

Environmental Risk Assessment in Financial Institutions

by

Mollye A. Wolahan
Bachelor of Arts, 1990
Bowdoin College

Submitted to the Department of Urban Studies and Planning and the Department of Architecture
In Partial Fulfillment of the Requirements for the Degrees of

Master in City Planning

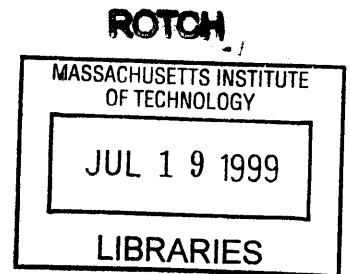
and

Master of Science in Real Estate Development

at the

Massachusetts Institute of Technology
June 1999

© 1999 Massachusetts Institute of Technology
All rights reserved



Signature of Author:

Mollye A. Wolahan
Department of Urban Studies and Planning
Department of Architecture
May 20, 1999

Certified by:

Lawrence S. Bacow
Lawrence S. Bacow
Chancellor
Lee and Geraldine Martin Professor of Environmental Studies
Thesis Supervisor

Accepted by:

Paul Smoke
Paul Smoke
Associate Professor of the Practice of Development Planning
Chair, Master in City Planning Committee

Accepted by:

William C. Wheaton
William C. Wheaton
Chairman, Interdepartmental Degree Program in Real Estate Development

Environmental Risk Assessment in Financial Institutions

by

Mollye A. Wolahan

Submitted to the Department of Urban Studies and Planning and the Department of Architecture on May 20, 1999 in Partial Fulfillment of the Requirements for the Degrees of Master in City Planning and Master of Science in Real Estate Development

ABSTRACT

Have the environmental risk assessment policies and procedures instituted by banks been successful in promoting the welfare of the environment? Have these policies and procedures succeeded in protecting banks from environment related liability? This thesis examines the impact of environmental risk management processes on the lending practices of banks. It also evaluates the success of these processes in achieving the goals for which they were implemented.

In underwriting environmental risk, financial institutions are primarily concerned with the degree to which they are exposed to liability for the cleanup of a collateralized property. Through this thesis research, it was found that bank lending practices do not address issues of environmental sustainability, such as product and building design, and air and land quality. These issues of environmental sustainability are indirect factors that are not given much weight by the banks since banks are concerned about the direct risk factor of liability.

There are three reasons why the lending policies of banks are narrowly focused on direct liability risks: (1) the creation of unlimited liability for banks by federal legislation (2) the focus of banking regulations on this liability and (3) the short time frame that banks use in their credit models. The findings of this research show that banks still have significant sources of direct environmental risk.

The regulatory system that has defined the environmental risk factors for banks has proven itself inefficient. Based on the cases presented in this thesis, banks have not decreased the contamination of the properties held in the portfolios. The banks have responded to this regulatory environment by insulating themselves against liability risk. The regulatory environment has created a dead-weight loss to the banking system, where the banks incur costs for addressing environmental liability risk, yet there is little increased benefit to society.

A question that arises in reviewing these findings is: if banks are afraid to lend to environmentally contaminated properties because of liability concerns, why haven't other players stepped in fill this void by charging more to the borrowers of these potentially contaminated sites? Other areas of the economy have segmented in reaction to this type of market failure. For example, there is a lending market that targets homeowners who need credit but who have poor credit histories. Why does the market for high-risk environmental loans remain undifferentiated? While the limits of this study preclude offering a comprehensive answer to this question, the initial findings of this study do provide insight and guidelines for further research.

Thesis Supervisor: Lawrence S. Bacow

Title: Chancellor, Lee and Geraldine Martin Professor of Environmental Studies

<u>INTRODUCTION</u>	5
OVERVIEW OF FINDINGS:	6
RESEARCH METHODOLOGY:	7
<u>CHAPTER 1: THE REGULATORY ENVIRONMENT</u>	10
FEDERAL ENVIRONMENTAL LEGISLATION:	10
FEDERAL BANKING REGULATIONS:	13
<u>CHAPTER 2: BANKING ENVIRONMENTAL RISK PROGRAMS</u>	16
TYPICAL ENVIRONMENTAL RISK PROGRAM:	16
ENVIRONMENTAL DUE DILIGENCE PROCEDURES:	18
<u>CHAPTER 3: RISK MODELS AND AGENCY ISSUES</u>	23
CREDIT RISK MODEL:	23
CATEGORIES OF RISK:	24
RISK MANAGEMENT:	25
AGENCY ISSUES:	26
<u>CHAPTER 4: BANK POLICES TRANSLATED INTO ACTIONS</u>	30
THE ROLE OF THE LOAN OFFICERS VERSUS THE ERM:	30
ENVIRONMENTAL ASSESSMENTS FOR COLLATERAL VS. BUSINESS RISK:	32
STRUCTURE OF LOANS WITH ENVIRONMENTAL ISSUES:	33
ON GOING MONITORING:	35
ENVIRONMENTAL EVALUATION IN LOANS RENEWALS:	35
STRESS BETWEEN LOAN OFFICERS AND ERM:	37
<u>CHAPTER 5: WHY IS THERE A MARKET FAILURE AND OTHER UNANSWERED QUESTIONS</u>	39
LIMITS OF THE ORGANIZATIONAL STRUCTURE OF THE BANKS:	39
AGENCY ISSUES AND CERCLA:	41
WHY DOES THE UNDIFFERENTIATED MARKET CONTINUE?	42
CONCLUSION:	43
<u>ATTACHMENT A: EXAMPLE LIST OF HIGH RISK PROPERTY USES</u>	44

<u>ATTACHMENT B: CASES</u>	46
CRANE RENTAL COMPANY:	46
ASPHALT MANUFACTURER:	48
WOOD PRODUCT MANUFACTURER:	50
<u>BIBLIOGRAPHY</u>	52

Environmental Risk Assessment in Financial Institutions

Introduction

Have the environmental risk assessment policies and procedures instituted by banks been successful in promoting the welfare of the environment? Have these policies and procedures succeeded in protecting banks from environment related liability? This paper examines the impact of environmental risk management processes on the lending practices of banks. It also evaluates the success of these processes in achieving the goals for which they were implemented.

Why look to banks to promote environmental welfare or sustainability within industry? Because banks are the significant source of capital for US businesses, many academics and environmental organizations are looking to these financial institutions to take a more active role in promoting the health of the environment and sustainability.

This research began with the assumption that the lending practices of banks were designed to avoid three types of environmental risks: (1) risk of contamination of property held as collateral for loans, (2) risk of restrictions on use of property due to environmental hazards and (3) risk to borrowers posed by changes in consumer preference or environmental legislation that might impair cash flows. This research found that banks define environmental risks differently than either academics or environmental organizations. Hence, these assumptions proved wrong.

In underwriting environmental risk, financial institutions are primarily concerned with the degree to which they are exposed to liability for the cleanup of a collateralized property. Based on this research, bank lending practices do not appear to address issues of environmental sustainability, such as product and building design, and air and land

quality. These indicators of environmental sustainability are not given much weight by banks since banks are principally concerned about the direct risk of liability.

There are three reasons why the lending policies of banks are narrowly focused on direct liability risks: (1) the creation of unlimited liability for banks by federal legislation (2) the focus of banking regulations on this liability and (3) the short time frame that banks use in their credit models. The findings of this research show that banks still have significant sources of direct environmental risk.

Overview of Findings:

This paper will argue that this myopic view of environmental risk has led to an inefficient market, resulting in under-lending to firms with environmental issues. Moreover current risk management practices have not been successful in reducing the number of contaminated properties in bank portfolios.

Ultimately, US financial institutions are concerned with creating prudent lending practices and not issues concerning the welfare of the environment. US federal regulations have focused banks on the risk associated with land-based credit transactions. The focus on this risk precludes lending institutions from thinking about the environment in terms of sustainability. As one lender states, “with debt, the benefit of improved environmental performance rests primarily in the reduction of risk. There may be no tangible added benefit of improving environmental performance beyond the level required to reasonably satisfy the repayment terms.” This thesis will show that lenders have baseline environmental requirements and standards that their borrowers must fulfill. Banks gain no benefit if the borrower exceeds these standard requirements. This raises

the question of why this sector of the capital market has been able to serve clients that have increased environmental risk.¹

Chapter 1 provides an overview of the federal environmental legislation and banking regulations that have led banks to focus on the issue of environmental liability. Chapter 2 discusses the environmental risk programs instituted by banks in response to this regulatory environment. Chapter 3 describes how environmental risk is placed into the existing credit and risk models of banks, limiting the number of loans made to borrowers with environmental risk. Chapter 4 uses case examples to demonstrate the failure of the regulatory system where banks are limiting liability risk but not reducing the contamination of properties. Chapter 5 concludes the paper with a discussion of the market failures that exist under this environmental regulatory system.

Research Methodology:

The research for this thesis is based on thirty-eight hours of unstructured interviews with bank loan officers, legal counsel, and environmental risk managers as well as federal bank regulators and bank lobby organizations. In total, thirty-five people were interviewed. Follow up research was conducted using bank files to create the cases to illustrate the main points of this research. A literature review was undertaken in tandem with this primary research effort. This study included six New England-based banks ranging in asset size from \$450 million to \$100 billion and three national/international banks with assets over \$500 billion. The tables below provide an overview of the banks and agencies interviewed for this study.

¹ Evan Henry, "A Lenders Perspective on Environmental Performance Indicators in Financial Transactions," (Presented to the Delange Woodlands Conference: Sustainable Development Managing the Transition, Rice University, Houston, TX, March 5, 1997.

