FAIR LENDING COMPLIANCE

INTELLIGENCE AND IMPLICATIONS FOR CREDIT RISK MANAGEMENT

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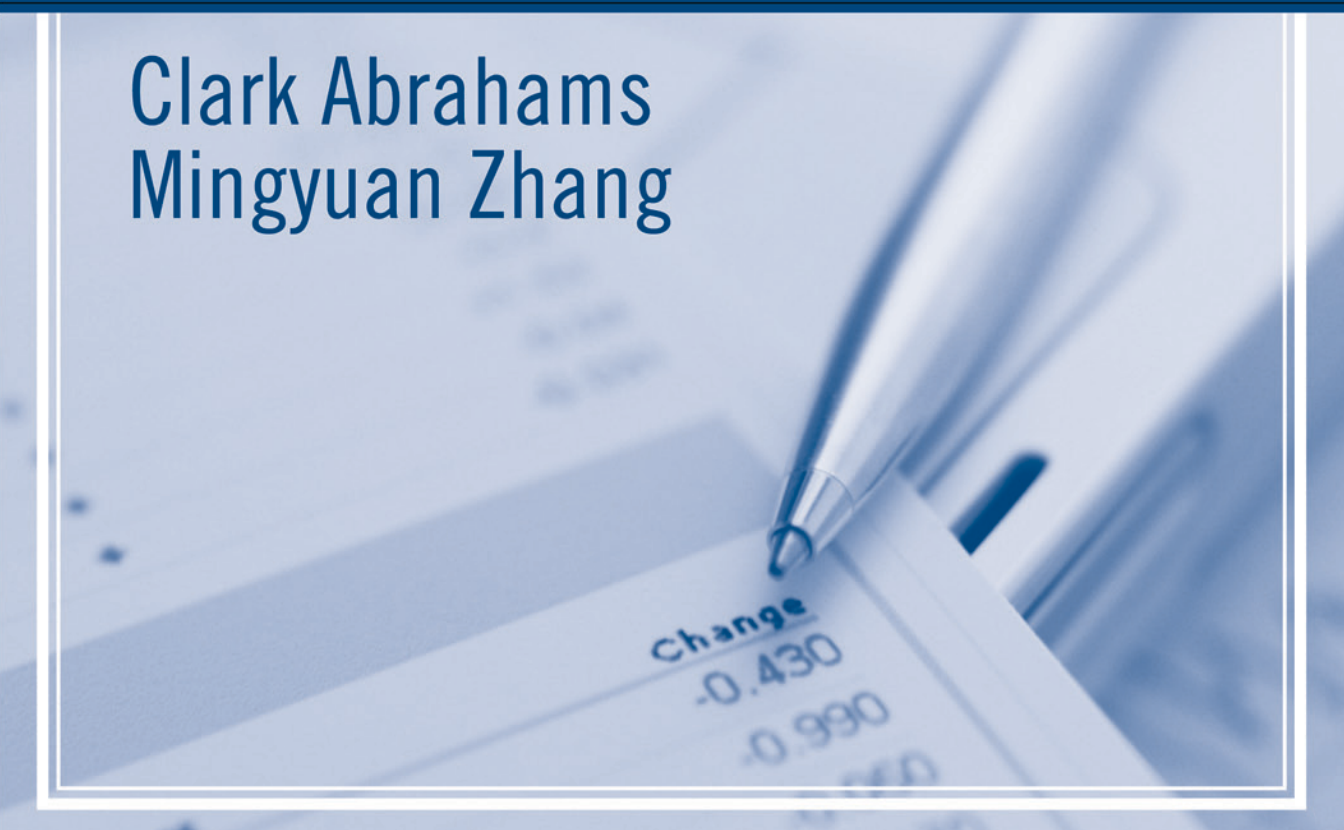

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CREDIT ACCESS AND CREDIT RISK

Understanding the connection between credit access and credit risk is the key to developing a new generation of models and processes that preserve safe and sound lending while promoting inclusiveness in the credit market.[1] In this book, a chief goal is to explore the overlap between fair lending and credit risk in order for lenders to provide greater and more affordable access to credit while operating within acceptable risk/return thresholds. Specifically, we can describe each of these two credit-related areas and their connection as follows:

