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Remarks by

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## The New Risk Management Tools in Banking

It is a particular pleasure for me to inaugurate this annual lecture series sponsored by The Garn Institute of Finance at the University of Utah. I would like to take this opportunity to discuss with you some of the new and interesting developments in the business of banking. Recent articles in the financial press have emphasized the so-called nontraditional risk-taking activities of banks — activities such as dealing in derivatives, securitization, and financial advisory services. These articles, often written with an eye toward grabbing the reader's attention, have tended to obscure the fact that many of these banking activities are not really new, and many may not be especially risky.

What *is* new, and what I find to be especially interesting, are the technologies by which banks now conduct their basic business — which is to measure, manage, and accept risk. These technologies have precipitated a sea-change in how banks conduct their risk-management business, by permitting the introduction of new products, the unbundling of risks, improvements in the measurement of risk, and a revamping of risk management processes. But banks' basic business of handling risk has not essentially changed from an earlier era, and within this basic business, a major exposure still flows from the credit arena, especially business and commercial real estate lending. Thus, today I would like to focus my remarks on some of the new risk measurement procedures in the provision of credit, and on some of the implications of these technological advances for how banks might price and deliver their credit products. Also, I will be discussing some of the

implications of these advances for how banking supervisors, and others who analyze bank risk, should view optimal bank risk taking

Notice that I use the term "optimal bank risk taking" with some deliberateness. There are some who would argue that the role of the bank supervisor is to minimize or even eliminate bank failure, but this view is mistaken, in my judgment. The willingness to take risk is essential to the growth of a free market, capitalist economy. Much of the growth in employment in our economy flows from new, smaller businesses (often employing new technologies). The new firms exist only because they are willing to take on risk, and old firms often go out of business because they did not take on sufficient risk, or at least did not take on the right kind of risks. This replacement of stagnating firms by high-growth firms is what the economist Joseph Schumpeter referred to as the "perennial gale of creative destruction." Indeed, if all savers and their financial intermediaries invested only in risk-free assets, the potential for business growth would never be realized.

If risk taking by banks' business customers cannot and should not be eliminated, customer financing by banks implies, indeed necessitates, risk taking by banks. Such risk can be priced properly, and the nonsystematic portion of risk can be diversified away, but the risk cannot be eliminated, and the basic job of banks still must be to measure, manage, and take on risk. Given this job, the optimal degree of bank failure cannot be zero. Rather, regulators and legislators need to engage in a continual assessment of a benefit-cost tradeoff between, on the one hand, protecting the financial system and the taxpayers, and on the other hand, allowing banks to perform their essential risk-taking functions. Furthermore, if banks are permitted to

do their job, even though no individual extensions of credit will be made with the expectation of loss, some mistakes will be made. Also, some well-managed banks will simply get unlucky. The result will be that *some* banks will fail.

If risk taking is essential to banking, it is important for banks to hone their skills in risk management if they are to competitively prevail. One advance in risk management that is gaining in popularity is the practice of grading commercial credits. In the past, at most banks, a prospective loan was either a "pass" or a "fail." Now, many of the larger, better managed institutions grade their loans much like rating agencies provide ratings for corporate bonds. The banks may assign ratings from, say, 1 through 6 for a bankable loan, with 1 corresponding to a AAA-rated bond and 6 corresponding to, say, a B-rated bond.

The rating process is an extremely useful exercise, both for the loan officers who must decide on whether to book the credit, as well as for the credit review staff who later monitor the loan. For example, the rating process may provide insights into loan covenants or other nonprice terms that might allow a marginal credit to become bankable. Also, during the periodic credit review, a downgrading of the credit, say from a grade 3 to a grade 4, may signal the need for the loan officer to begin a dialogue with the borrower on the nature of the obligor's difficulties.

One of the most important potential uses of the risk rating process is to permit banks to price loans according to the risk of the obligor. However, most institutions, having decided that a loan is bankable, will vary the interest spread only according to the nonprice terms of the facility, such as its size or contractual life. The

loan's interest rate typically is not varied according to the credit quality of the obligor, especially for the bulk of middle-market and small business obligors

In my view, the majority of banks are playing a losing game with their current and potential competitors by employing only one interest rate per facility for borrowers of widely varying risk. A single interest rate for credit, or even two or three different rates, implies that some individual borrowers are being overcharged in relation to their riskiness and some are being undercharged. That is, banks must be, or should be, charging a sufficiently high loan rate to cover the average risk inherent in their portfolio of borrowers, but this one rate will be too high or too low for all but the average risk customer. To the extent that banks continue this practice, the best quality customers can be expected to seek better loan terms elsewhere, leaving banks with lower and lower credit quality customers for whom the banks would then have to charge higher and higher rates in any event to cover the greater risk.