Bank Asset Size	Regional Focus	ERM Staff Interviewed	Number of Loan Real Estate Loan Officers Interviewed	Number of non-real estate loan officers interviewed	Number of Executives Interviewed	Total number of hours spent with each bank
\$6 billion	Eastern Massachusetts	1, Vice President Environmental Risk Management	5	2, Asset Based Lending Group	1	10
\$450 million	Eastern Massachusetts	0	0	1, General Lender	1	2
\$100 billion	New England	1, Environmental Risk Manager	1	0	1	3
\$75 billion	National/International	1, Environmental Risk Manager	3	0	3	9
\$16 billion	Boston and Southern New England	2, Environmental Risk Managers	4	1, Health Care and Non-Profit Lending	1	8
\$620 billion	National/International	1, Senior Vice President Environmental Services	0	0	0	1
\$670 billion	National/International	1, Senior and Chief Environmental Officer	0	0	0	1
	Totals	7	13	4	7	34

Agencies Interviewed
FDIC
Massachusetts Bankers Association
American Bankers Association (ABA)
Environmental Bankers Association (EBA) /RTM Consultants

The focus on mid-size and large banks in the New England area is the main limitation of this data. The banks that agreed to be part of this research effort were banks that had flexible confidentiality policies and were willing to devote time to this research. Many banks refused to be a part of this research effort because it was either the bank policy not to be involved with academic research or the bank had no one to give time to the project.

The case study strategy was employed in this analysis because this topic lends itself “to an empirical inquiry that investigates a contemporary phenomenon within its real-life context [where] the boundaries between phenomenon and context are not clearly evident.”² This case study research was completed in conjunction with the Swiss Federal Institute of Technology as part of a larger project that was addressing similar questions for the Alliance for Global Sustainability. The Alliance for Global Sustainability is an organization of universities, industry and the public sector that collaborate on methods for addressing environmental problems.

² Robert K. Yin, Case Study Research, Design and Methods, (Thousand Oaks, CA: Sage Publications, 1994), p. 13.

Chapter 1: The Regulatory Environment

The following chapter describes the history of federal environmental legislation and the banking regulations that resulted from them. These regulatory conditions have promoted liability prevention as the primary environmental risk concern for banks.

Federal Environmental Legislation:

The banking industry is primarily concerned about the risk of liability for land-based contamination because of Federal and state environmental laws. There are approximately 15 federal and over 200 state environmental laws that can subject lenders to liability.³

Environmental legislation as we know it today began with the enactment of the National Environmental Policy Act and the Council on Environmental Quality in 1969. The Clean Air Act was passed in 1970 and the Clean Water Act in 1972. In 1980, the federal government passed the Resource Conservation and Recovery Act (RCRA), the Toxic Substance Control Act (TSCA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) also known as Superfund.⁴ In an attempt to clarify the original CERCLA legislation, the federal government amended CERCLA in 1986, through the Superfund Amendments and Reauthorization Act (SARA).

The major provision of the CERCLA legislation empowers the Environmental Protection Agency to fund the clean up of hazardous waste sites by identifying the potential responsible parties (PRPs). CERCLA defines liability as retroactive, strict, joint and several. The EPA can pursue PRPs as if they were responsible for the full, original

³ Elizabeth Ward, A Lenders Guide to Developing an Environmental Risk Program (Alexandria, VA: RTM Communications, 1995), p. 5.

⁴ Ibid.

contamination.⁵ PRPs are defined by CERCLA as “(a) the generators of waste (b) transporters of the waste, including those who arrange for transportation; and (c) current or past owners or operators.”⁶ The CERCLA legislation leaves the definition of a PRP intentionally vague so that the EPA can insure there will be a responsible party, other than the federal government, to pay for the clean up of contaminated sites.⁷

Banks and banking regulators did not immediately see CERCLA as a threat. Banks began to react to this legislation when state governments, using CERCLA, began looking to banks as liable parties for hazardous waste cleanup. There were three statutory defenses that banks could use against the liability claims of cleaning up contaminated sites under CERCLA: third-party defense, innocent land-owner defense and the security interest exemption.⁸

The third party defense required that the defendant show the absence of a contractual relationship between the defendant and the third party that caused the contamination. In addition, the bank would have to prove that third party was solely responsible for the contamination.

The SARA legislation in 1986 was designed to clarify the ambiguity that surrounded the term “contractual relationship” with the institution of the innocent land-owner defense. In using the innocent land-owner defense, defendants would have to prove that they “(a) had no reason to know of the property’s contamination, and (b) had

⁵ Michael Olexa, “Contaminated Collateral and Lender Liability: CERCLA and the New Age Banker,” American Journal of Agricultural Economics 73 (December 1991): 1389.

⁶ Ibid.

⁷ David, Parks, Environmental Management for Real Estate Professionals (Published by the Institute of Real Estate Management, 1992), p. 42.

⁸ Michael Olexa, “Contaminated Collateral and Lender Liability: CERCLA and the New Age Banker,” American Journal of Agricultural Economics 73 (December 1991): 1389.

made all appropriate inquiry into the previous uses of the property consistent with good and customary practices in an effort to minimize liability.”⁹

The third defense, the security interest exemption, was the defense most often used by the banks against CERCLA liability. This exemption states that a bank “holding an indicia of ownership to protect its security interest in the facility is exempt from liability as an owner or operator if s/he does not participate in the management of the facility.”¹⁰

In the mid-1980s, three landmark cases in which this third defense proved unsuccessful resulted in panic in the banking industry. In *United States v. Mirabile*¹¹ in 1985, Mellon Bank was found to be an owner and liable for the remediation of a foreclosed site that was contaminated. The court’s finding followed from Mellon Bank having placed a loan officer of the bank within the foreclosed company to help manage its daily business activities¹² In the 1986, *United States v. Maryland Bank and Trust*¹³ case, the court found Maryland Bank and Trust liable for a foreclosed contaminated property, although no one employed by the bank actively participated in the management of the operations. The court found Maryland Bank and Trust liable because they had foreclosed on the contaminated property, then purchased it at foreclosure and held it for a substantial period. In the 1990 *United States v. Fleet Factors Corporation*¹⁴ case, the court increased the definition of owner and operator to include the “capacity to influence business decisions of a debtor corporation.” Fleet Factors, the lender, was found liable

⁹ Ibid., p. 1390.

¹⁰ Ibid.

¹¹ Ibid., *United States v. Mirabile*, [15 Environ. Law Rep. 20994 (E.D.Pa. 1985)].

¹² Ibid.

¹³ Ibid., *United States v. Maryland Bank and Trust* [632 F. Supp. 573 (D. Md. 1986)], p. 1390.

for contamination clean up because, as the case stated, “a secured creditor will be liable if its involvement with the management of the facility is sufficiently broad to support the inference that it could affect hazardous waste disposal decisions if it so chose.”¹⁵

Federal Banking Regulations:

The increasing breadth of responsibility placed on banks through these cases, coupled with the economic down-turn in the real estate market in the late 1980’s and early 1990s, led federal bank regulators to address the issue of environmental liability for the banks. With the worsening economy, banks were foreclosing or considering foreclosing on many properties, thereby increasing their potential for environmental liability. It was during this time that banks, with the guidance of federal regulations, instituted environmental risk policies and procedures.

In 1989, the Office of Thrift Supervision issued Thrift Bulletin 16, “Environmental Risk and Liability: Guidelines on the Development of Protective Policies and Reporting.” Fannie Mae, in 1991 and in 1994, issued “Environmental Assessment Requirements for Properties Securing Loans Insured by Fannie Mae” and “Part X – Environmental Hazards Management Procedures,” respectively.¹⁶ Part X stated that “Fannie Mae requires that lenders take responsible actions to manage the risk of loss from environmental damage and liability [by] (1) having an environmental assessment of the Property performed prior to obtaining a commitment from Fannie Mae and (2)

¹⁴ Ibid., *United States v. Fleet Factors Corporation*, [901 F. 2d 1550 (11th Cir. 1990), aff’g 724 F. Supp. 955 (S. D. Ga. 1989)] p. 1391.

¹⁵ Ibid., p. 1391.

¹⁶ The chronology of federal regulations was taken from: Elizabeth Ward, *A Lenders Guide to Developing an Environmental Risk Program* (Alexandria, VA: RTM Communications, 1995), p. 5.

obtaining ongoing confirmation after Fannie Mae's purchase of the Mortgage that the Borrower is maintaining the Property in compliance with all environmental laws."¹⁷

The Federal Reserve instituted its environmental policy guidance in 1991, entitled "Environmental Liability," which stated that "banking organizations are increasingly becoming exposed to liability associated with the clean up of hazardous substance contamination pursuant to the federal superfund statute and they should have in place adequate safeguards and controls to limit their exposure to potential liability."¹⁸ In 1992, the Office of the Comptroller of the Currency (OCC) produced a "Banking Bulletin" suggesting that "national banks can protect themselves from environmental liability by not participating in the management of properties in which they have a security interest."¹⁹

In 1993, the Federal Deposit Insurance Corporation issued "Guidelines for an Environmental Risk Program" which stated that "a lending institution should have in place appropriate safeguards and controls to limit exposure to potential environmental liability associated with real property held as collateral."²⁰ The FDIC would require a corrective action by a bank if the FDIC found, during an audit, that the bank did not have an environmental risk program in place. ²¹ In 1993, when the FDIC issued these guidelines, most large banks were very aware of the potential for environmental risk, but some smaller banks were not.