- *Credit access.* There are laws and regulations in place that are aimed at ensuring and monitoring fair access to credit.[2] Those laws and regulations spell out specific protected classes of consumers whose class membership cannot be considered as a factor in the lending process. Financial institutions have fair lending programs that are designed to help avoid any violations of those laws and regulations. The main thrust of a fair lending compliance program is to find and fix problems associated with credit access[3] and to effectively communicate performance to stakeholders in order to avoid or correct any misperceptions about the institution's lending performance.
- *Credit risk.* Regulators conduct periodic safety and soundness exams to review bank underwriting standards, among other things. Lenders have credit policies that spell out those standards, which reflect the institution's actual loan default experience and best judgment to ensure profitable, safe, and sound lending. When it comes to consumer and some small business lending, the criteria for loan approval, and possibly pricing, may be embedded in a custom credit scoring model that takes into account a predetermined sufficient set of relevant factors.[4] Often, the credit bureau score is a prominent factor in making a credit decision.
- *The connection.* Clearly, credit access for a protected class of consumers is driven by the credit risk profile of that group, relative to the institution's credit underwriting and pricing criteria, and by the lender's credit product marketing efforts and practices in different geographic areas within the franchise in general, and relative to the group in question. Factors such as decline rate disparities, and disparities associated with the rate of "above threshold"

1. Dugan, John C., OCC Comptroller, discussed the interplay between fair credit access and credit risk management. See Remarks for the OCC Workshop on Credit Scoring Model Validation in February 3, 2006, p. 7.
2. For example, Regulation B–Equal Credit Opportunity Act, the Fair Housing Act, Regulation C—Home Mortgage Disclosure Act, and Regulation BB—Community Reinvestment Act.
3. The term *credit access* is used in the broadest sense here to include pricing, marketing, steering, and redlining in addition to the actual granting of a loan (approve/decline decision).
4. The object of the credit granting exercise is to figure out the odds that someone is going to repay the debt as agreed and to decide accordingly on whether or not to grant the loan. Other details, such as pricing and terms associated with the transaction, are usually determined concurrently with the credit-granting decision. Credit can be tightened or loosened by adjusting the scorecard cutoff for credit approval.

loans, for protected versus nonprotected classes of consumers, are used to identify potential problems associated with credit risk evaluation. Factors such as disparities in market share and market penetration are indicators of potential problems associated with product marketing. Beneath the results layer, where problems surface, lies the proprietary decision layer. This is where risk is quantified and loan decision making is performed. It is also where consumer segmentation is performed and marketing strategies are developed and implemented. It is in this decision layer where art and science are used to address, in the most appropriate way, such things as incomplete information, missing data, new emerging populations, environmental socioeconomic changes, and changes in both the riskiness and prevalence of various distinct consumer and small business borrower profiles.

In the following sections, we describe the enterprise risk profile and the importance of an effective risk measurement system. Next, we review the evolution of some of the more relevant regulations, note some recent class action lawsuits for alleged consumer protection and fair lending violations, and share a brief outlook for future developments at the federal and state levels. We discuss how to prepare for the challenges created by changes in laws and regulations and markets with three fundamental principles that underpin corporate internal controls. Finally, we introduce return on compliance in terms of performance measurement and risk control, supported by a simple business case on fair lending technology investment.

ENTERPRISE RISK MANAGEMENT

Senior management and the board of directors of major financial institutions are charged with the following responsibilities relative to enterprise risk management (ERM) and compliance:

- Defining the risk management function itself and ensuring that the proper committee and organizational structures are in place to support ERM.
- Defining the corporation's risk preferences via risk policies and key risk measure tolerance specifications.
- Ensuring that staffing is adequate and appropriately skilled in risk management, and that the right incentives are in place.
- Making sure that adequate risk cushions exist to support both day-to-day operations and the firm's strategic business plan.
- Providing for employee training and development to foster organizational learning so as to lessen the likelihood of repeating past mistakes.
- Leading by example to mold the desired risk culture by effective communication and taking reinforcing actions.

The passage of the Sarbanes-Oxley Act in 2002 was brought about by serious concerns that resonated from regulators, stock exchanges, and institutional investors in the wake of corporate frauds and failures[5] (e.g., Barings Bank, Sumitomo, Enron, WorldCom, Adelphia) that saw billions of dollars in shareholder value vanish and threatened the stability of the equity markets. A resounding theme in these failures was ineffective management and board oversight of operations. Sarbanes-Oxley established new rules for corporate governance practices, and it has become increasingly important that corporations take notice and act to make any necessary improvements in their internal controls and external reporting. Consider the fact that interest rate risk on the balance sheets of consumers having adjustable rate mortgages is now translating to significant credit risk on lender balance sheets. By defining loan affordability and product suitability measures and

5. See *Testimony Concerning Implementation of the Sarbanes-Oxley Act of 2002*, William H. Donaldson, Chairman, U.S. Securities and Exchange Commission, September 9, 2003, www.sec.gov/news/testimony/090903tswhd.htm.