While risk-based pricing of credit makes analytical sense, it is in its infancy in practice, at least in the business lending arena, and many bankers offer legitimate reasons why they do not plan to price differentially for risk in the near future. First, bankers worry that they will lose valued customers, even those whose rates are not increased as the result of risk-based pricing, if some of these customers find out that others are receiving better terms on their loans at the same institution. Also, the customers who may be forced to pay a higher rate than they had been previously paying may switch to banks that do not use risk-based pricing, causing the loss to the original bank of profits that flow from the entire customer relationship. In addition, the technological advances relating to the measurement of risk are still quite new, and

many bankers are not yet comfortable that they can accurately differentiate borrowers according to risk in order to implement a risk-based pricing system that is cost-effective

These concerns are substantive, but technological advances continue to facilitate the accurate measurement of risk, and we should be concerned about what will happen if banks do *not* incorporate these advances into their lending procedures in order to begin pricing according to risk. Perhaps the banks with a significant stake in middle-market and small business lending should learn from the experience of the large banks that saw their lending to their large corporate customers wither away as these customers sought direct access to capital markets at rates below those being charged by the banks. Risk-differentiated pricing was not prevalent in banking when the industry began losing its best quality, large corporate borrowers to the bond and commercial paper markets, but the securities markets did then — and do now — make rather fine price distinctions according to risk ratings. There should be little doubt that middle-market and smaller businesses, like their large corporate counterparts, are becoming ever more aware of the factors that determine their own credit quality, and ever more aware of alternatives to borrowing from banks. If banks overcharge their better quality smaller borrowers, in order to charge the same loan rate to their lower quality borrowers, we can expect the better quality smaller borrowers to follow in the footsteps of their large corporate brethren and seek credit elsewhere.

Risk-based pricing of commercial loans would have a beneficial impact on the general economy, quite apart from its effects on the struggle between banks and

their competitors. Scarce loanable funds would be allocated in a more efficient manner, as some businesses with better prospects and associated lower risk would find bank credit to be less expensive. Still other companies would find that a more rigorous examination of their prospects would result in more expensive credit, as should be the case for businesses with highly uncertain futures.

*For the riskier classes of borrower, more accurate measurement of, and pricing for, risk should reduce the sometimes disruptive rationing of credit that can occur, especially during economic downturns. Currently, most banks set a "cutoff" measure of credit quality below which the applicant is denied credit. During recessionary periods banks may raise this credit quality cutoff point, so that only the highest quality borrowers receive loans. If banks can become more confident of their ability to measure credit risk during all stages of the economic cycle, they can begin pricing for higher risk borrowers rather than simply denying, or rationing, credit. Thus, while proper risk-based pricing may cause some high risk borrowers to pay higher loan rates than now, these borrowers may find their access to bank credit becoming more stable over the cycle. Also, other high risk borrowers will gain access to credit for the first time. For the borrower, credit at a higher rate than other businesses pay may be a more palatable option than no credit at all. So long as banks are measuring risk appropriately, and maintaining adequate loan loss reserves and bank capital as protection against such risk, the general economy benefits from the additional activity of the high-risk businesses.*

*A generalized movement toward risk-based pricing of loans to businesses of all sizes will not occur without controversy. Some observers might claim that price*

differentiation is somehow “unfair” Bankers would naturally, and rightfully, be concerned over the legal implications of risk-based pricing if it were to result in conflict with the fair lending laws Such a situation might arise either where certain factors used to differentiate risks would be regarded by a court as intentionally discriminatory on an unlawful basis, or because one or more such factors produced a disparate impact in the form of higher interest rates charged to risk groups disproportionately represented by particular racial, gender, or other legislatively identified groups

Such concerns are real, but they can and must be alleviated if we are to move toward a more efficient allocation of scarce loanable funds In fact, there appears to be nothing in current banking law or regulation that should preclude risk-based pricing of loans The word “discriminate,” after all, has a usage within the English language that represents proper, thoughtful, legal, and morally appropriate acts of judgment Bankers *should* discriminate, provided the word means to measure and price risk properly with regard to legitimate economic characteristics of the client relationship That kind of discrimination should result in both a more equitable and efficient system of financial intermediation But bankers should be *prosecuted* for discriminating if the word means granting credit or setting interest rates on grounds pertaining to race, gender, or other prohibited classifications Such discrimination is illegal, unfair, uneconomic, and totally inconsistent with the tenets of a democratic capitalist society based on merit I remain convinced that bankers can, through appropriate compliance efforts adopted and supported by management, effectively monitor the purpose and effects of a risk-based loan pricing program to ensure it conforms to the fair lending laws

The rapid evolution in risk management techniques in the banking industry also has significant supervisory implications. Effective supervision is the key to managing the tradeoff between, on the one hand, permitting banks and other financial institutions to efficiently support economic growth, and, on the other hand, ensuring that the interests of the taxpayer and the safety of the financial system are protected. To meet these dual objectives, in a banking environment that is rapidly evolving, the supervisory agencies must continually adjust the processes they employ to measure and respond to bank risk taking.