¹⁷ Fannie Mae DUS Guide, Part X – Environmental Hazards Procedures, 25 April 1994, p. X-2.

¹⁸ Federal Reserve Bulletin, SR-91-20 (FIS), 11 October 1991, pp. 1-2.

¹⁹ Comptroller of the Currency Administer of National Banks, Banking Bulletin 92-38, Environmental Liability 20 July, 1992, p. 2.

²⁰ FDIC, Guidelines for an Environmental Risk Program, FIL-14-93 (1993), p. 1.

²¹ Interview with Theresa Coggin, FDIC, Boston Office, 8 July 1998.

The goals of the guidelines were (1) to make the banks recognize the need for an environmental risk program and (2) to protect the FDIC from substantial losses. The FDIC provided a general framework that could adapt to any changes in environmental regulation, rather than a detailed prescription for the banks, because the FDIC realized that it did not possess environmental expertise.

Chapter 2: Banking Environmental Risk Programs

The environmental risk policies and programs that are currently in place in the banking industry have arisen from the banks desire to avoid the liability of hazardous waste clean up as dictated by federal superfund legislation. Environmental program guidelines issued by federal regulatory agencies support this narrow liability concern. These environmental policies are not focused on the broader issues of promoting the health of the environment but are based on reducing the banks' financial exposure to the cost of remediating contaminated properties.

Typical Environmental Risk Program:

“In general, officers may not unconditionally commit or fund a loan and work-out specialists may not accept deed-in-lieu, become mortgagee-in-possession, or conduct a foreclosure sale of a property, *if an environmental*, lead-based paint, Title V or asbestos issue has been identified, unless the potential cost of remediation, abatement, upgrade or regulatory compliance has been quantified and factored into the credit decision workout strategy.”²²

Environmental risk programs are a part of the larger risk management processes followed by the banks and are typically administered through an environmental risk management unit. Most banks created the position of environmental risk manager (ERM) in the early 1990s to navigate through the new environmental regulations and to guide the environmental policies of the banks.

Environmental risk management business units vary in size and, based on the banks in this analysis, do not seem to be correlated to the size of the bank. The two largest banks in this study had ERM groups of three to five people. The ERM group of one mid-size bank was made up of only the environmental risk manager and his assistant whereas another bank of the same asset size had a staff of four. The smallest bank in this

study did not have an ERM business unit, but relied on the experience of its loan officers to address environmental risk issues. This small-sized bank only hired experienced loan officers, required loan officers to visit every site under credit consideration, and relied on the environmental knowledge of its outside lawyers and consultants.

The risks that are minimized through the ERM business unit are described by one bank as follows:

- Risk of potential reduction in collateral value resulting from the discovery of hazardous materials or contamination on the premises.
- Risk of impairment of the borrower's creditworthiness (up to insolvency) if remediation or compliance is required.
- Risk that a mortgage will become subordinate to a cleanup lien of a government agency.
- Risk that the bank will be forced to abandon its security interest or the right to recover its collateral when faced with the greater liability and cost of environmental cleanup.²³

Environmental risk managers advise on potential high risk loans, determine the bank's environmental policies and procedures, and are the liaison between the loan officers and outside environmental specialists and lawyers. The ERM typically creates and maintains a list of approved environmental consultants and engineers for loan officers to use. The ERM also trains loan officers on environmental risk policies and procedures. As documented by one of the banks in this study: "the Environmental Risk Management Department's mission is to ensure that timely and high quality environmental assessments are obtained from approved vendors where appropriate and to assist officers to understand the potential costs and risks associated with contaminated property."²⁴

²² Confidential, internal bank memorandum on environmental due diligence process.

²³ Confidential, internal commercial lending policy.

²⁴ Ibid.

A vice-president in charge of credit management for one bank in this study confirmed that the bank's goal was only to "avoid catastrophic liability" through its ERM business unit.²⁵ His focus was on creating effectiveness within his environmental risk management program so that the bank could withstand any environmental liability challenges in court. For example, he ensured that his banks' environmental risk policies were based on common, industry standards and that the policies were distributed through efficient mechanisms to the loan officers so that the bank could prove in court that its policies were in no way based on subjective, unique criteria.

The environmental risk assessment policy of another bank in this study was focused on the bank avoiding the liability of being designated as an owner or operator of a borrower's facility or property. "Apart from the obvious potential for economic impairment of the collateral securing a loan, government agencies are increasingly assessing fines and fees against any Owner/Operator who causes or contributes to a facility's environmental problem and may also hold any Owner/Operator liable for remediation costs. The term "Owner/Operator" has been broadly defined..."²⁶

Environmental Due Diligence Procedures:

Most environmental policies require an environmental assessment for all real estate collateralized loans, except for one to four family residential homes, and any loans under certain dollar amounts, such as \$300,000. For larger loans, banks require an Environmental Transaction Screen and/or a Phase I Environmental Site Assessment (Phase I) as the first step in the environmental assessment. A transaction screen is a questionnaire-based method of environmental evaluation. Transaction screens and Phase

²⁵ Confidential interview with bank executive, October 1998.

I analyses are based on the American Society of Testing and Materials (ASTM) Standards and are completed by approved engineering or consulting firms.

A Phase I analysis contains the following: “(a) a review of both public and private records of environmental land use and physical setting, a database search and review of relevant files at the local and regional level (b) a site survey/reconnaissance (c) interviews with current owners, operators and the local environmental authorities (d) a draft of a report that encompasses recommendations and conclusions.”²⁷

A preliminary environmental site assessment is sometimes allowed by banks on lower dollar amount loans. These site assessments are also completed by external consultants and are more moderate in scope than a Phase I.

Limited sub-surface investigations and Phase II environmental site assessments involve specific soil testing and drilling and can be quite time consuming and expensive.

The following tables show typical due diligence required by the ERM units, based on the type of loan and loan size.

²⁶ Confidential, internal bank environmental risk assessment policy.

²⁷ Elizabeth Ward, A Lenders Guide to Developing an Environmental Risk Program (Alexandria, VA: RTM Communications, 1995), p. 10.

New Real Estate Loans

Loan Size	Single & Multi-Family Residential	Retail/Office/Commercial	High Risk Property Uses	Undeveloped & Agricultural
≤ \$250,000	Real Estate Questionnaire	Real Estate Questionnaire	Transaction Screen Assessment	Real Estate Questionnaire
> \$250,000 - \$500,000	Real Estate Questionnaire	Transaction Screen Assessment	Preliminary Environmental Site Assessment	Transaction Screen Assessment
> \$500,000 - \$1 million	Transaction Screen Assessment	Preliminary Environmental Site Assessment	Phase I Environmental Site Assessment	Preliminary Environmental Site Assessment
> \$1 million - \$5 million	Preliminary Environmental Site Assessment*	Phase I Environmental Site Assessment*	Phase I Environmental Site Assessment*	Phase I Environmental Site Assessment*
> \$5 million	Phase I Environmental Site Assessment*	Phase I Environmental Site Assessment*	Phase I Environmental Site Assessment*	Phase I Environmental Site Assessment*

*assessment will initially be reviewed by the ERMD rather than the officer

Renewals and Extensions

Proposed Loan Size	Single & Multi-Family Residential	Retail/Office/Commercial	High Risk Property Uses	Undeveloped & Agricultural
≤ \$250,000	If the appropriate level of due diligence was completed at origination and there has been no significant change in property use, then no additional due diligence is required.			
> \$250,000 - \$500,000	Real Estate Questionnaire	Real Estate Questionnaire	Preliminary Environmental Site Assessment	Real Estate Questionnaire
> \$500,000 - \$1 million	Real Estate Questionnaire	Transaction Screen Assessment	Preliminary Environmental Site Assessment	Transaction Screen Assessment
> \$1 million - \$5 million	Transaction Screen Assessment*	Preliminary Environmental Site Assessment*	Preliminary Environmental Site Assessment*	Preliminary Environmental Site Assessment*
> \$5 million	Preliminary Environmental Site Assessment*	Preliminary Environmental Site Assessment*	Preliminary Environmental Site Assessment*	Preliminary Environmental Site Assessment*

*assessment will initially be reviewed by the ERMD rather than the officer

Workout and Pre-Foreclosure*

Collateral Value	Single & Multi-Family Residential	Retail/Office/Commercial	High Risk Property Uses	Undeveloped & Agricultural
≤ \$250,000	Transaction Screen Assessment	Preliminary Environmental Site Assessment	Phase I Environmental Site Assessment	Transaction Screen Assessment
> \$250,000 - \$500,000	Transaction Screen Assessment	Phase I Environmental Site Assessment	Phase I Environmental Site Assessment	Preliminary Environmental Site Assessment
> \$500,000 - \$1 million	Preliminary Environmental Site Assessment	Phase I Environmental Site Assessment	Phase I Environmental Site Assessment	Preliminary Environmental Site Assessment
> \$1 million	Phase I Environmental Site Assessment	Limited Subsurface Investigation	Limited Subsurface Investigation	Phase I Environmental Site Assessment

*All assessments will be ordered and reviewed by the ERMD

Borrowers pay for the costs of all site assessments and, in the majority of cases, the bank retains ownership of all reports. The table below describes the typical costs and time associated with the environmental assessments described above.²⁸

Type of Due Diligence	Approximate Cost	Standard Turn-around
Real Estate Questionnaire	\$125 – 150	1-2 weeks
Transaction Screen Assessment	\$650-850	2-3 weeks
Preliminary Environmental Site Assessment	\$1,100-1,300	3-4 weeks
Phase I Environmental Site Assessment	\$1,400-1,600	4 weeks
Supplemental Investigations (Phase II for example)	Variable (can be as high as \$10,000)	2-4 weeks

The due diligence requirements for a foreclosure and workout increase significantly due to the potential risk for the bank in entering the chain of title. The ERM will typically review all environmental reports on a property being reviewed for foreclosure, regardless of the dollar amounts involved. The ERM policies direct the loan officers specifically to avoid this risk in the following manner: “title to property should never be taken in [the bank’s] name. The head of the OREO²⁹ Department must be consulted to determine which company subsidiary should hold the title to the property.”³⁰ Most banks will create a subsidiary holding company to own foreclosed properties. This policy is to insure protection of the bank’s assets in the event that the bank is found liable for environmental clean up.