disparity indices, these risks could have been identified, monitored, and addressed prior to becoming a problem for the industry at large, and a concentration/asset quality issue for institutions in particular, who have seen their equity shares significantly decline in value.[6]

This book deals primarily with compliance and credit risk management, but we recognize that there is overlap between these two areas, and also spillover into other areas of risk. All financial institutions have internal controls in place that are designed to identify, measure, monitor, and control a variety of risks that fall into various broad categories.[7] An Office of the Comptroller of the Currency (OCC) handbook advises national banks that "Risk identification should be a continuing process, and should occur at both the transaction and portfolio level."[8] Risk identification is the main topic of Chapter 3 in this book, and we advocate a continuous, systematic process for examining lending patterns and loan performance in the aggregate (e.g., portfolio level). We also focus on loan decisioning, pricing, and marketing relative to both credit and compliance at the customer level. Measurement of risk is a demanding endeavor, and requires the use of statistical methods to help determine the significance and materiality of risk exposures. In the compliance realm, we devote several chapters to this topic. In the credit area, risk measurement sometimes requires the use of some fairly sophisticated mathematical algorithms to estimate the probability that a loan will default, or the extent to which the amount and timing of credit losses are likely caused by delinquency, or risk grade, migration. Concerning risk measurement, we cannot improve on the OCC's guidance:

> Accurate and timely measurement of risk is essential to effective risk management systems. A bank that does not have a risk measurement system has limited ability to control or monitor risk levels. Further, the more complex the risk, the more sophisticated should be the tools that measure it. A bank should periodically test to make sure that the measurement tools it uses are accurate.[9]

Risk monitoring should be performed regularly, with up-to-date information, and it should provide an accurate and consistent picture of risk exposures to all relevant stakeholders so that controls can be applied and so that any violations of policy, regulation, or law can be swiftly addressed. Some stakeholders may require less detail, but their higher-level picture should have the available dots behind it to connect to the more granular assessments and quantitative analyses.

At the enterprise, or highest, level, it is customary to periodically document the firm's risk profile as part of the capital plan. This corporate risk profile must have an accompanying explanation for the corporate capital plan's readership, namely the board of directors, regulators,[10] stock analysts, rating agencies,[11] and business partners. For example, Figure 1.1 depicts a sample risk profile.

While these categories of risk[12] are shown as distinct, they are interrelated. By recognizing their intersection points, their associated risks can be more effectively and efficiently managed. Operational risk is defined as the risk of failures, and losses, due to people, processes, or systems, and includes transaction risk. Compliance risk exposures can be measured relative to their associated business transactions and activities, for example, underwriting, loan pricing, marketing, and so forth. Compliance risk is interrelated with operational risk, and operational risk also can lead to market or credit risk.[13] This book focuses on major intersection points between credit risk and

6. Another crisis is unfolding in the subprime mortgage market for adjustable rate and option-priced loans that are repricing after a prolonged period of rising interest rates.
7. While there is no single categorization that has been adopted, the OCC's guidelines are used as a basis for the current discussion.
8. Administrator of National Banks, *Comptroller's Handbook for Large Bank Supervision*, United States of America Comptroller of the Currency, May 2001, pp. 5–6.
9. Ibid., p. 6. Chapters 4, 5, and 6 focus on risk measurement, with some elements on monitoring as well.
10. OCC, FDIC, Federal Reserve, OTS, SEC, State Banking Commissions, etc.
11. For example, Moody's, Standard & Poor's, Dun & Bradstreet.
12. For definitions of the risk categories, refer to Appendix 1A.
13. Jorion pointed that legal risk is often related to credit risk. See also Jorion, Philippe. *Value at Risk: The New Benchmark for Managing Financial Risk*, McGraw-Hill, 2007, pp. 22–27. Both Jorion and Duffie and Singleton,

Enterprise Risk Profile								
Risk Category	**Quantity of Risk (Low, Moderate, High)**		**Quality of Risk Management (Weak, Satisfactory, Strong)**		**Aggregate Level of Risk (Low, Moderate, High)**		**Direction of Risk (Increasing, Stable, Decreasing)**	
	OCC 6/30/07	**Bank 6/30/07**	**OCC 6/30/07**	**Bank 6/30/07**	**OCC 6/30/07**	**Bank 6/30/07**	**OCC 6/30/07**	**Bank 6/30/07**
Credit	Moderate	Moderate	Weak	Satisf.	High	Moderate	Increasing	Stable
Interest Rate	Moderate	Moderate	Satisf.	Satisf.	Moderate	Moderate	Stable	Stable
Liquidity	Low	Low	Strong	Strong	Low	Low	Stable	Stable
Price	Moderate	Moderate	Strong	Strong	Low	Low	Stable	Stable
Transaction	Moderate	Moderate	Satisf.	Satisf.	High	Moderate	Increasing	Stable
Compliance	High	High	Satisf.	Satisf.	High	High	Increasing	Increasing
Strategic					Moderate	Moderate	Increasing	Stable
Reputation					High	High	Increasing	Stable

