Global Risk Management

Ulrich Cartellieri
Alan Greenspan

Group of Thirty, Washington, DC
About the William Taylor Memorial Lectures

This is the third lecture in the series dedicated to the memory of William Taylor (1933-1992). William Taylor's career in Washington DC included 15 years at the Board of Governors of the Federal Reserve System, where he rose to the position of Staff Director of Banking Supervision and Regulation, and culminated in his appointment as Chairman of the Federal Deposit Insurance Corporation in 1991. The lecture series is intended to honor his long career of distinguished public service and to recognize his dedication to ensuring the strength and stability of the financial system.

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About the Authors

Dr. Ulrich Cartellieri has been a Member of the Board of Managing Directors of Deutsche Bank AG since 1981. Dr. Alan Greenspan has served as Chairman of the Board of Governors of the Federal Reserve System since 1987. Publication does not imply that the Group of Thirty endorses the views expressed herein.

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Group of Thirty
1990 M Street, N.W., Suite 450
Washington, DC 20036
Tel. (202) 331-2472 · Fax (202) 785-9423
E-mail · info@group30.org
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Introduction by William Rhodes

It is a great honor for me to introduce the William Taylor Memorial Lecture speakers and to share with you how this lecture series was initiated, as well as its fundamental objectives. I can think of no more appropriate an audience for this lecture than Bill Taylor's friends. And no more appropriate speakers than the gentlemen we have here with us today—Central Banker and Federal Reserve Chairman Alan Greenspan, and private banker and Deutsche Bank Board Member Ulrich Cartellieri. Their joint address on risk management will honor the memory of one of America's, and the world's, most distinguished bank supervisors.

We are also very pleased and honored to have Bill's wife Sharon and their daughter Emily with us here today as well.

It all started with Bill Taylor—the man to whom these lectures are dedicated—who devoted his life to bank supervision, rising from the ranks of on-site examiner to the head of bank supervision of the Federal Reserve System, and who, with the confidence of President Bush and the Congress, reached the pinnacle of supervisory responsibility in the United States when he was appointed Chairman of the Federal Deposit Insurance Corporation in the fall of 1991.

Sadly, less than a year later in this service to banking and his country, he was taken from us in the prime of his professional life. Many of you knew Bill, who often attended these international
supervisors conferences, as a friend, as a strong bank supervisor, and as a thoughtful but no-nonsense developer and implementer of domestic and international banking policy. We remember his ability to keep his head in the face of severe crises, and, even more, his extraordinary capability when everyone else was losing their heads, to set priorities, to organize his examiners, and to bring them to bear at the right time to bring about the right result. We remember his leading contribution to the most outstanding accomplishment of international cooperation in the arena of banking supervision—risk-based capital standards. And as banking professionals, we remember above all his strong character, his unimpeachable integrity, and his steadfast devotion to duty.

After his death in 1992, his friends and colleagues were determined that his special personal qualities, his contribution to banking supervision, and his example as a public official should not be forgotten. Under the leadership of former Federal Reserve Chairman Paul Volcker, acting as Chairman of the Group of Thirty, a William Taylor Memorial Fund was established to stimulate discussion of banking policy, to honor outstanding supervisors, and to support the education of his family. Contributions were received from all over the world—a true acknowledgement of his international stature.

Immediately, a decision was made to establish a William Taylor Memorial Lecture Series on banking policy sponsored by the Group of Thirty and the Taylor Fund. The first lecture, in 1993, was given by former President of the Federal Reserve Bank of New York, Gerald Corrigan, on “The Financial Disruptions of the 1980s—A Central Banker Looks Back,” which took place at a dinner—at which I was present—for the banking community at the Federal Reserve Bank of New York. About a year later, the lecture series continued with a second banking policy lecture given by William Seidman, the former Chairman of the Federal Deposit Insurance Corporation, who preceded Bill Taylor at the FDIC in Washington.

At this point, Basle Committee Chairman Tommaso Padoa-Schioppa suggested that the biennial International Conference of Banking Supervisors would be the perfect forum for continuing the banking policy lecture series. The Group of Thirty and the
Taylor Fund readily agreed that the ICBS would be the ideal place for developing innovative thinking about banking policy and for improving banking supervision that were so much the essence of Bill Taylor's life. It was agreed by all that this forum of his friends and colleagues would provide the perfect framework for carrying forward the mission of his life.

That brings me to today. I was especially pleased that Paul Volcker asked me, as a member of the Group of Thirty and a friend and admirer of Bill Taylor, to introduce the lecturers for today's program. This is not only an honor for me, but also an occasion for me to share with you my appreciation of the common bond between us. While I have not had the opportunity to be on your side of the table, I have shared the same problems, dealt with the same crises, and shared our common interest in a strong international banking system. It is a great event for me to introduce and share the Taylor Memorial Lectures with you.

The topic chosen for today's lectures is "risk management," a discipline that, as Citibank's Senior Risk Officer, is near and dear to my heart.

I believe that there is a dual task here, with both bank management and banking supervisors working together. This has influenced the choice of the speakers for the lectures on risk management that will be presented to you today. The organizers decided that the thinking on this subject could be advanced by presenting to you the different perspectives of a commercial banker and a banking supervisor.

Deutsche Bank Board Member Ulrich Cartellieri—our first lecturer—will begin the program today by addressing the subject of risk management from the point of view of a commercial banker. Since 1981, he has been one of the key members of the Vorstand–Deutsche Bank's Board of Directors, with responsibilities that include the economics department, treasury operations, trading and the banks' operations in Asia-Pacific and the domestic branch network in the Rhine–Ruhr region. This has given him the broad view and specific expertise in this critical area of banking policy to lead the discussion from the perspective of a commercial banker.