The risk of the bank being perceived as an “Owner/Operator” is particularly acute during the workout or foreclosure of a loan because loan officers interact extensively with the borrowers. A mid-sized bank in this study clearly designates the business activities for bank personnel to avoid during this process: “the workout specialist or

²⁸ Confidential, internal bank policy documentation.

²⁹ OREO is the abbreviation for Other Real Estate Owned.

OREO Department must not engage in the following activities while the borrower retains possession of the collateral:

- manage or dispose of hazardous materials;
- conduct remedial activities;
- manage the overall environmental compliance of the facility; or
- undertake substantially all operational functions other than environmental compliance.”³¹

³⁰ Confidential, internal bank policy documentation.

³¹ Confidential, internal, bank policy documentation.

Chapter 3: Risk Models and Agency Issues

The environmental liability dictated by federal legislation translates into the banks' credit models and risk policies. The cost of environmental remediation of a site is potentially unlimited, which has led banks to focus the environmental policies on this direct liability risk.

Banks also face agency issues of adverse selection and moral hazard because of poor information and the difficulty the bank has in conducting on-going environmental monitoring of all the sites in the bank's portfolio. For these reasons, banks ultimately focus on the financial strength of the borrower when deciding whether to make a loan effected by an environmental issue.

Credit Risk Model:

Loan officers do not currently consider external, environmental factors that could affect the products and customer demand of the borrowers. This is due to a combination of factors in the banks' policies, including the banks' focus on environmental risk due to land liability, the relatively short length of most loans and the time horizons used in the banks' credit models. This failure to consider external factors is true for both real estate based transactions and asset based lending transactions.

In defining credit losses, the majority of banks use the default-mode paradigm. "It is sometimes called a two-state model because only two outcomes are relevant: non-default and default. If a loan does not default within the planning horizon, no credit loss is incurred; if the loan defaults, the credit loss equals the difference between the loan's

book value and the present value of its net recoveries.”³² The planning horizon is typically one year. “It is often suggested that one year represents a reasonable interval over which a bank – in the normal course of business – could mitigate its credit exposures.”³³ The fact that banks have such a short time horizon in determining their credit risk implies that banks do not have the financial need to consider long-term sustainability issues such as future environmental concerns.

Categories of Risk:

Banks look at three basic categories of risk in assessing the level of environmental exposure in a loan: credit, security impairment and direct liability risk.³⁴ Credit risk measures the ability of the borrower to repay the loan due to increased costs to the business or due to a decrease in sales.³⁵ With respect to environmental issues, the inability of the borrower to repay the loan due to remediation costs or fines is assessed as credit risk.³⁶ Security impairment risk measures the extent to which environmental contamination would lower the value of land. Direct liability risk measures the amount the lender may have to pay in fines and environmental remediation due to the actions of the borrower.

³² Federal Reserve System Task Force on Internal Credit Risk Models, Credit Risk Models at Major US Banking Institutions: Current State of the Art and Implications for Assessments of Capital Adequacy, (May 1998), executive summary, p. 9.

³³ Ibid.

³⁴ Evan Henry, “Environmental Risk Management for Bankers”, (Bank of America internal publication), p. 4. And Kristen Yount, “The Organizational Contexts of Decisions to Invest in Environmentally Risky Urban Properties,” Journal of Economic Issues 31 (June 1997): p. 369.

³⁵ Evan Henry, “Environmental Risk Management for Bankers”, (Bank of America internal publication), p. 4.

³⁶ Kristen Yount, “The Organizational Contexts of Decisions to Invest in Environmentally Risky Urban Properties,” Journal of Economic Issues 31 (June 1997): p. 369.

Enhanced credit risk and security impairment risk are indirect risks to the lender in that “others create liability for the borrower and thus indirectly for the lender.”³⁷ The magnitude of the loss associated with the credit risk is limited to the size of loan, while the loss due to security impairment risk is “limited to the lessor of loan size or the impact of the contamination on land value.”³⁸ The magnitude of the costs of the direct liability risk for a bank can be unlimited. Lenders are not only subject to potential remediation costs, but can also be liable for personal injury claims and the costs of damages to adjacent properties where contamination has migrated.³⁹ Banks’ environmental risk management programs are based on avoiding direct liability risk since this is potentially the most costly risk for the banks.

Risk Management:

These categories of risk are based on the five basic building blocks of risk management: identification, appraisal, control, transfer and monitoring.⁴⁰ Evan Henry of Bank of America has identified three basic levels of completing these risk management stages that the thesis author confirmed through bank interviews. These three levels are desktop review, internal research and external expertise.

Desktop review is completed by the loan officers and is based on readily available information such as knowledge of borrowers’ business practices, internal bank credit and risk policies and consultant reports. Internal research involves work conducted by the

³⁷ Evan Henry, “Environmental Risk Management for Bankers”, (Bank of America internal publication), p. 8.

³⁸ Ibid.

³⁹ Kristen Yount, “The Organizational Contexts of Decisions to Invest in Environmentally Risky Urban Properties,” *Journal of Economic Issues* 31 (June 1997): p. 369.

⁴⁰ Evan Henry, “Environmental Responsibility For Financial Institutions: A Risk Management Approach”, (Discussion draft), 12 August 1998, p. 1.

environmental risk management group and other specialists, such as internal legal counsel. External expertise is the research provided by outside consultants and attorneys.

Often there is little coordination or interaction between these three levels of review. The small staff sizes of banks' environmental risk management groups preclude the environmental risk manager (ERM) from monitoring every loan provided by every loan officer. The level of understanding and knowledge of environmental issues of loan officers varies depending on the officer's experience and the training that can be provided by the ERM. ERMs rely on loan officers to bring critical issues to their attention. All of the banks interviewed allow loan officers to work with outside consultants and attorneys in assessing environmental risk. ERMs again rely on the loan officers to forward the necessary information from these external consultants to them. During a competitive fast paced market cycle, the communication between the ERM and the loan officers can break down, exposing the bank to additional risk.

For example, the loan officers at one of largest banks in this study often go directly to outside environmental consultants because the bank's ERM business unit has a small staff and can not respond to issues as quickly as the loan officers wish. One executive commented "the [ERM group] has limited resources which causes problems with turn around time and slows down our loan process."⁴¹ This use of outside consultants has increased with the increased prosperity in the real estate market.

Agency Issues:

The agency issues faced by banks in the form of adverse selection and moral hazard lead to inefficiencies in the loan process. Banks have limited knowledge of the

⁴¹ Confidential interview with bank executive, October 1998.

environmental histories of the firms to which the banks make loans. Inevitably, these firms know more about their own past, current and future business operations than do the financing institutions. The banks must rely on the borrowers for both initial environmental information and for on-going monitoring of the firms' environmental status. Pre-loan screening helps to diminish the issues of asymmetric information that lead to adverse selection. However, banks are constantly trying to counteract the moral hazard risk through contractual mechanisms such as indemnification, and risk transfer mechanisms such as insurance. One example of moral hazard is midnight dumping, defined as: "unscrupulous operators trying to make a quick buck by cutting corners and acting irresponsibly during the project's execution."⁴²

Lenders are skeptical about the ultimate usefulness of pre-loan screening in identifying future environmental risk. Anthony Heyes, in his work on the effect of lender liability on the cost of capital, verifies this fact: "skepticism among lenders about how far pre-loan screening ('environmental impact assessments') can cut their exposure to environmental risk arising from default is indicative of their belief that most borrowers have considerable discretion as to how they act after a lending contract has been signed."⁴³

This agency risk is a fundamental dilemma faced by lenders. It limits the banks to identifying only known or knowable environmental concerns, and only during the pre-loan process. The banks spend little effort identifying environmental risk post-lending except episodically during the loan renewal process. The costs to the bank of monitoring

⁴² Anthony G. Heyes, "Lender Penalty for Environmental Damage and the Equilibrium Cost of Capital," *Economica* 63 (1996), p. 319.

⁴³ *Ibid.*

every loan for changing conditions is very high, leading the banks to base their loan decisions on the strength of the borrower. For example, Appendix B describes a case where a bank made a loan to an asphalt manufacturer, a high-risk industry, using property as collateral, although there was an environmental issue concerning that property. The estimated cost of remediation was much less than the assets of the firm, leading the bank to believe that the financial strength of the borrower could outweigh the potential environmental risk.