FIGURE 1.1 CORPORATE RISK PROFILE

compliance risk and the opportunities they present for more integrated identification, measurement, monitoring, and control of associated risks. The outcome is stronger, more effective and more efficient internal controls for the enterprise.

LAWS AND REGULATIONS

Over the past 40 years, there have been many significant regulatory developments related to institutional lending practices and programs. During the period 1968–77, Congress enacted legislation designed to:

- Prohibit discrimination in the sale, rental, and financing of dwellings, and in other housing-related transactions.[14]
- Prohibit creditors from discriminating against credit applicants.[15]
- Increase lending to meet credit needs in underserved communities.[16]
- Collect data on loan applications[17] by census tract that, for the most part, are secured by residential real estate.[18]

categorized the risk faced by financial institutions into (1) market risk, (2) credit risk, (3) liquidity risk, and (4) operational risk (Duffie and Singleton also included systemic risk). They all considered regulatory and legal risk as part of operational risk. See Duffie and Singleton, *Credit Risk: Pricing, Measurement, and Management*, Princeton University Press, 2003, pp. 3–7.

14. Title VIII of the Civil Rights Act of 1968 (Fair Housing Act) Prohibited basis: race, color, national origin, religion, sex, familial status (including children under the age of 18 living with parents of legal custodians, pregnant women, and people securing custody of children under the age of 18), and handicap (disability).
15. Regulation B, the Equal Credit Opportunity Act (ECOA) of 1975. Prohibited basis: race, color, religion, national origin, sex, marital status, age, or because an applicant receives income from a public assistance program.
16. Regulation BB: Community Reinvestment Act (CRA) 1977.
17. Including actions taken on applications (i.e., origination, denial, incomplete, withdrawn, approved but not accepted, and loan purchased by institution).
18. Regulation C: Home Mortgage Disclosure Act (HMDA) 1975.

With the passage in 1980 of the Depository Institutions Deregulation and Monetary Control Act, state usury laws limiting rates lenders could charge on residential mortgage loans were preempted, which set the stage for a significantly broader pricing range for the subprime mortgage market. In 1989, Representative Joseph Kennedy (D-Massachusetts) obtained successful passage of an amendment to the Home Mortgage Disclosure Act (HMDA) that required reporting on loan applicant race and income. More recently, in 2002, HMDA was amended again to include loan pricing information for loans exceeding specific thresholds for spread over comparable-maturity treasury security yields.[19] The 2002 HMDA amendment took effect in 2004 for data reported in 2005 and thereafter. While the HMDA data do not represent a complete picture of lending practices, they are used by regulatory agencies as part of their screening activities for potential compliance violations, and the Federal Reserve Board issues an annual report on this data.[20]

Tom Miller, Attorney General of Iowa, in his keynote address at the 2007 Fair Lending Summit,[21] pointed to the convergence of consumer protection and fair lending/civil rights and he cited two issues driving the intersection. First, he pointed to the $295 million Ameriquest settlement.[22] While it is legal for lenders to charge what they want, selling tactics relative to representing costs to the borrower, and also cases where similarly situated borrowers in protected classes may appear to be charged more than their nonprotected class counterparts, can raise issues. Second, Attorney General Miller pointed to yield spread premiums (YSPs) for independent mortgage brokers, which are a source of compensation. If one to two points additional are charged to consumers and this practice is not evenly applied across the loan applicant base, especially if certain classes of applicants are more susceptible to accepting those costs, then this causes problems. The Ameriquest predatory lending practices case was not isolated. In fact, Attorney General Miller and his office led the national group that recently obtained the largest national consumer protection settlement ever with Household Finance, which totaled $484 million. Looking beyond the retrospective relief associated with these settlements, lenders are studying the injunctive relief that specifies going forward restrictions on business operations and practices, monitoring, and reporting requirements. Proactive lenders seize the opportunity to set the standard themselves, rather than waiting for injunctive relief on a future class action settlement to set the new standard.

Looking ahead, the prospect of Congress passing legislation on predatory lending appears to be strengthening, and as of March 2007, 27 states (including the District of Columbia) had already announced adoption or support[23] of the Conference of State Bank Supervisors/American Association of Residential Mortgage Regulators guidance on nontraditional mortgage product risks. These nontraditional mortgage products appear to present higher credit and compliance risk for both borrowers and lenders in subprime markets.