As our second speaker today in the William Taylor Memorial Lecture Series, addressing the public sector perspective, we are
particularly honored to have Federal Reserve Board Chairman Alan Greenspan speak to us tonight. I understate his importance to the world economy when I say that Chairman Greenspan, who will soon begin his third four–year term as Chairman of the Federal Reserve Board, is one of the best known central bankers in the world. A distinguished private economist and senior government economist before joining the Federal Reserve in 1987, he is now in his ninth year as Fed Chairman, winning wide praise for his management of US monetary policy, for avoiding inflationary pressures, and for his outstanding contributions to banking supervision as well as to the maintenance of a stable international financial system.

The Federal Reserve, under Chairman Greenspan’s leadership, has already made outstanding contributions to the improvement of risk management in the banking system in the United States. To this audience of bank supervisors from around the world, I would also stress that under new legislative authority adopted in 1991 the Federal Reserve has been given responsibility for supervision of foreign bank branches and agencies in the United States and in this capacity has exposed its thinking on these important subjects to the international banking community. We are especially delighted to have the opportunity to hear Chairman Greenspan’s views on the evolution of risk management from the point of view of the public sector.

What more can I say about a man who has received the Thomas Jefferson Award for “The Greatest Public Service Performed by an Elected or Appointed Official”? 
I. The Dynamics of Financial Markets

Ladies and Gentlemen, I have been asked to present a private sector view on the management of global risk; which subject could more appropriately honour the memory of William Taylor? For bankers, as I shall point out, risk management is a dynamic process driven by the dynamics of the financial markets. For regulators and supervisors it is therefore a moving target. For all of us it is a matter of potentially growing concern. As much as modern risk management is becoming a major discipline in finance, it may lead us to a deceptive confidence in our ability to master the development of risk by technical means—unless we deal, as I shall suggest, also with the underlying origins and causes of the risk pressures building in the financial industry.

"You bankers are threatening the stability of the financial system, you are a danger to the world economy." That was the reaction of a former head of government of a major OECD country when I set about to explain the explosive growth in derivative business volumes off the major banks’ balance sheets.

Perception or reality, that does not matter when perception leads to political action. So I have reason to be grateful for the invitation to present a private sector view on a most pertinent subject to the most relevant forum, the distinguished members of
which are more than any other body expected to prevent such threat—real or perceived—from materializing.

**Today's Environment**

The environment in which banks operate today is dramatically different from that of less than a decade ago. On the one hand, financial markets are not so much moved by regulated and supervised banks and securities houses as by largely unregulated capital market investors. On the other hand, globally integrated trading operations; fast growing volumes and complexities; rapid reduction in product life cycles from financial innovation to commoditization; huge investments in human resources and IT; cost build-ups and capacity increases leading to profit pressures; a spectacular neglect of principles of prudence and basic business ethics in more than a few cases; the virtual, but not real collapse and necessary recapitalization of major banks, and, in a number of countries, of whole banking systems—these are just some spotlights on the stage on which we have been performing lately.

And there is clearly political concern—and remedies are ready at hand—if we follow the most recent communiqué of the IMF Interim Committee: “Strengthened supervision of financial institutions and markets will facilitate the efficient allocation of financial resources and guard against potential sources of macro-economic instability and fiscal costs.”

Overall, however, the world’s financial systems have shown a remarkable resilience and robustness, given all those happenings of the last ten years: from the S&L crisis in the U.S. to the meltdown of the capital basis of the Scandinavian banking systems to the ongoing rehabilitation exercise in Japan, not to mention those many individual accidents from Ambrosiano to Barings to Crédit Lyonnais to Daiwa, just to mention a few in alphabetical order.

Can we sit back and relax? I am afraid not. The ongoing globalization in world finance encompasses a galactic, non-linear expansion of financial services with little regard to existing structures of banking, securities and insurance industries, regulators and supervisors. As a global phenomenon it is perhaps only paralleled
by the explosive growth of the world's information industries; in fact it is the same information technology that is going to fundamentally change the financial industry.

In this new world of global finance our foremost task is to reassess, to revalidate and to adjust the present parameters and positions of financial institutions and their regulators and supervisors. This is a non-linear, multidimensional development; it requires non-linear, multidimensional answers: the management of complexity—cross border, cross industry, cross business division, cross product line. Only one of its aspects is risk—and I shall deal with it only from one perspective, that of a globally-operating bank.

That excludes important issues from the point of view of an international financial group operating also in, for example, life and casualty insurance and other quite diverse non-bank businesses. But we will be back at these wider issues towards the end of my presentation.

A growing concern over the development of risk and its management with regard to the ever more voluminous and complex trading operations of banks, securities firms and others has overshadowed the world of finance in recent years. But when dealing with this concern and indulging in—often extensively technical—discussions of risk management issues, we must not allow our view to become too narrow. While cases like Barings, Daiwa and others have put the focus on the management of trading risk, their common denominator has not been the complexity of new financial instruments or failure of risk management models, but rather the neglect of basic principles of prudent banking, in particular of basic control and audit functions.

Overall Risk Management

Banking is a risk-taking business; bank management has to assume and manage these risks prudently. A top-down approach to comprehensive risk management must begin here to make sure that a management philosophy, organisation principles (e.g. ringfencing of new business segments), a business culture and an incentive structure are in place, are based on generally accepted and understood
principles and business ethics and are being reviewed as necessary. If these are lacking, even the most sophisticated risk management systems will lack a solid foundation. There is no system that cannot be beaten by human failure.