Due to these agency issues coupled with liability concerns, banks provide fewer than the optimal number of loans when faced with environmental issues. Insurance may be able ameliorate this tendency; however, it is not clear that insurance is currently serving this purpose. Boyer and Laffont discuss this same issue in their theoretical study of bank liability and environmental risks and prove that with adverse selection, full liability leads to under-investment:

One may suggest that the proper solution to the full internalization of the externality caused by environmental accidents is to make the banks fully responsible for damages if a firm they finance is found liable for cleanup costs. [under full information] When the bank suffers from agency problems in its relationship with the firm, possibly because it chose not to invest in a monitoring technology which would allow the observations of the firm's activities, this conclusion must be qualified.⁴⁴

Adjusting the price or interest on a loan is not a mechanism employed by banks to address the issue of environmental risk on a loan. Every bank interviewed in this study confirmed this fact. Banks do not charge a higher price to compensate for agency issues associated with environmental risk. This is so because there are low profit margins on loans and increased interest can not cover losses in case of default due to an

environmental issue or remediation liability. Heyes, through his theoretical research, shows quantitatively that the effect on interest rates is actually ambiguous with an increase in the liability of lenders for environmental damage.⁴⁵ The increase or decrease in interest rates depends in large part on which agency issue is dominant for the banks: adverse selection or moral hazard. He discusses Kraakman's gatekeeper analysis where a gatekeeper is described as a "(1) 'bouncer' ... [that] can disrupt misconduct by excluding wrongdoers from a particular market and (2) a chaperone [that] can disrupt misconduct in an unfolding contractual relationship."⁴⁶

The existence of adverse selection means that both the bank can act as a bouncer and that bouncing more stringently requires a rise in interest rates (inducing a subset of prospective borrowers at the high-risk margin to drop out of the market). By contrast, the existence of moral hazard means that at the same time the bank is chaperone and that chaperoning more stringently means cutting interest rates (such that the incentive for the representative borrower to be careful during implementation is increased). Overall, the change in the [interest rate] is therefore ambiguous.⁴⁷

Heyes also suggests that increased regulatory reform to require more environmental assessments probably would not decrease risk since "lenders are already required to carry out far more detailed environmental assessments than they would if left to their own devices, implying that regulatory reform (unless it were very drastic) would be unlikely to induce, at the margin, result-changing adjustments in screening intensity."⁴⁸

⁴⁴ M. Boyer, J.J Laffont, "Environmental Risks and Bank Liability," European Economic Review 41 (1997): p. 1437.

⁴⁵ Anthony G. Heyes, "Lender Penalty for Environmental Damage and the Equilibrium Cost of Capital," Economica 63 (1996), p. 319.

⁴⁶ R.H. Kraakman, "Gatekeepers: the anatomy of a third party enforcement strategy," Journal of Law, Economics and Organization 2, (1988): 53-104 as cited by Anthony G. Heyes, "Lender Penalty for Environmental Damage and the Equilibrium Cost of Capital," Economica 63 (1996), p. 319.

⁴⁷ Ibid., p. 320.

⁴⁸ Ibid., p. 321.

Chapter 4: Bank Policies Translated into Actions

Whereas the banks are becoming skilled in reducing direct liability with respect to environmental remediation, the processes followed by banks do not reduce the amount of environmental contamination of the properties in the portfolios of the banks. The following section describes how the environmental policies of the banks translate into actions by the loan officers.

The Role of the Loan Officers versus the ERM:

All of the environmental policies of the banks reviewed in this study clearly state that it is not the role of the ERM to make the ultimate business decision as to whether or not to extend credit. For example, the largest bank in this study states that “although the [ERM] will be responsible for reviewing environmental assessments and assisting in the determination of the environmental risks of collateral or financing impairment, it is the responsibility of the [loan officer] to make appropriate business decisions and assess the overall transaction credit risk.”⁴⁹ Another bank states that the “Environmental Risk Management Department is not responsible for rendering the ultimate business decisions regarding an existing or potential credit. Moreover, it is not the role of the Department to serve as the borrower’s environmental consultant.”⁵⁰

The loan officers usually review the transaction screen and Phase I report first, before the ERM, to identify any potential environmental problems. Most bank environmental risk policies do not require that an ERM review environmental assessments for loans that fall under a certain dollar amount such as \$1 million. When loan officers discover a problem, they contact the environmental risk manager who will

⁴⁹ Confidential, internal, bank risk assessment policy.

then make recommendations as to the next steps to take. At this point, the ERM will make recommendations to help quantify the extent of contamination on a property. Depending on the situation, the ERM may recommend a Phase I or Phase II Environmental Site Assessment.

Most of the ERMs interviewed in this study agreed that there would be little incremental risk reduction if the environmental risk group were to read all of the transaction screens and Phase I reports. One ERM stated that he did not want to be seen as a “bottle-neck” and an impediment to the loan process, which would occur if ERMs and their staffs had to review every environmental report. However, the findings of this thesis research show that this lack of review probably serves to increase the environmental risk to the bank. For example, one loan officer at a mid-size bank admitted that when he began reading environmental reports he did not understand the meaning of the terminology used by the consultants. He misunderstood the abbreviation for underground storage tanks, “UST”, which can pose significant environmental risks to a property, and did not alert the ERM to the existence of these tanks on several properties.

Overall, this research shows loan officers to be subjective in their review of environmental assessments and to have insufficient technical training to understand the findings. The level of environmental risk training received by loan officers varies from bank to bank. Many banks require such training as part of real estate appraisal reviews. Other banks just provide written policies to loan officers and provide no other environmental risk training. Concerning the subjectivity of loan officers’ review of

⁵⁰ Confidential, internal bank lending policy.

environmental issues, this study shows that each loan officer in the real estate group of a mid-size bank had a different process for reviewing the environmental consultant reports. For example, one loan officer stated that he reviewed only the executive summary while another said that he reviewed the entire report and then forwarded a memo to the ERM describing any potential “gray areas” that he thought could be potential issues.

Environmental Assessments for Collateral vs. Business Risk:

Since the foci of banks’ environmental policies are on property as collateral, loan officers do not consider external, environmental factors to a business that could affect the borrowers’ products and customer demand. . Some banks now have policies that require environmental property assessments for loans even though the borrower is not using real estate as the collateral. The bank may be providing a loan based on inventory and sales but, because of liability issues, it is still concerned about whether the property on which the business is located has had past environmental contamination.

One asset-based lending loan officer who must follow this type of bank policy stated that the policy is too invasive for the client when real estate is not the collateral. “They are going too far as lenders and it is costing them business. Banks should not be patrolling and policing. If they are making an inventory and receivable loan then they should not be telling the borrower how to manage their real estate. We have a prudent policy, but it makes it difficult to deal with clients.”⁵¹

There are special environmental policy considerations relating to businesses that banks consider to have high environmental risk. One bank policy states that “the Standard Credit Memorandum will include a question asking if a loan is in a ‘high risk’

⁵¹ Confidential interview with bank loan officer, March 1999.

industry, as defined by the Environmental Risk Management Department. If it is, and the loan amount is greater than \$250,000, the Non Real Estate Questionnaire should be attached to the package. This is required regardless of whether a lien is taken on the real estate.”⁵² Attachment A provides a listing of industries that one bank considers high risk. One of the large banks in this study requires a Phase I assessment on all high-risk borrowers regardless of the loan size.

Structure of Loans with Environmental Issues:

When the bank discovers that a potential collateralized property has an environmental issue, the loan officer, consultants, engineers and lawyers will work together to determine the acceptable level of risk for that particular loan. The ERM will recommend to the loan officers the items to be included as part of the loan agreement to ultimately mitigate known risks. For example, an ERM may suggest that a loan officer add a provision to the loan documents requiring a borrower to sample the soil of a property annually. An example of a policy followed by a bank when an environmental issue is of concern is as follows:

Whenever significant environmental issues are encountered, it is recommended that the officer utilize a closing attorney with a demonstrated expertise in addressing environmental issues and drafting appropriate contractual protections in loan documents. As a guide, such loan documentation should include, at a minimum:

- indemnification of the bank against any environmental liability whatsoever;
- agreement that the bank may inspect the property and require environmental assessments;
- provisions requiring timely and proper response to releases of hazardous materials at or from the property;
- provisions requiring prompt notification to the bank upon occurrence of any adverse changes in the environmental condition of the property or environmental liability of the borrower;

⁵² Confidential, internal bank lending policy.

- requirements that the borrower furnish the bank in a timely manner with any environmental reports which are generated during the term of the loan;
- warranties, covenants and representations regarding the proper use, storage, handling, and disposal of oil and/or hazardous materials at or from the property; and
- warranties, covenants and representations requiring compliance with all applicable environmental laws and regulations.⁵³

While the determining factor in deciding to extend the loan is the strength of the borrower, the bank will structure the contractual agreements to mitigate known environmental risks.⁵⁴ In extending a loan on a property with an environmental issue, the bank may require a borrower to place funds in escrow to cover the costs of remediation, require the borrower to comply with on-going monitoring or purchase environmental insurance.

The ERM, however, has no control as to whether or not the borrower complies with these stipulations, or even if the loan officer makes the stipulations part of the final closing agreements. The lawyers used in the closing very often do not have experience with environmental risk and therefore may not include the stipulations listed above. In addition, the loan officers may not adhere to this policy. These are common frustrations faced by all ERMs. Ultimately, this non-compliance of lawyers and loan officers leads to increased risk for the banks. For example, in the case of the crane operating company described in Attachment B, although the ERM recommended the removal of existing, aged underground storage tanks, the ERM does not know if this recommendation was incorporated into the final loan documents. The ERM recommended the following:

⁵³ Confidential, internal bank due diligence process.

