenets apply to the investment portfolio. Safety of assets is of primary concern. In all cases, only high quality investments will be purchased. The investment portfolio should provide adequate, but not excessive liquidity in meeting member demand for funds. Reasonable portfolio diversification should be pursued to ensure that the bank does not have excessive concentration of individual securities, security types or security characteristics. The investment portfolio will be managed on a "buy and hold" basis. However, periodic sales of investment securities are permissible to meet operational cash needs or to restructure the portfolio mix in accordance with changes in investment strategy. In all cases, investments must meet all criteria stated in the Federal Law, the Rules and Regulations of the Regulators, and all requirements of our bonding company. Investment performance in all classifications will be monitored on a frequent and regular basis to ensure that objectives are attained and guidelines adhered to.

C. Investment Authority

Authority for investments is the responsibility of the Board Directors. The Board shall designate the Chief Executive Officer and the Chief Financial Officer to act on its behalf and in accordance with this policy. The Chief Financial Officer, in conjunction with wither the Controller or the Financial Analysis Manager, shall oversee the day-to-day operations of the investment portfolio and have specific investment and transaction execution authority.

Quarterly, the activity for safety and sound the Chief Executive Officer, Chief Financial Officer and the Financial Consultants will review the past quarter's investment activity for safety and soundness.

D. Investment Objectives and Guidelines

Firm investments shall be managed at two levels: cash management needs and longer-term investment activities. In all cases, safety of funds shall take precedence over yield and its attendant risks, and the only financial instruments which may be purchased are those which in the opinion of the Chief Financial Officer pose no significant credit risk. All investment activity is to be guided by the criteria specified in this policy.

1. The funds of the bank can be invested in the following types of instruments with qualifications as provided:

    a. United States Treasury obligations will have a maximum maturity of three years.

    b. United States Agency Securities (excluding MBS) shall be limited to a maximum maturity of three years.

    c. Mortgage Backed Securities issues by or fully guaranteed as to principal and interest by the Federal National Mortgage Association, Government National Mortgage Association, or the Federal Home Loan Mortgage Corporation. These investments will primarily be one year ARMs and five year balloons, but three year ARMs and seven year balloons may be purchased. Individual issues shall not exceed $50 million in value at the time of purchase.

    d. Private Issue Mortgage Back Securities. Before authorizing a purchase of this type, the Chief Financial Officer shall review a prospectus to determine whether the investment is permissible. Total private issue Mortgage Related Securities purchased shall not exceed $50 million. The minimum credit rating of these securities at the time of purchase must be AA or equivalent. Individual securities shall not exceed $10 million in value at the time of purchase.

    e. Repurchase and Reverse Repurchase Agreements, but only with a Federally Insured Bank on the approved bank list, with both parties acting in the capacity of principal. Maturities will be no longer than 180 days and the securities will be delivered to a third-party safekeeping agent.

    f. Fed Funds sold shall be conducted only with approved banks. Total Fed Funds sold to a single institution shall not exceed $50 million. Term Fed Funds shall not exceed one year in maturity.

    g. Certificates of Deposit issued only by approved banks with a maximum maturities not to exceed one (1) year. Total certificates deposited in a single institution shall not exceed $50 million.

    h. Bankers'Acceptances issues only by approved banks. Total Bankers' Acceptances purchased from a single issuing institution shall not exceed $50

million.

i. Yankeedollar or Eurodollar deposits only in approved banks. Total Yankeedollar or Eurodollar deposits in a single institution shall not exceed $50 million.

j. Money Market mutual funds that invest in CDs, Repurchase Agreements, Banker's Acceptances, Agency Notes, etc., and that which conform to Federal rules and regulations. Mortgage Backed Securities mutual funds that invest in agency and private issue MBS. The objective of the MBS fund must be current income, capital preservation, and minimal fund price volatility. Investments in the money market mutual fund will be limited to $100 million on and investments in the MBS mutual fund will be limited to $25 million.