And with so much focus on sophisticated risk management systems that are to balance the increased risk that banks have been taking in the trading markets, there is perhaps not enough attention being paid to the risk accumulation happening again in more traditional banking markets. Project–finance bankers jumping at the opportunity to take indeterminate fourteen–year non–recourse project risk that its industrial “sponsors” are only too happy to unload and loan syndications with basic covenants being dropped because of competitive pressures are cases in point.

It follows that top management must take a comprehensive view of risk, that it must keep in mind that every five to ten years a crisis–proven generation of traders and lending officers is gone and that the overall risk profile of its institution does not lie so much at the high–tech end of its operations but in its overall business policies as set forth to and understood by its senior managers and their staff. A key element in this context is the overall compensation policy and in particular the design of compensation for risk–taking managers and traders. Suffice it to say here that the industry has to cope with the results of competitive pressures in this field too.

**Balance Sheet Risk**

It is also worth noting that the most prominent causes for banks, including some major names, to get themselves into trouble have been credit risks and interest rate risks by overstretched maturity mismatches in asset liability profiles. In recent years, asset liability committees to support the treasury function of a bank have become commonplace. Today’s state–of–the–art global treasury operations are as different from those of ten years ago as a 1996 “Windows”–driven PC is from its 1986 ancestral forebearer. Nowhere has the IT revolution driven change faster than in the banks’ treasury and trading operations.
Credit Risk

With respect to credit risk, efforts are underway—inspired by modern financial theory—to move towards a portfolio approach in setting and managing credit risk limits for counterparties, industry sectors and countries. Without going into details here: The old principle "know your customer and understand what he is doing" continues to remain valid and the banks will continue to need seasoned credit professionals who have seen more than just one economic cycle. However, the new quantification tools may lead us forward to a more systematic credit risk management.

In any case, the increasing securitization and convergence of credit and market risk, also with regard to certain types of financial institutions on the one hand, and the overall development of credit and trading markets on the other hand, will require banks to rethink their approach to credit risk.

While most major banks continue to run substantially higher risks in their lending than in their trading business, it is obvious that under competitive pressures many banks not only take more lending risk but have also been expanding their trading operations and implicitly their trading risk.

Development of Risk Management

Trading risk being the aggregate line of the market risk (i.e. price and liquidity risk), credit risk, operational risk and legal risk arising from trading and positioning in underlying and derivative instruments around the globe, ferocious efforts have been made by the major institutions to comprehensively manage these risks. As a result, an—if contentious—assumption is shared by many that the trading activities of the major institutions are less risk-prone than other, more conventional segments of their business. On the other hand, the vulnerability of trading profits—caused, for example, by sea changes like those in the bond markets in spring 1994 or in the Mexican crisis in early 1995—clearly demonstrates the real life limitations of global risk management so far.

The development of risk management is, of course, a dynamic process. While not yet all market participants have reached the
present level of BIS rules—which were considerably influenced by private sector work and cooperation—much less the level of the market leaders, the development of risk management is not going to stop here nor anywhere nearby in the foreseeable future. So where do we stand, what remains to be done, what are the problems and perspectives?

After dealing with these questions, I should like to touch on some external factors which I think are of paramount importance to the issue of risk management.
II. Global Risk Management Today

A coherent risk management policy calls for an integrated framework of responsibilities and functions from the board level down to operational levels and covering all aspects of risk.

Internal Capital Allocation

Meaningful risk management starts with the internal capital allocation process. Risk–adjusted return ratios are needed to assess the profitability of trading businesses in accordance with the banks’ risk policies. To measure and improve the return on capital, an internal risk–based allocation framework is necessary. Of course, this is not a purely quantitative approach. Beyond arithmetics, it is the job of top management to install additional policy parameters consistent with the strategic objectives of the institution, e.g. with regard to diversification and the growing of new businesses. But much more than in the past bank management needs to understand the concept of risk and return because it must be integrated into their strategic decision making.

The consistent global application of capital regulations is critical to ensure a level playing field. In particular, the BIS guidelines should be applied equally in all jurisdictions. For European Union banks, it appears that we will be required to consider the CAD
standard method when determining our capital requirements for market risk. We will not be permitted to base it solely on internal models. Due to the inadequacies in the CAD standard method and the potentially significant overstatement of risk, we may be required to hold capital far in excess of our international competitors, despite the required use of an arguably too-high multiplication factor of the BIS guidelines. An amendment of the CAD is therefore indispensable to allow for the use of internal models to the same extent as the BIS guidelines. A first proposal to that end made by the European Commission is, therefore, very welcome in principle.

In reviewing the overall situation, however, it appears that the so-called pre-commitment approach is a superior concept. It forces management to ensure risk policies and procedures are sufficient. Reliance on the CAD standard method instead will distract bank management from understanding the real risks that are being taken and provide no incentive to develop the internal models beyond CAD standard.

A key purpose of any private or regulatory initiative on risk issues should not be mechanistic limitations, but to improve—in measurement, evaluation and monitoring procedures—the transparency, understanding, and thus management of and return on risk.

**Qualitative Risk Management**

The management of risk is, of course, first and foremost the job and responsibility of those who are dealing with it on a day-to-day basis. Like drivers and pilots who are expected to drive and fly safely, traders are expected to trade within preset risk parameters and the chief traders to run prudent risk positions. Limit structures are dealing parameters, not target figures for bonus-driven brinkmanship. Global product limits must be set by top management and in turn allocated regionally by the global product heads.