⁵⁴ This fact was noted through the bank interviews in this study and is discussed by Evan Henry, 'Environmental Responsibility For Financial Institutions: A Risk Management Approach', (Discussion draft), 12 August 1998, p. 6.

We should require the removal or abandonment-in-place of the inactive 3,000-gallon UST and the active 1,000-gallon UST which are situated on [one of the parcels]. Closing documents should require that the borrower engage a vendor on the [approved list of environmental consultants] to undertake these activities in accordance with the DEP “Underground Storage Tank Closure Assessment Manual” and that any resultant reports be submitted to the [bank] upon completion.⁵⁵

In addition, the ERM is not aware whether or not the loan documents stipulated the future environmental monitoring that the ERM recommended.

On Going Monitoring:

The need for on going monitoring of sites with an environmental issue is explicitly stated in the environmental risk policies of banks. “As part of the credit monitoring process, all relationship managers and workout specialists should be alerted to changes in the environmental condition of their customers to determine whether their customers appear to be engaging in any undesirable environmental practices.”⁵⁶

On-going monitoring of environmental stipulations of loan documents is an issue for all banks in this study. Generally, loan officers do not monitor sites in their portfolio on a periodic basis, although the loan documents may stipulate that such monitoring be done. This is a common frustration mentioned by all environmental risk managers. The loan officers only examine existing loans for environmental issues when the bank refinances, renews or renegotiates a loan, or in the case of a potential foreclosure.

Environmental Evaluation in Loans Renewals:

Banks have a different level of tolerance for environmental risk in loan renewals than in new loans. With a new loan, the bank has the option of not getting involved if an environmental issue is discovered on a site; but, with a loan renewal that has property as

⁵⁵ Confidential, internal bank memorandum from ERM to loan officer.

collateral, the bank already has exposure to the environmental risk of that property. If an environmental issue is discovered with an existing loan, then the bank is already involved and needs to act carefully to deal with the potential risk.

For example, if a bank suspects that additional testing may uncover extensive, expensive remediation needs, the bank may opt to not require this testing at the time of the renewal to avoid the discovery of the issue. This is a consistent practice with all of the banks interviewed for this research.

In the case of the crane rental company described in Attachment B, faced with the prospect of the bank finding additional environmental issues, the ERM stated the following:

I believe that any subsurface investigations of the aforementioned parcels or removal of any of the four USTs would trigger notification to DEP and necessitate a larger remedial obligation. I believe that such activities would be entirely justified from a strictly environmental perspective especially if the prospective transaction was a new real estate loan. However, since I am well aware that the contemplated transaction is a renewal of an existing credit, the efficacy of conducting any type of subsurface investigation or UST removal which could trigger notification may be debatable from a business standpoint.... I believe that it is important to recognize that current site operations may be contributing to an ongoing release. Generally speaking, even though the contemplated transaction is a renewal, I believe that it is beneficial to [the bank] in such situations to require abatement of either a release or threat of release which will adversely impact the value of the real estate collateral in the future.⁵⁷

Such actions are further evidence that, contrary to the expectations of regulators, banks' concern for limiting financial exposure takes precedence over any concern for protecting the environment.

⁵⁶ Confidential, internal bank lending policy.

⁵⁷ Confidential, internal bank memorandum from ERM to loan officer.

Stress Between Loan Officers and ERM:

Because the ERM is in the role of informing loan officers as to potential problems with their loans, ERMs and loan officers are often at odds with one another. All loan officers interviewed discussed their frustration with the overall environmental assessment process. Ultimately, any environmental concern raised by an ERM will slow the process of completing the loan, which is annoying to a loan officer. Also, loan officers need to quantify the impact of an environmental issue on a loan and this can not always be done by an ERM since environmental issues are often ambiguous in nature. One loan officer interviewed said that he often used an outside consultant over his own internal ERM because that consultant would always give a dollar value as to the potential cost of an environmental issue.

The bank ERMs are equally frustrated because they find that very often their recommendations are not being fully recognized, or in some cases are completely ignored, in the interest of quickly completing a loan. ERMs have very little control over the final credit decisions that are made. With almost all of the ERMs interviewed, a disconnect was found between how an ERM would assess the impact of an environmental issue on a loan decision and how loan officers would view the impact of that same issue. ERMs tend to believe that loans are never made when an environmental issue arises. Loan officers say that an environmental issue is almost never the reason why a loan is not made.

There is also a disconnect in opinions of senior management versus ERM concerning the amount of environmental risk that is currently built into their bank's

portfolio. An executive at one of the multi-national banks in this study felt that the bank's portfolio was exposed to very little environmental risk because of the processes his bank now has in place. However, the ERM at this same bank, when asked the question about whether or not the bank was more protected from environmental risk now than it was ten years ago, did not feel that the portfolio was much more secure. The ERM was satisfied that loan officers had an awareness of the risk of environmental liability, but he did not feel that the processes the bank followed had led to a significant decrease in environmental risk overall.

Chapter 5: Why is there a Market Failure and Other Unanswered Questions

The regulatory system that has defined environmental risk factors for banks has proven itself inefficient. Based on the cases presented in this thesis, banks have not reduced their portfolio exposure to contaminated properties. Banks have responded to this regulatory environment by insulating themselves against liability risk. The regulatory environment has created a dead-weight loss to the banking system, where banks incur costs for addressing environmental liability risk, yet there is little increased benefit to society.

A question that arises in reviewing these findings is: if banks are afraid to lend to environmentally contaminated properties because of liability concerns, why haven't other players stepped in fill this void by charging more to the borrowers of these potentially contaminated sites? Other areas of the economy have segmented in reaction to this type of market failure. For example, there is a lending market that targets homeowners who need credit but who have poor credit histories. Why does the market for high-risk environmental loans remain undifferentiated? While the limits of this study preclude offering a comprehensive answer to this question, the initial findings of this study do provide insight and guidelines for further research.

Limits of the Organizational Structure of the Banks:

The focus on environmental liability limits the ability of a bank to recognize the market benefits in promoting environmental concerns to their borrowers. Banks incorporate environmental risk assessment into their existing framework of risk management. Banks have not created a new paradigm for risk management focused on possible business advantages of promoting the environment. Since banks are in the

business to provide loans, banks have incentive structures in place that require that loan officers book a certain dollar amount in loans every month. This incentive structure is at odds with the level of complexity inherent in providing loans with an environmental risk component. This system leads loan officers to cover the basic liability requirements only, and then move on to the next loan. Banks act in this manner because banks do not see any benefit in increasing operational costs to promote environmental concerns to their customers. Currently, the only benefit to the bank accrues when the borrower clears the initial hurdle of environmental compliance and demonstrates a sufficient level of financial strength so that liability for the bank is minimized.

The results of this study show that banks are not concerned about the potential risk to their image that could occur by providing loans for purposes that negatively affect the environment. “Image risk is a problem that relates to the ability of the corporation to conduct business and or attract and maintain the desired customer base necessary to maintain desired levels of profitability.”⁵⁸ None of the ERMs, loan officers or bank executives interviewed noted image risk as a concern. The primary concern of the bank was always liability risk, which was transferred to the loan officers through the policies established by the ERM.

Perhaps banks have not become strong leaders on this front because they are reactive and not proactive entities. Banks are analogous to the reactive firms described in a study completed by Sanjay Sharma, “Proactive Corporate Environmental Strategy and the Development of Competitively Valuable Organizational Capabilities,” which reviewed the oil industry. “The reactive companies were unable to connect their

corporate environmental responsiveness strategies with any positive organizational outcomes other than lower liabilities due to reduction of risk of environmental accidents.”⁵⁹ The proactive firms in Sharma’s study valued relationships with environmental organizations versus relationships with economic stakeholders that reactive groups saw as more important. Similarly, banks only react to the economic factors of environmental risk. Economics drive the loan decisions in that the ratio of the value of the property to the cost of remediation is the crucial determinant of how willing a bank is to make a loan to a borrower for a contaminated property.

Agency Issues and CERCLA:

The CERCLA legislation does not reduce or help clarify the agency issues of adverse selection and moral hazard faced by banks. In 1996, Congress modified CERCLA through the Asset Conservation, Lender Liability and Deposit Insurance Protection Act to address the ambiguity surrounding the definition of active participation in the operations of a foreclosed property or business.

The Act clarifies the types of actions that constitute participation in management and also specifies the steps a lender must take to foreclose without losing liability protection. It does not however, preclude governments and third parties from pursuing liability suits against lenders, nor does it protect lenders from losing the amount of their loans due to the borrower’s default.⁶⁰

Because this clarification did not fully obviate the possible liability claims against them, banks did not change their practices from those that this paper has described.

⁵⁸ Evan Henry, ‘Environmental Responsibility For Financial Institutions: A Risk Management Approach’, discussion draft, 8/12/98, page 1.

⁵⁹ Sanjay Sharma “Proactive Corporate Environmental Strategy and the Development of Competitively Valuable Organizational Capabilities,” (Draft for forthcoming publication in Strategic Management Journal, v. 19, 1998 September), p. 15.

⁶⁰ Kristen Yount, “The Organizational Contexts of Decisions to Invest in Environmentally Risky Urban Properties,” Journal of Economic Issues 31 (June 1997): p. 369.