Deliverable securities purchased will be delivered (either physically or via the Federal Reserve Bank wire system) simultaneously with the release of cash. Such delivery will be made to a third party for safekeeping, whether to a custodian or to a trust account maintained. At a minimum, the contracted safekeeping agent or trustee will provide written confirmation of each transaction to us and a monthly listing of all securities in its account.

The Chief Financial Officer shall maintain an approved list(s) of banks and other financial institutions with which the bank may conduct investment transactions. The list may include several of the largest domestic banks and U.S. domiciled subsidiaries of foreign institutions which are federally insured and carry a minimum credit rating of "B/C" by Keefe, Bruyette and Woods. The bank will minimize the risk associated with executing securities transactions by limiting the securities brokers/dealers with which it does business to those who are primary dealers recognized and approved by the Federal Reserve System. The Chief Financial Officer will make additions/deletions from the list(s) as appropriate.

2. Cash Management

a. The objective of the firm's cash management policy is to provide sufficient liquidity each day to meet operating cash needs, member demand for funds, and minimum balance requirements for the Federal Reserve Account.

b. Cash management funds shall be maintained to meet the withdrawal and lending needs of the customers. The amount of funds will be continually evaluated depending upon lending trends and withdrawal experience, and other external factors deemed appropriate.

c. The Chief Financial Officer, Financial Analysis Manger, or Controller, or Accounting Supervisor shall execute these cash management activities and the Chief Financial

Officer shall review these transactions.

3. Investment Portfolio

The management objective of the firm's Investment Portfolio is to provide maximum return within the bounds of safety of principal and interest, liquidity, and asset liability management demand. Each specific investment decision will be evaluated with respect to such issues as expected return, credit risk, liquidity, effect on the investment portfolio, impact on asset/liability needs, and proper safekeeping. The Chief Financial Officer, Controller, or Financial Analysis manager will execute investment portfolio transactions.

4. Prohibited Activities

The following activities are prohibited:

a. Cash forward agreements to buy when the delivery date is in excess of ninety (90) days from the trade date.

b. Standby commitments to purchase or sell a security at a future date whereby the buyer is required to accept delivery of the security at the option of the seller.

c. Adjusted to trading, meaning any method or transaction used to defer a loss whereby the bank sells a security to a vendor at a price above its current market price and simultaneously purchases or commits to purchase from that vendor another security above its current market price.

d. Short sales of securities not owned by the bank.

e. Futures trading.

E. Maturity Structure

The maturity structure of the investment portfolio will be managed in accordance with asset liability management needs, market conditions, and the objectives of this Policy Statement.

It is the responsibility of the Chief Financial Officer to constantly monitor the maturity structure of the investment portfolio and implement modifications in the average maturity and makeup of the portfolio. These modifications will be based on Asset/Liability Management concerns (i.e., price risk, liquidity risk, reinvestment risk) and changing market conditions.

F. FASB 115 Compliance

In order to comply with the FASB 115, the bank will classify its investments as Trading,

Held-to-Maturity, and Available-for-Sale. All Fed Funds and mutual fund accounts will be classified as Trading Accounts. All balloon MBS securities, FHLB stock, and other fixed rate investments with a maturity of greater than one year at the time of purchase will be classified as Held-to-Maturity.

The remainder of the portfolio will be classified as Held-to-Maturity. The bank has the positive intent and ability to hold these to maturity. These securities will not be sold in response to changes in market interest rates. The bank normally has $20 million in Fed Funds and has a line of credit with the FHLB of over $50 million. Given our asset size, $200 million of instantly accessible cash is more than adequate liquidity for any possible scenario.

G. Sovereign and Exchange Rate Risk

The bank will not invest in any foreign banking institutions or securities denominated in currencies other that U.S. Dollar and therefore will not incur any Sovereign or Exchange Rate Risk.

H. Modifications to Policy

The Chief Financial Officer is responsible for recommending changes to this policy.