Frontline responsibilities, rules and models notwithstanding, the complexity of today's trading operations requires that daily performance figures are looked at in an informed, critical way by senior risk managers. Ideally, they should be independent, also of
risk control, report directly to top management and have a background in markets and trading operations themselves. They will cover any aspect from the plausibility of risk numbers to trading patterns and performance versus markets trends, or different kinds of swings in income figures—a mark-to-market loss in a government bonds/futures arbitrage position is, for example, rather different from a loss associated with a trader who got the market wrong and has closed his position. Among the key concerns of risk managers are the liquidity of specific market segments under specific circumstances and, generally, the acceptability of assumptions made in value-at-risk and similar formulas.

**Primary Markets Risk**

Risk management patterns must be different on the capital markets side, given the deal-driven nature of the business. Underwriting risks are the main concern here. Clear policies and limit structures—also with regard to warehousing risk and inventory control—are imperative here.

**Trading Risk: Quantitative Risk Control**

Day-to-day responsibility for the quantitative monitoring, measurement and evaluation of trading risk should lie with a risk control function which is independent of the business units and trading areas where risks are being generated. It requires global online IT systems support and experienced controller staff, who translate the daily data inflow into a meaningful risk position picture as a basis for the daily work of the risk managers on the one hand and for the information of management on the other hand. For a globally operating bank this means the daily collection and aggregation of all trading activities in hundreds of products in money markets, foreign exchange, fixed income, equities and their respective derivatives in several dozen countries. The aggregation and evaluation of these figures culminates in daily performance reports to the senior trading and risk managers, and a comprehensive weekly risk and performance report to the top management.
Product Quality Control

Risk control should also be responsible for the screening and approval of new products. This entails ensuring that legal and operations departments (settlement) have cleared the products before they are being used internally or marketed to customers. Written product description, in particular of more complex derivative products to private investors, is also becoming a feature, driven by product liability standards in some countries. The profusion of exotic and complex products for the sake of complexity is a thing of the past, however. In today’s more mature markets the focus of leading derivatives houses and their customers is on the problem-solving capacity of derivatives products, on greater transparency and on suitability.

Quantitative Models

The increase in volumes, types of instruments and trading sophistication in the market place has been paralleled by the growing complexity of the quantitative models used in risk management to evaluate the risk position of a trading desk, trading entities and the overall firm. The suitability of models for practical purposes requires that they are comprehensive and comprehensible. This is not impossible. Even complex techniques for measuring market risks can be presented in simple terms. Management must be able to get an overall risk profile of the firm at any given moment.

Still, all models have their limitations. Top management should not fool itself that simply by having good models everything is under control. It is important that management understand and question the key assumptions put into these models as well as into those often assuringly produced stress tests, in particular with regard to the definitions of stress and event risk. Even more important is the backtesting against actual performance. Again, the importance of key factors like the liquidity of specific market segments under extraordinary, but not altogether unlikely circumstances cannot be overemphasized. A potential for problems lies in bonus-driven staff that are long on qualifications but short on crisis experience.
With regard to the increasing flood of data, management and supervisors must be aware that just gathering and analysing ever more data will not give them a better knowledge about the underlying operations. A different but important aspect is the increasing cost of data management: they deepen the divide between the large and the smaller market participants, since only the large ones can afford the cost of complying both with prudent management practices and the increasingly complex regulatory requirements.

**Affiliated Risk: Operational and Legal Risk**

Key areas of operational risk are systems security and safety. The need to have comprehensive back-up procedures for all systems supporting trading and risk management activities in place has been amply demonstrated by various disasters over the last few years.

The management of legal risk must, in particular, be concerned with the application of master agreements and the risk of their absence or unenforceability, as well as with product liability safeguards.

**Internal and External Audit**

The whole process must be subject to internal and external audit. External auditors are required by German banking regulations to devote a substantial portion of their annual audit report to the effectiveness of internal control systems. They have to report in detail on the bank's trading operations, credit risk management, market risk measurement and risk management procedures, organizational structures like strict separation of trading and settlement functions, and the management of other risks such as liquidity, legal and operational risk.

Let me emphasize here that an internationalization and harmonization of audit standards for the external review of risk management processes would be highly desirable and a major step forward towards more transparent and therefore safer trading markets. The same is true for accounting standards.
New Challenges

Innovations in financial markets will continuously challenge existing risk management systems. It follows that risk management will have to develop as dynamically as the financial markets. There is no saturation point in sight.

On the other hand the ever more sophisticated refinement of risk management practices could become an illusory concept if we would not concern ourselves with the question of where the increasing pressures for more risk-taking stem from in the first place. Let me therefore move to these issues—if in a rather condensed fashion only.
III. External Risk Pressures

Thanks to the efforts of the BIS, the Group of Thirty and others, there is now broad agreement about sound risk managing policies, procedures and controls. We are, however, not sure that all market players have implemented these processes. There is considerable concern that second–league firms still have a long way to go in this respect.

New Market Entrants

Perhaps even more critical is the situation with regard to the fast growing number of totally unregulated new market entrants. The fact that the regulated sector of the financial markets may be well on its way to a professionalized and relatively accident–immune operating pattern is of limited comfort if we take into account that the by far larger parts of the financial markets are operating outside banking regulation and supervision. A study published by Price Waterhouse states that three–quarters of corporates surveyed are actively working with derivatives, but only a fraction of them have adequate accounting, settlement and control systems in place. This is one of the avenues through which systemic risk might infest the market place.
Systemic Risk

Seeing a responsibility and a self-interest in the soundness of our market place, we distributed the Group of Thirty Guidelines to our corporate clients when they were published. More recently, some of the derivatives market leaders have begun to commercialize their customer advisory services on systems and controls. The overall situation does require a more comprehensive answer, however. In the view of many of us in the private sector this answer is not more regulation but better functioning markets and a functional adjustment of financial regulation and supervision to the globalized markets. The concept of a lead regulator—cross industry, transnational—is being widely discussed, also among members of this distinguished forum, and I would only express the hope that progress will be made on this front soon.