Banks react to CERCLA as if they can always be fully responsible for the liability of environmental remediation. Boyer and Laffont capture the difficulty in assessing how to allocate environmental liability and why CERCLA does not address this issue for banks, in their theoretical research concerning environmental risk and bank liability:

We have shown in this paper that when agency costs are significant, partial responsibility should replace full responsibility. Partial responsibility balances the need to internalize the externality and the reluctance of banks to lend. Finally, in the case of risks which are not well defined, and therefore of an insurance market which cannot be relied upon and of possible excessive prudence of banks, it seems inevitable that ex ante authorization for carrying those risky activities should be obtained from the social regulator and the indemnification of the costs of an accident be covered by a governmental Superfund. CERCLA and the related jurisprudence allocate responsibility according to the involvement of the bank into the management of the firm: full responsibility if the bank is involved and no responsibility otherwise. In view of our analysis, this would appear appropriate if the involvement in management was equivalent to the cases of well defined risks and not agency (or small) costs, and no involvement was equivalent to defined risks with or without large agency costs. Clearly there is no obvious equivalence between these concepts and this might be one explanation of the level of controversy over CERCLA in the US.⁶¹

Hence, CERCLA is not clear in defining the appropriate level of responsibility in response to the need for environmental remediation. This creates a market failure in that no entity is proactively moving to take on responsibility for remediation.

Why Does the Undifferentiated Market Continue?

Potential unlimited liability can not be the only reason why a secondary market has not arisen to accommodate loans that have a high environmental risk. If liability were the only issue, then there would be companies that would simply charge a premium to borrowers to lend money on these types of loans. Perhaps, then, there is not a sufficient demand for loans for projects with an environmental risk. Perhaps businesses

⁶¹ M. Boyer, J.J Laffont, "Environmental Risks and Bank Liability," European Economic Review 41 (1997): p. 1452.

may not see any potential profit from investing in environmentally sustainable practices. Perhaps companies are not seeking opportunities to redevelop severely contaminated sites.

Alternatively, it may be that financial institutions do not meet this demand because the cost of providing these types of loans is too high, and they can not realize a profit in providing environmentally risky loans. “Environmental investments often have a low or long-term pay back rate and environmental investments are expensive.”⁶² Industry has not been able to show banks that increased environmental sustainability practices can translate into less risk for the banks portfolio overall.

Conclusion:

There are few incentives, beyond legislation, that would lead US financial institutions to incorporate environmental sustainability issues (beyond contamination and liability) in their lending practices. This research has shown that bank portfolios most likely do not contain any fewer contaminated properties than they did ten years ago, before the ERM practices were implemented. The processes that banks have instituted during the past decade have only insured them from being liable for the clean up cost associated with contaminated properties. These processes have not resulted in fewer contaminated properties in bank portfolios or in the world. This leaves unanswered the question of what mechanisms could be instituted to align incentives properly and to clarify environmental liability so that financial institutions can more comprehensibly address the issue of environmental risk.

⁶² Olaf, Weber, “Credit Management and Sustainable Industrial Development,” (Paper for the workshop: Sustainable Industrial Development, Department of Environment, Technology and Social Studies, Roskilde University, Denmark, 26-29 October 1997).

Attachment A: Example List of High Risk Property Uses⁶³

Industrial/Manufacturing:

Textile Mills
Textile Goods
Leather tanning and shoe manufacturing
Wood preserving
Pulp, paper and paperboard mills
Commercial printing
Industrial gases
Plastic and synthetic resin manufacturing
Rubber manufacturing
Paint, varnish, lacquer, enamel, etc. Manufacturing
Chemical manufacturing
Fertilizer, herbicide and pesticide manufacturing
Explosive manufacturing
Petroleum refining, bulk storage distribution
Asphalt batching
Tire storage and Shredding
Manufacturing of gaskets, packing and sealing devices
Manufacturing of laminated plastics and plastic resin products
Stone, glass, gypsum and concrete product manufacturing
Abrasive and adhesive product manufacturing
Steel works and blast furnaces
Electrometallurgical product manufacturing
Smelting and refining
Fabrication of aluminum or finished metal products
Construction machinery and equipment manufacturing
Electrical component/semiconductor manufacturing
Navigation, guidance and aeronautical instrumentation
Photographic, medical and optical instrumentation
Metal fabrication (machine shops)
Fiberglass manufacturing
Mining (metal/coal)
Canning and meat packing
Electroplating and anodizing

Transportation, Warehousing and Utilities:

Railroads and ancillary maintenance/warehousing areas
Terminal/maintenance facilities for motor vehicles and motor freight transportation
Transportation facilities (including airports and bus terminals)
Electric, gas, and sanitary sewer services
Manufactured gas plants
Hazardous waste haulers and disposal facilities

⁶³ Confidential, internal bank documentation on due diligence process.

Refuse systems, incinerators and landfills

Health and Engineering Services:

Analytical testing laboratories

Medical laboratories

Hospitals

Construction:

Highway and road construction

Demolition activities and debris disposal

Wholesale Trade:

Scrap yards (including automotive junkyards)

Farming and agricultural suppliers

Motor vehicle parts and accessories suppliers

Other:

Gasoline service stations and automotive repair shops

Automotive dealerships and leasing

Coin-operated laundries

Dry cleaners and industrial launders

Furniture repair, refinishing and re-upholstery

Photographic developing laboratories

Golf courses

Attachment B: Cases

Crane Rental Company:

This is an example of a loan renewal where the bank did not require additional testing because this testing would have uncovered reportable conditions.

The company is a 100-year old crane rental company. It generates annual revenue of approximately \$30 million. The company has been a client of the bank since the bank took over this company's business from another bank 15 years ago. The loan to be renewed was a real estate loan of \$2 million. The loan-to-value ratio of this loan is 75%.

The original loan was made in 1993. The loan was for the purchase of a site made up of twelve adjacent parcels and one non-contiguous parcel. The uses of this site have historically been industrial. These parcels could all be defined as "brownfields".

The twelve adjacent parcels are described as follows:

The 2.5 acre Site is comprised of 12 adjacent parcels improved by multiple industrial, warehouses, and office buildings which were occupied in 1993 by various related entities engaged in scaffolding, heavy equipment, and crane operations. Since the late 1800s the Site had been utilized for various industrial uses including four gasoline stations, poultry slaughterhouse, wooden barrel manufacturer, paper company and several sheet metal machine shops.⁶⁴

The non-contiguous parcel is described as follows:

The 78,000-square foot Site is improved by two industrial/warehouse buildings which were occupied in 1992 by a manufacturer of custom window glass and a repair facility for industrial vehicles. Since the late 1800s, the Site had been utilized for various industrial uses including a steel manufacturer, elevated railway company, scale manufacturer, liquid acetylene manufacturer, and several sheet metal machine shops.⁶⁵

The bank was comfortable with the findings of the environmental testing that was completed in 1993. Based on the environmental regulations in 1993, and the financial

⁶⁴ Confidential, internal bank memorandum from ERM to loan officer.

strength of the borrower, there were no immediate environmental issues of sufficient importance to lead the bank to deny this additional loan to their existing client. For example, the soil contaminants that were found to be in the ground in 1993 were from historical site uses and represented a “stagnant condition” that would not expand to further reduce the value of the site. By 1998, the state regulations had become more stringent and the bank was aware that additional testing would have shown a “reportable condition,” i.e. levels of contamination that would have to be reported to the Environmental Protection Agency. The ERM stated the following:

I believe that any subsurface investigations of the aforementioned parcels or removal of any of the four USTs would trigger notification to DEP and necessitate a larger remedial obligation. I believe that such activities would be entirely justified from a strictly environmental perspective especially if the prospective transaction was a new real estate loan. However, since I am well aware that the contemplated transaction is a renewal of an existing credit, the efficacy of conducting any type of subsurface investigation or UST removal which could trigger notification may be debatable from a business standpoint... I believe that it is important to recognize that current site operations may be contributing to an ongoing release. Generally speaking, even though the contemplated transaction is a renewal, I believe that it is beneficial to [the bank] in such situations to require abatement of either a release or threat of release which will adversely impact the value of the real estate collateral in the future.⁶⁶

An environmental consulting firm was hired to conduct a site reconnaissance of all of the parcels to give an opinion as to the potential environmental issues of the site. The consultants noted the existence of a “moderate amount of oil and/or hazardous material (OHM) including hydraulic oil, various lubricants, anti-freeze and paints which are utilized for the maintenance of scaffolding and other equipment.”⁶⁷ The consultants also noted the existence of several above ground storage tanks (AST) and several

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ Ibid.

underground storage tanks (UST). The USTs were an issue for the ERM since these tanks were old and had outlived their serviceable lifetime. The ERM recommended the following:

We should require the removal or abandonment-in-place of the inactive 3,000-gallon UST and the active 1,000-gallon UST which are situated on [one of the parcels]. Closing documents should require that the borrower engage a vendor on the [approved list of environmental consultants] to undertake these activities in accordance with the DEP “Underground Storage Tank Closure Assessment Manual” and that any resultant reports be submitted to the [bank] upon completion.⁶⁸

Asphalt Manufacturer:

This is an example of a loan to a high-risk industry with some contaminated property where the financial strength of the borrower outweighed the bank’s environmental concerns. The thesis researcher discussed this case with the loan officer and the ERM when the loan was recently renewed.

This fifty-year-old firm is an asphalt manufacturer with assets of \$25 million. The loan in question, a \$17 million mortgage renewal that came to the bank in late 1996 when the bank took it over from another financial institution, shows a loan-to-value ratio of 40% on a “going-concern basis.”