Approved by the Board of Directors

TABLE 10
GLOBAL FOREIGN EXCHANGE TRADING LIMITS

CURRENCY TYPE	CURRENCY SHORT NAME	NET POSITION		NET OVERALL CURRENCY POSITION		DAYLIGHT CURRENCY POSITION (2 x NET)	FX FORWARD RISK POINTS (US$ Equivalent)				
							CAP = 85,000				SENSITIVITY TO A 25 B.P. CHANGE IN INTEREST RATES
							OVERALL 0 - 10 YRS.		MED-LONG TERM 2 - 10 YRS.		
		LIMIT	INCR./ (DECR.)	LIMIT	INCR./ (DECR.)		LIMIT	INCREASE	LIMIT	DECREASE	
MAJOR CURRENCIES				540.00	-60.00						
U.S. DOLLAR	USD	275.00				150.00	55,000.00	23,000	3,000	-4,000	5,729,167
CANADIAN DOLLAR	CAD	220.00				840.00	25,000	2,720	2,000	-3,000	2,604,167
POUND STERLING	GBP	210.00				420.00	14,500	7,220	500	-1,500	1,510,417
SWISS FRANC	CHF	185.00				370.00	6,000	900	500	-1,000	625,000
GERMAN MARK	DEM	280.00	15.00			560.00	16,000	3,800	500	-1,500	1,666,667
DUTCH GUILDER	NLG	60.00				120.00	3,000	2,040			312,500
JAPANESE YEN	JPY	210.00				420.00	14,600	6,000	500	-1,500	1,520,833
ITALIAN LIRE	ITL	70.00	5.00			140.00	2,200	1,240			229,167
FRENCH FRANC	FRF	90.00	10.00			180.00	8,300	5,500	500	-500	864,583
BELGIAN FRANC	BEF	65.00	10.00			130.00	3,000	2,160			312,500
AUSTRALIAN DOLLAR	AUD	60.00				120.00	2,600	1,040			270,833
EUROPEAN CURRENCY UNIT (ECU)	XEU	65.00				130.00	7,150	6,670			744,792
MINOR CURRENCIES				160.00	60.00						
ARGENTINIAN AUSTRAL	ARP	5.00				10.00					
AUSTRIAN SCHILLING	ATS	30.00	10.00			60.00	750	510			78,125
BAHAMIAN DOLLAR	BSD	2.00				4.00					
BAHRAIN DINAR	BHD	2.00				4.00					
BARBADOS DOLLAR	BBD	2.00				4.00					
BERMUDA DOLLAR	BMD	2.00				4.00					
BRAZIL CRUZADO	BRC	5.00				10.00					
CAYMAN DOLLAR	KYD	2.00				4.00					
CHINESE RENMINBI	CNY	9.00				18.00	120				12,500
DANISH KRONE	DKK	45.00	5.00			90.00	1,000	640			104,167
E.CARIBBEAN DOLLAR	XCD	2.00				4.00					
FIJI DOLLAR	FJD	8.00				16.00	72				7,500
FINNISH MARKKA	FIM	30.00	14.00			60.00	250	130			26,042
GREEK DRACHMA	GRD	10.00	8.00			20.00					

TABLE 11
ONE DAY FALLOUT FUNDING SCENARIO

CATEGORY: OVERNIGHT FUNDS AVAILABLE			
Rating Movement Downward to:	**Total**	**Change**	**Pct. Change**
Thomson Bankwatch B	$16,229		
Thomson Bankwatch B/C	$13,365	($2,864)	(17.65%)
Thomson Bankwatch C	$6,291	($9,938)	(61.24%)
CATEGORY: TERM FUNDS AVAILABLE			
Rating Movement Downward	**Total**	**Change**	**Pct. Change**
Thomson Bankwatch B	$19,299		
Thomson Bankwatch B/C	$17,020	($2,209)	(11.49%)
Thomson Bankwatch C	$12,458	($6,771)	(35.21%)