The markets themselves have already taken to corrective actions, to some extent backed-up and supported by regulators and supervisors. The key remedies are disclosure, collateralization, netting and real-time settlement.

Disclosure, Collateralization, Netting, Settlement

With regard to disclosure, deficits continue to exist. Times are gone when, e.g., the interbank markets were built and could rely on information available from relevant financial statements (and discreet but vigilant mutual observation of market conduct). The recent BIS efforts to improve the transparency of activities in the derivative markets must be welcomed. If more of the information available to the supervisors would be available to the markets, the coercion of market forces could work more efficiently in restricting undue risk taking than restrictive regulation can.

Collateralization with daily mark-to-market valuation has already become a major trend in some market sectors. This process could be pushed further by setting lower capital requirements for collateralized business. In the end this is just an extension of the old-established banking principle that banks should only deal with counterparties of whose soundness and solvency they have been able to convince themselves or otherwise only on a fully-collateralized basis. An
additional benefit of collateralization is that it focuses on valuation and hence promotes transparency.

Similarly, netting procedures, which are by now generally well-established, but which continue to face obstacles in a number of jurisdictions, should be supported and promoted by regulators and supervisors in order to strengthen their legal underpinnings.

Last but not least, the real-time settlement of foreign exchange transactions (the biggest volume business in the world of finance) and rapid settlement of securities transactions are goals on which various private sector groups have been working and making progress. The promotion and installation of these proposed processes and clearing houses will go a long way to make the markets a safer place. The necessity of such an approach has been highlighted by the recent report of the BIS committee on settlement risk in foreign exchange transactions.

One should beware of the notion, however, that such measures could be a panacea for all problems. If we take settlement procedures, for example, we must realize that the proposed establishing of clearing houses will certainly improve the risk situation with regard to a majority number of smaller market participants. A result, however, is going to be the further levelling of playing fields, followed by the commoditization of further products and services and thus the evaporation of profits. This in turn will encourage the search for new, more profitable activities.

**Risk Pressure from Overcapacities**

This leads us to the ultimate problem we face in the financial markets, the existence of overcapacities in search for profits. In a nutshell, what is wrong with these markets is that they are easily accessible as a consequence of world-wide liberalization, but that this liberalization has failed to also open exit doors. This is why the markets are becoming more crowded and the search for profits more frenzied under the regime of efficient performance measurement.

This brings us back to the issue of risk-adjusted returns on capital. As I have indicated with regard to project finance and syndicated loans, the pricing of products in terms of their risks is
not even an issue in many sectors since banks would just price
themselves out of the market. Prices are competitively determined
by market pressures and banks cover the costs of unprofitable
operations by cross-subsidizing them through other income from
less competitive markets—in many cases a low-cost domestic deposit
base.

The lesson here is that only deregulation of and equal competitive
pressures in all banking markets will force banks to compete in all
markets on a risk-adjusted price basis. Without the possibility to
cross-subsidize, prices in high risk segments would have to go up,
Margins in low-risk segments would go down, which is of course
a trend anyway. But, as matters stand, the natural market selection
process, the exit of inefficient and therefore unprofitable firms, is
not allowed to work properly in the banking industry. As a matter
of public policy, it is blocked by too-big-to-fail doctrines and
deposit insurance concepts. A striking exception has been the United
States where the rationalization of overcapacities via mergers and
acquisitions has shown a way not open to banking industries in
other countries beset by similar problems.

Banking regulation and supervision in many countries seem to
have been guided by the primary aim to maintain the stability of
their banking system, the price being inherently unprofitable
overcapacities in search of profits, i.e. new or higher risk. There has
also been too much reliance on quantitative, mechanistic approaches.
The greatest challenge for both banking supervisors and bank managers
will be to deal with complex issues on a more qualitative basis.
Overall quality of management of financial firms, while the most
difficult criterion to assess, must become a core concern.

Solutions: Policy Issues
What alternatives do exist? It would go beyond my mandate to
discuss issues like deposit insurance and concepts such as "narrow
banking" here. Let me just suspect that the latter might put the
small deposit business into a kind of protected reservation of limited
market efficiency. It is difficult to see, however, what it would
contribute to the broader issue of the kind and degree of stability to be desired in the much larger international financial markets.

Assuming the continued prevalence of too-big-to-fail doctrines, the spreading of risks by way of diversification appears to be an answer to let banks find a way out of the quagmire they are in. Related to this issue is the concept of firewalls. There are pros and cons here; but the concept, where it has been applied, has not demonstrated an inherent superiority. The key to safe and sound banking is prudent and capable management; it should not be replaced by or forced into regulatory straight jackets. The ability of financial institutions to exit commoditized markets and diversify into more profitable businesses should be enhanced rather than suppressed.

The restrictions on banks' activities in many jurisdictions are at the core of the problems of our industry. That no major bank has been allowed to fail in many years has worked to stabilize the international financial system. But it has also eliminated a basic market mechanism to do away with overcapacities which are the key reason for undue risk-taking in search of profits—a vicious self-defeating circle. A major rationalization in the international banking industry, driven as it is by overcapacities, depressed profitability and increasing operating cost, foremost in the IT sector, appears unavoidable. Our concern, I should like to suggest, should therefore be to orderly open the floodgates, not to keep them closed until the dam is broken.
Presentation by Alan Greenspan

I. Introduction

I am honored to present the William Taylor Memorial Lecture to such a distinguished group of senior bank supervisors from around the world. I am especially delighted to have with us Bill’s wife, Sharon, and daughter, Claire. This visit gives them the opportunity to meet more of Bill’s colleagues and to appreciate, once again, the great importance of the work he did.