This company operates an asphalt batching facility and rock quarry. The properties that serve as collateral for the bank’s loan comprise 240 acres and have buildings that consist of a:

Vehicle maintenance garage, scale house, office trailers, a sign storage shed, two asphalt plants with associated control buildings and laboratories, a maintenance garage for repair of rock crushing equipment, an equipment storage shed, a contaminated soil storage shed, and sheds housing electrical equipment used to

⁶⁸ Confidential, internal bank memorandum from ERM to loan officer.

operate stone processing equipment. Adjacent to the site ... is a large parcel of land... which consists of an underground storage tank (UST) farm, and offices.⁶⁹

Both of these sites have had releases of “petroleum-related compounds and chlorinated solvents.” These solvents were found during the removal of USTs in 1992 and the subsequent testing of groundwater. The groundwater contamination was below reportable levels. In 1996, further contamination was found during the demolition and construction of the asphalt plant buildings. As of 1996,

[The company] is undertaking investigation and response actions at the Site under a Waiver of Approvals (“Waiver”) which the Department of Environmental Protection (DEP) granted the company in 1994. A number of remedial activities have already been accomplished. Under the Waiver, however, [the company] must complete a Phase II Comprehensive Site Assessment (“Phase II”) which is required to be filed with the DEP in or before January 1999. Under regulations attendant to M.G.L. ch. 21E, the Phase II report must detail complete site investigation and risk characterization. Performance of the Phase II report will serve as a basis for determining whether additional remediation at the Site is necessary.⁷⁰

Because of the frequent monitoring of this site by the company and the fact that the loan officer was kept apprised of all monitoring activities, in September 1998, the bank waived, per the ERM, the company’s completion of an environmental update. The loan officer confirmed this in a memo to the ERM:

It is my understanding that it is your opinion that the company’s periodic reporting on the ... environmental issues is sufficient; that you would obtain a verbal report from the engineers to obtain any additional information you may deem appropriate. For these reasons, ... environmental updates, as required by the Policy, is waived.⁷¹

The three properties that are part of this mortgage are worth \$30 million. Although there are on going soil contamination issues on the properties, the original

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Ibid.

consultant's report estimated the remediation costs only to be between \$56,000 and \$85,000. Since this is such a small amount in comparison to the value of the property, and the company is financially strong, the bank did not see this environmental issue as relevant.

Wood Product Manufacturer:

This is a case of a company avoiding an environmental assessment on a piece of property that would have triggered a reportable event to the EPA. This manufacturer of wood products, which has been in operation for over 100 years, was refinancing a \$2 million loan. The bank originally made the loan on two properties in one New England state and two properties in another New England state. A preliminary site assessment on the first two properties showed that one of them was previously a landfill for tires and asbestos. The company removed this property from the loan to avoid having to complete additional environmental testing. The company was aware that further testing would have triggered a reportable event to the EPA, requiring extensive clean up of this site.

The loan officer and the ERM were aware of the environmental issue on this property, but they did not consider that highly contaminated property to be a risk to their loan on the other three properties.

The loan officer and the ERM believed the bank was adequately insulated against environmental liability for several reasons. First, because the company can not sell the contaminated site without having to clean it and, as the loan officer stated "no one can make them drill on the land to do the environmental assessment as long as they own it outright." Then, because the company has operated successfully for so many years, the bank considered it to have a low risk of default. Since, the bank takes a short-term view

of loan risk, it is therefore willing to discount the possibility that the company may eventually be sued, lose everything and not be able to pay the loan back on the three sites that were part of the bank loan.

Bibliography

- Bacow, Lawrence S. Risk Sharing Mechanisms for Brownfields Redevelopment. Cambridge: MIT, Center For Real Estate, WP #72, 1998.
- Bartsch, Charles. State Economic Development Case Studies: Recent Changes. Washington, DC: Northeast-Midwest Institute, 1991.
- Bennett, Steven J., et al. Corporate Realities and Environmental Truths: Strategies for Leading Your Business in the Environmental Era. New York: John Wiley and Sons, Inc., 1993.
- Blowers, Andrew and Glasbergen, Pieter. Environmental Policy in an International Context: Prospects for Environmental Change. New York: John Wiley and Sons, Inc. 1993.
- Boyer, Marcel. "Environmental Risk and Bank Liability." European Economic Review 41 (August 1997): 1427-59.
- Brown, Johine J. "Progress in Reducing Lender Liability Under Environmental Law." The Bankers Magazine, July/August 1996.
- Chamberlain, Denise K. "Issues in Lending... 10 Rules for Developing an Environmental Risk Program." The Journal of Commercial Lending 1 (January 1, 1995): 41-52.
- Coburn, Joanne. "Environment: Energy Lending Sparks Green Lobby's Anger." The Petroleum Economist, January 1993.
- Coggin, Theresa. FDIC, Boston Office. Interview, 8 July 1998.
- Comptroller of the Currency Administer of National Banks, Banking Bulletin 92-38, Environmental Liability, 20 July 1992.
- Confidential bank interviews, papers, polices and internal memoranda. Collected from June 1998 through March 1999.
- Dennison, Mark. "Environmental Due Diligence Means Risk-Based Lending Vigilance." The Bankers Magazine, July 1, 1996.
- Federal Deposit Insurance Corporation. Environmental Guidelines Manual. Division of Depositor and Asset Services: October 1993.
- Federal Deposit Insurance Corporation. Guidelines for an Environmental Risk Program, FIL-14-93. Washington, D.C: FDIC, 1993.

- Federal National Mortgage Association. Fannie Mae DUS Guide, Part X – Environmental Hazards Procedures. 25 April 1994.
- Federal Reserve System, Board of Governors. Federal Reserve Bulletin, SR-91-20. Washington, D.C.: Federal Reserve, 11 October 1991.
- Federal Reserve System Task Force on Internal Credit Risk Models. Credit Risk Models at Major US Banking Institutions: Current State of the Art and Implications for Assessments of Capital Adequacy. Washington, D.C.: Federal Reserve, May 1998.
- Feeney, Brian B. “Making Loans to Borrowers with Moderately Contaminated Real Estate.” The Journal of Commercial Lending (February 1, 1995): 37-41.
- Fersko, Jack and Schreiber Ryan A. “Overcoming Liability, Cost, and Time Hurdles.” Development, Spring 1998.
- Henry, Evan. “Environmental Responsibility For Financial Institutions: A Risk Management Approach.” Discussion draft, 12 August 1998.
- Henry, Evan. Bank of America, Interview, July 1998.
- Henry, Evan. “Environmental Risk Management for Bankers.” Internal Bank of America publication.
- Henry, Evan. “A Lenders Perspective on Environmental Performance Indicators in Financial Transactions.” Presented to the Delange Woodlands Conference: Sustainable Development Managing the Transition, Rice University, Houston, TX, March 5, 1997.
- Heyes, Anthony G. “Lender Penalty for Environmental Damage and the Equilibrium Cost of Capital.” Economica 63 (May 1996): 311-23.
- Kimball, David. “Opportunities Abound, But Don’t Expect to Bottom-Fish Your Way to Profitability.” Development, Spring 1998.
- Mazzocco, Michael A. “Environmental Regulations and Agricultural Lending.” American Journal of Agricultural Economics 73 (December 1991): 1394-7.
- Meyer, Peter B and Reaves, Christopher. “Brownlining Banks: The Bank Merger Movement and Urban Redevelopment.” Journal of Economic Issues (June 1997): 393-400.
- Nanney, Donald C. Environmental Risks in Real Estate Transactions: A Practical Guide, Second Edition. New York: Executive Enterprises Publications, Inc., McGraw-Hill, 1993.

- Olexa, Michael T. "Contaminated Collateral and Lender Liability CERCLA and the New Age Banker." American Journal of Agricultural Economics 73 (December 1991): 1387-93.
- Parks, David Environmental Management for Real Estate Professionals. Published by: Institute of Real Estate Management, 1992.
- Robb, Kathy, E.B. and Falzone, Renee R. The Impact of Environmental Laws on Real Estate Transactions. New York: Hunton and Williams, 1990.
- Robbins Lorne and Bisset, Douglas. "The Role of Environmental Risk Management in the Process." The Journal of Commercial Lending 1 (June 1, 1994): 18-25.
- Sharma, Sanjay. "Proactive Corporate Environmental Strategy and the Development of Competitively Valuable Organizational Capabilities." Draft for forthcoming publication in Strategic Management Journal, v. 19, September 1998.
- Shi, Stephen and Cooper, Susan. "Issues in Lending: The Effect of Environmental Costs in Financial Statements." The Journal of Commercial Lending (November 1, 1994): 37-41.
- Wallace, Joseph B. "Lending in the Solid Waste Disposal Industry." The Journal of Commercial Lending (June 1, 1993): 23-9.
- Ward, Elizabeth H. "Environmental Risk Management: The Why and How." The Bankers Magazine, July/August 1996.
- Ward, Elizabeth H. Lenders Guide to Developing an Environmental Risk Program. Alexandria: RTM Communications, 1995.
- Weber, Olaf. "Credit Management and Sustainable Industrial Development." Paper for the workshop: Sustainable Industrial Development, Department of Environment, Technology and Social Studies, Roskilde University, Denmark, 26-29 October 1997.
- Yin, Robert K. Case Study Research, Design and Methods. Thousand Oaks, CA: Sage Publications, 1994.
- Yount, Kristen R. "The Organizational Contexts of Decisions to Invest in Environmentally Risky Urban Properties." Journal of Economic Issues 31 (June 1997): 367-373.
- Zuckerman, Howard A., ed. Problem Real Estate: How to Restructure, Refinance and Re-market Troubled Commercial Properties. Chicago: Probus Publishing Company, 1992.