Traditionally, the supervisory strategy for dealing with bank risk has been to employ a combination of capital regulations and individual bank supervision through the examination function. This combination has served us well over the decades. Certainly, introduction of uniform minimum capital rules in the 1980s, culminating in the Basle Accord in 1988 and bolstered by the prompt corrective action provisions of the Federal Deposit Insurance Corporation Improvement Act of 1991, can be said to have had an important moderating influence on bank risk taking. However, as the complexity, if not the dimensions, of bank risk taking has increased, the regulatory capital standards also have evolved and become more complex. Today, the regulatory agencies are wrestling with still further complexities by deciding how best to devise capital standards for interest rate risk, trading activity risk, and the risk inherent in securitization activities.

To some observers, the increasing complexity in bank risk positions suggests that capital regulations will continue to become more complex, with increasingly fine risk gradations, hopefully to avoid banks making suboptimal asset

decisions in order to meet inappropriate capital standards. But if we continue headlong down the road of complex capital rules, we may be creating more problems than we solve. Such regulations could never hope to reflect accurately the differences in risk across individual banks, let alone the changes in appropriate capital levels that any particular bank should maintain owing to even minor changes in its own portfolio of risk positions. Intricate capital rules run the very real risk of causing inefficiencies resulting from complex bank strategies to avoid binding capital constraints and, at worst, may lead to less measurable and possibly greater bank exposure to losses beyond capital. Moreover, no matter how complicated capital rules become, so long as such rules are written in piecemeal fashion, applying to subportfolios or small components of a bank's balance sheet or off-balance-sheet positions, they will not address the problem of how much capital is needed for the overall set of a bank or bank holding company's risk positions.

At least part of the solution to the problem of complexity in risk behavior is to rely less on the writing of rules, such as capital regulations, that apply uniformly to *all* banks, and to rely more on supervisory procedures that can distinguish risks on a bank-by-bank basis. While the examination process has always sought to evaluate the riskiness of a particular institution, it is progressively more evident that the focus of supervisory attention needs to shift somewhat. The basic "unit of supervision," so to speak, should become increasingly the evaluation and stress testing of the bank's overall set of risk positions, along with, let me hasten to add, the more traditional evaluation of the current value of individual bank assets. The evaluation of risk, defined to be a measure of the variability of potential asset values, should become as

important in the supervision process as the assessment of the current value of risk positions, including the adequacy of loan loss reserves to cover expected losses

Achieving such a supervisory focus on the bank's overall portfolio will not be easy. Today, for example, I have concentrated solely on the lending side of bank activities. Credit risk still constitutes the most significant single risk facing banks, even for some institutions with significant market portfolios, including large derivative positions. However, market risks, including interest rate risk and foreign exchange risk, clearly are important — and credit risks associated with what are typically viewed as market activities, such as counterparty risks involved in dealing swaps and other derivatives, are a growing portion of overall bank risk. The challenge to bank supervisors is to understand how to measure these various risks and, importantly, to understand how losses arising from these various risk positions are correlated. Important research on these issues is being undertaken by the staffs of the banking agencies as well as by the market participants themselves.

Assuming that the problems associated with bank-wide risk measurement are surmounted, bank supervisors should not necessarily be especially critical of a bank that takes on particularly risky positions. There is an interplay between risk taking and capital levels that must always be considered. Considerable risk taking may be acceptable, so long as there is sufficient capital to cover the possibility of unexpected losses and sufficient loan loss reserves to cover expected losses. Conversely, quite small amounts of capital may be acceptable, at least in theory, so long as there can be sufficiently little variance in possible outcomes.

Despite advances in our understanding of the nature of risks associated both with a bank's market portfolio and its portfolio of loans, there remain competing views on proper procedures for estimating the risk inherent in the overall portfolio of bank positions and for internally allocating sufficient capital to cover such risk. Questions such as these arise more or less continuously as financial markets evolve. Thus, supervisors' understanding of financial risk is also a continuously evolving process. In the end, supervisors have no choice but to continue to stay abreast of industry "best practices" in the measurement of risk and the assessment of sufficient capital to cover that risk. At a minimum, we must be able to distinguish between adequate practices and unacceptably crude risk measurement and management techniques. Increasingly, a part of the supervisor's job is to determine that adequate risk practices are being followed and that internal capital allocation rules consistent with such practices are being enforced by bank management.

As we approach the last half of the last decade in this century, both the supervisory agency and the bank it supervises will need to employ the best that technology can give us, while avoiding the pitfalls that can flow from a blind application of sophisticated tools. As I have said on other occasions, risk measurement and risk management are time consuming, never ending jobs of real people, not machines. The risk management officers at banks around the country need to embrace the recent advances in such a way as to maintain their institutions' safety and soundness while conducting ever more efficient resource allocation that promotes the growth of our nation's economy. I am confident that the industry can continue to fulfill this vital role.