Those of you who had the opportunity to know Bill can recall him as a dedicated bank supervisor and an outstanding public servant. We in the United States were certainly fortunate to have had him lead our bank supervisory functions at the Federal Reserve and the FDIC while the U.S. banking system was experiencing quite difficult times. To me, no individual displayed the characteristics necessary for a successful senior bank supervisor better than Bill Taylor. Well known for this integrity, tenacity, and professional dedication, Bill demanded the best from himself and from those around him. He understood that a safe and sound banking system was essential to a healthy market system, and he was committed to maintaining such a system.

His contributions extended outside the United States and into the efforts of the Basle Committee on Banking Supervision and beyond. Indeed, he—as much as anyone—recognized that the changes occurring in our international banking system
increased the importance of supervisors from around the world communicating and working together. It is most fitting, therefore, that we remember him at this conference.
II. A Period of Change

The dual themes of this year's conference of cross-border banking and qualitative supervision are highly relevant to our responsibilities as bank supervisors in a world economy that is becoming increasingly integrated and complex. Banking has become more sophisticated; the volume of transactions has multiplied; and competitive pressures have grown. These developments reflect the increased efficiency of financial markets worldwide, which have helped to bring about expanded international trade and economic growth.

However, by strengthening the interdependencies among markets and market participants, they may also have increased the potential for significant, adverse events to spread quickly to other markets. As bank supervisors, we must deal with both the positive and the potentially negative effects of rapid innovation and change. We should also take the opportunity that change provides to promote sound risk management practices within our banking systems. Meeting these challenges will be a daunting task.

During my comments this evening I will suggest ways supervisors can address these challenges and prepare for undoubtedly greater changes in the years to come. First, though, I would like to discuss the interaction of governments and central
banks with private commercial banks in free economies in terms of risk-sharing. By articulating and understanding that relationship, we may have a better framework for considering how to supervise and regulate our financial institutions.
III. A Leveraged Banking System

In addressing these issues it is important to remember that many of the benefits banks provide modern societies derive from their willingness to take risks and from their use of a relatively high degree of financial leverage. Through leverage, in the form principally of taking deposits, banks perform a critical role in the financial intermediation process, providing savers with additional investment choices and borrowers with a greater range of sources of credit, thereby facilitating a more efficient allocation of resources and contributing importantly to greater economic growth. Indeed, it was the evident value of intermediation and leverage that has shaped the development of our financial systems from the earliest times—certainly since Renaissance goldsmiths discovered that lending out deposited gold was feasible and profitable. Stockholm, itself, recognized the value of intermediation with the founding of the Riksbank more than 300 years ago as a private institution.

Of course, this same leverage and risk-taking also greatly increases the possibility of bank failure. Indeed, without leverage, losses from risk-taking would be absorbed by the bank’s owners, virtually eliminating the chance that the bank would be unable to meet its obligations in a “failure.” Some failures can be of a bank’s own making, resulting, for example, from poor credit judgements. For the most part, these failures are a normal and important part of the
market process and provide discipline and information to other participants regarding the level of business risks. Other failures can result from, and contribute to, the rare episodes of severe economic or market turmoil that affects broad segments of an economy and is not the consequence of the imprudence of individual banks. Because of the important roles banks and other financial intermediaries play in our financial systems, such failures could have large ripple effects that spread throughout business and financial markets at great costs.
IV. The Distribution of Risks

Over time, societies concluded that leverage and intermediation were essential to economic performance, but also that some bank failures could have unacceptable economic costs. In response, central banks were created and were accorded new responsibilities, and what we now call prudential regulation evolved. In the United States, these initiatives took the shape of the creation of the Federal Reserve in 1913 after several financial panics in the late 19th and early 20th centuries, and of federal deposit insurance and a broadened role for bank supervisors in the 1930's. While the responses in other countries were often less overt, they were generally still significant in their effects.

This expanded role of governments, central banks, and bank supervisors implies a complex approach to managing and even sharing the risks of failure between governments and privately owned banks. Some of what central banks do might be termed "shaping" or reducing some kinds of risks, primarily by providing liquidity in certain situations to reduce the odds of extreme market outcomes, in which uncertainty feeds market panics. Traditionally this was accomplished by making discount or Lombard facilities available, so that depositories could turn illiquid assets into liquid resources and not exacerbate unsettled market conditions by selling such assets or calling loans. Similarly, open market operations, in
situations like that which followed the 1987 stock market crash, satisfy increased needs for liquidity that otherwise could feed cumulative, self-reinforcing, contractions across many financial markets.

But guarding against systemic problems also has involved, on very rare occasions, an element of more overt risk-sharing, in which the government—or more accurately the taxpayer—is potentially asked to bear some of the cost of failure. Activating such risk-sharing quite appropriately occurs at most maybe two or three times a century. The willingness to do so arises from society’s judgment that some bank failures may have serious adverse effects on the entire economy and that requiring banks to carry enough capital to avoid any risk of failure under any circumstances itself would have unacceptable costs in terms of reduced intermediation.

If banks had to absorb all financial risk, then the degree to which they could leverage, of necessity, would be limited, and their contribution to economic growth, modest. Risk-sharing encourages leverage and intermediation. Eliminating risk-sharing and asking banks to remove the possibility of failure would lead to a much smaller banking system. To attract, or at least retain equity capital, a private financial institution must earn at a minimum the overall economy’s rate of return, adjusted for risk. The rate of return banks would need in order to compete for a large amount of extra equity capital would seriously constrain the assets they could hold. In their management of market or credit risk, well-run banks carefully consider potential losses from most possible market outcomes and hold sufficient capital to protect themselves from all but the most extreme situations. But banks and other private businesses recognize that to be safe against all possible risks implies a level of capital on which it would be difficult, if not impossible, to earn a competitive rate of return.

On the other hand, if central banks or governments effectively insulate private institutions from the largest potential losses, however incurred, increased laxity could be costly to society as well. Leverage would escalate to the outer edge of prudence, if not beyond. Lenders to banks (as well as their owners or managers) would learn to anticipate central bank or government intervention and would become
less responsible, perhaps reckless, in their practices. Such laxity would hold the potential of a major call on taxpayers. And central banks would risk inflationary instabilities from excess money creation if they acted too readily and too often to head off possible market turmoil.

In practice, the policy choice of how much, if any, of the extreme market risk government authorities should absorb is fraught with many complexities. Yet we central bankers make this decision every day, either explicitly or by default. Moreover, we can never know for sure whether the decisions we made were appropriate. The question, though, is not whether our actions to support entire financial systems or to require major changes at specific institutions are seen to have been necessary in retrospect. The absence of a fire does not mean that we should not have paid for fire insurance. Rather, the question is whether, ex ante, the probability of a systemic collapse was sufficient to warrant intervention. Often, we cannot wait to see whether, in hindsight, the problem will be judged to have been an isolated event and largely benign.
V. Supervisory Approach

Thus, governments have been given certain responsibilities related to their banking and financial systems that must be balanced. We have the responsibility to prevent major financial market disruptions through development and enforcement of prudent regulatory standards and, if necessary in rare circumstances, through direct intervention in market events. But we also have the responsibility to assure that private sector institutions have the capacity to take prudent and appropriate risks, even though such risks will sometimes result in bank losses or even bank failures.

Providing institutions with the flexibility that may lead to failure is as important as permitting them the opportunity to succeed. By its nature, all business investment is risky. The role of banks to assist in the financing of such risk thus implies the taking of risk by the bank itself. Indeed, this is the economic role of banking in a market economy. The purpose of risk management is not to eliminate risk, but to manage it in a prudent manner.

Our goal as supervisors, therefore, should not be to prevent all bank failures, but to maintain sufficient prudential standards so that banking problems do not become widespread. We try to achieve the proper balance through official regulations, formal and informal supervisory policies and procedures.
To some extent, we do this over time by signalling to the market, through our actions, the kinds of circumstances in which we might be willing to intervene to quell financial turmoil, and conversely, what levels of difficulties we expect private institutions to resolve by themselves. The market, then, responds by adjusting the cost of capital to banks. Throughout most of this century, we have made our decisions largely in a domestic context. However, in recent decades that situation has changed markedly for many countries and is rapidly changing for all.

With financial instruments and markets becoming more complex and closely linked, it is essential that bank supervisors around the globe get to know and trust one another and communicate openly, as necessary, when banking problems and potential crises emerge. In recognition of such common interests, major industrial countries have worked together for years through the Basle Committee on Banking Supervision. Conferences like this one also clearly help advance the goal of interaction. International coordinating and educational efforts doubtless also help supervisors cope with the growing complexity of supervisory matters by providing them with a forum for dealing with issues of mutual interest and concern. The Caribbean Banking Supervisors Group, the SEANZA Forum of Banking Supervisors, and other regional associations of bank supervisors in the Middle East, Africa, and elsewhere help to move us in the right direction.

We have also made—and continue to make—significant progress in developing prudent international supervisory standards that are both quantitative and qualitative in nature. Bill Taylor played a critical role in crafting and negotiating the Basle Accord of 1988 for credit risk that helped greatly to strengthen capital standards worldwide and to provide a more equitable basis for international competition. More recently, the internal models approach for measuring market risks in trading activities, adopted by the Basle Committee late last year, builds upon that framework and may illustrate how supervisory rules and practices can evolve.

As financial markets change, supervision must be prepared to adjust. We have to adapt continuously to changing technologies, changing bank practices and changing market forces. Supervision is
an ever-evolving process. We must be careful, however, not to alter our modalities too often for fear of creating supervisory uncertainty. To maintain a proper balance in the years ahead will be one of our greatest challenges.

The decision to craft a bank's capital requirements for trading activities around accepted and verifiable internal risk measures was an important step in the supervision and regulation of large, internationally active banks. It is all the more noteworthy because it recognizes the importance of both quantitative and qualitative criteria in the measurement and management of trading risks. As risk management techniques evolve for other bank activities, supervisors will need to understand the new procedures and how they affect overall banking risks.

Time and again, though, events are demonstrating that despite the complexity of transactions and the alleged sophistication of management systems, it is poor qualitative factors—that is, the lack of basic policies and controls—that so often undermine banks. Fortunately, in many cases the technology that has enabled institutions to design complex new products also provides the techniques with which the resulting risks can be identified, measured and controlled. Management also must have the knowledge and motivation to employ these techniques to ensure that the risks are adequately contained. We must never forget that no matter how technologically complex our supervisory systems become, the basic unit of supervision on which all else rests remains the human judgment of the degree of risk on a specific loan, based on the creditworthiness and character of a borrower. If those credit judgments are persistently flawed, no degree of complexity of supposed risk dispersion or elegance of credit models will help.

As the Barings and other episodes illustrate, proper controls include such basic elements as adequate management oversight and separation of duties. Those of us who supervise banks with worldwide operations must recognize that, with today's telecommunications, management must extend its policies, procedures and controls to all offices that have the ability to take risks. In this respect, coordination and cooperation between home and host countries become not only
important, but essential in maintaining financially sound institutions and financial markets.

Within the United States, the Federal Reserve and other bank supervisors are placing growing importance on a bank's risk management process and are strengthening our supervisory procedures, where necessary, to assist examiners in identifying management weaknesses and strengths. We are also working to develop supervisory tools and techniques that utilize available technology and that help supervisors perform their duties with less disruption to banks. These improvements range from software designed to download data about a bank's loan portfolio to an examiner's personal computer, to simply more thoughtful reviews of internal management reports. Such automation enhancements will permit examiners themselves to analyze more efficiently the various concentrations within loan or investment portfolios and, therefore, help them to identify the underlying risks and discuss those risks with bank management.

Countries in which supervisors conduct on-site examinations or otherwise review specific loans or loan portfolios may find such technology particularly useful. Within the United States, the growing volume and complexity of transactions, particularly at the largest institutions, is requiring such productivity enhancements and other modifications to our supervisory procedures. For example, rather than evaluate a high percentage of a bank's loans and investment products by reviewing individual transactions, we will increasingly seek to ensure that the management process itself is sound, and that adequate policies and controls exist. While still important, the amount of transaction testing, especially at large banks, will decline.

However, supervisors everywhere should expect bank boards of directors and senior managements to perform their leadership and oversight roles. By themselves supervisors cannot expect to detect or prevent every unsound practice, nor to ensure that all weak management processes are improved. We can expect our banking systems to be sound only by ensuring that directors and managers provide guidance regarding their appetite for risk; that they bring to the bank personnel with the integrity and skills to do the job; and that they monitor compliance with their own directives.
Encouraging and promoting sound qualitative risk management and internal controls has been and should remain a high priority of bank supervisors. Indeed, it is as important, in my view, as the development of quantitative prudential standards.
VI. Conclusion

Thus, despite all the changes and innovations, commercial banking remains a business largely of extending credit and managing the related risks. To prosper, bankers must be risk-takers, but risk-takers to an appropriate degree. Banking is special in all of our countries because of its role in financial intermediation. Accordingly, the industry has been given important privileges, including the direct or implicit support of a national safety net in most countries that effectively protects it from the most severe economic events. If relied on too heavily, however, that safety net can be abused by banks, which then become undercapitalized and too willing to take on inappropriate risk.

In the decades ahead, supervisors will have to adjust to growing technologies and increasingly sophisticated markets. A generation ago a month-old bank balance sheet was a reasonable approximation of the current state of an institution. Today, for some banks, day-old balance sheets are on the edge of obsolescence. In the 21st century that will be true of most banks.

Future supervision will of necessity have to rely far more on a bank's risk management information system to protect against loss. We supervisors will be appreciably more involved in evaluating individual bank risk management processes, than after-the-fact results. In doing so, however, we must be assured that with rare and circumscribed exceptions we do not substitute supervisory judgments for management decisions. That is the road to moral hazard and
inefficient bank management. Fortunately, the same technology and innovation that is driving supervisors to focus on management processes will, through the development of sophisticated market structures and responses, do much of our job of ensuring safety and soundness. We should be careful not to impede the process.

Bank supervisors play an important role in encouraging the proper balance of risk-taking by developing prudent standards and enforcing sound practices at banks. Bill Taylor understood that role and worked vigorously to address the weaknesses he saw. The approach we take will convey our views regarding to what extent governments will share banking risks and how much responsibility rests with banks. In a global financial system, the choices we make will clearly have widespread effects.
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Latin American Capital Flows Study Group. 1994

Defining the Roles of Accountants, Bankers and
Regulators in the United States
Study Group on Accountants, Bankers and Regulators. 1994

EMU After Maastricht
Peter B. Kenen. 1992

Sea Changes in Latin America
Pedro Aspe, Andres Bianchi and Domingo Cavallo, with discussion by
S.T. Beza and William Rhodes. 1992

The Summit Process and Collective Security:
Future Responsibility Sharing
The Summit Reform Study Group. 1991

Financing Eastern Europe
Richard A. Debs, Harvey Shapiro and Charles Taylor. 1991

The Risks Facing the World Economy
The Risks Facing the World Economy Study Group. 1991

Perestroika: A Sustainable Process for Change
John P. Hardt and Sheila N. Heslin, with commentary by
Oleg Bogomolov. 1989
International Macroeconomic Policy Co-ordination
Policy Co-ordination Study Group. 1988

The William Taylor Memorial Lectures

The Financial Disruptions of the 1980s:
A Central Banker Looks Back
E. Gerald Corrigan. 1993

Special Reports:

Derivatives: Practices and Principles: Follow-up
Surveys of Industry Practice
Global Derivatives Study Group. 1994

Derivatives: Practices and Principles, Appendix III:
Survey of Industry Practice
Global Derivatives Study Group. 1994

Derivatives: Practices and Principles, Appendix II:
Legal Enforceability: Survey of Nine Jurisdictions
Global Derivatives Study Group. 1993

Derivatives: Practices and Principles, Appendix I:
Working Papers
Global Derivatives Study Group. 1993

Derivatives: Practices and Principles
Global Derivatives Study Group. 1993

Clearance and Settlement Systems: Status Reports,
Autumn 1992
Various Authors. 1992

Clearance and Settlement Systems: Status Reports,
Year-End 1990
Various Authors. 1991

Conference on Clearance and Settlement Systems;
London, March 1990: Speeches
Various Authors. 1990

Clearance and Settlement Systems: Status Reports,
Spring 1990
Various Authors. 1990
Clearance and Settlement Systems in the World’s Securities Markets
Steering & Working Committees of the Securities Clearance and Settlement Study. 1988

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