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19. For first liens the trigger is three percent, while for subordinate liens the trigger is five percent. In 2002, the Board of Governors of the Federal Reserve System (FRB) issued several new regulatory changes, some of which became effective in 2004 (subject to 2005 filing), to improve the quality, consistency, and utility of the data reported under HMDA. The 2004 HMDA data, released to the public in the spring of 2005, was the first to reflect the new regulatory requirements and to include the pricing information.
20. Avery, Robert B., Glenn B. Canner, and Robert E. Cook. "New Information Reported under HMDA and Its Application in Fair Lending Enforcement," *Federal Reserve Bulletin*, 2005, pp. 344–394.
21. Miller, Tom. *The Emerging Nexus: Fair Lending Enforcement Issues and Enforcement with Consumer Protection Issues*, Keynote Address, Fair Lending Summit 2007, National Real Estate Development Center (NREDC), Washington, DC, March 26, 2007.
22. Attorney General Miller led the group of states bring action against the national lender.
23. Announcements ranged from "regulatory alerts" to "state guidance" to intent to "draft rules." Some states, including North Carolina (HB 1817), have passed predatory lending laws or amendments in 2007, and the Fair Mortgage Practices Act was introduced July 12, 2007 in the House of Representatives by House Financial Services Committee Ranking Member Spencer Bachus, and original cosponsors Reps. Paul Gillmor and Deborah Pryce. This particular piece of legislation aims to better protect homebuyers from predatory lending practices, with special focus to protecting the subprime market.

CHANGING MARKETS

The simple fact is that America's demographic, economic, and immigration trends over the past few decades have resulted in significant shifts in the pool of financial services consumers.[24] At the same time, gaps have persisted in such areas as home ownership. In 1949, when the Fair Housing Act was passed, there were approximately 43 million housing units and the national home ownership rate stood at 55 percent. Since that time, the number of housing units has more than tripled, while the home ownership rate has increased to 69 percent. Relative to race and ethnicity, the gap in rates is pronounced, and this is especially true for African-American and Hispanic consumers according to Figure 1.2 from the U.S. Census Bureau.

A fairly recent study indicated that Hispanic and Latino homeownership has been on the rise and could reach 60 percent by the year 2010.[25] In order for that to happen, the study points to the importance of continuing trends such as low interest rates and gains in education and income. It recommends creating a simpler and clearer home-buying and lending process and the adoption of more incentives for low-income and first-time home buyers. It also pointed out the importance of reducing the vulnerability of Hispanic consumers to predatory lending practices.[26] Measuring progress in the lending area requires the ability to properly interpret publicly reported information, such as the annual HMDA Peer Data made available by the Federal Reserve every year. Chapters 3 and 4 address approaches for analyzing HMDA data and combined data (internal, public, and third party). Detection of predatory lending patterns, and testing for potential fair lending compliance violations, are also covered in those chapters, as well as in Chapters 5, 6, and 8. Credit risk management and fair lending compliance go hand-in-hand, and lenders are increasingly required to communicate appropriately on both fronts to all stakeholders in a consistent, accurate, and timely manner.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
U.S. total	65.4	65.7	66.3	66.8	67.4	67.8	67.9	68.3	69.0	68.9
White	69.1	69.3	70.0	70.5	71.1	71.6	71.8	72.1	72.8	72.7
White non-Hispanic	71.7	72.0	72.6	73.2	73.8	74.3	74.5	75.4	76.0	75.8
Black	44.1	44.8	45.6	46.3	47.2	47.4	47.3	48.1	49.1	48.2
Other race	51.0	52.5	53.0	53.7	53.5	54.2	54.7	56.0	58.6	59.2
American Indian, Aleut, Eskimo	51.6	51.7	54.3	56.1	56.2	55.4	54.6	54.3	55.6	58.2
Asian, Pacific Islander	50.8	52.8	52.6	53.1	52.8	53.9	54.7	56.3	59.8	60.1
Hispanic	42.8	43.3	44.7	45.5	46.3	47.3	48.2	46.7	48.1	49.5
Non-Hispanic	67.4	67.8	68.3	68.9	69.5	69.9	70.0	70.8	71.5	71.2

FIGURE 1.2 HOME OWNERSHIP BY RACE AND ETHNICITY OF HOUSEHOLDER (1996–2005)[a]

[a]The home ownership rate is the percentage of home owning households in the given demographic group. Source is the U.S. Census Bureau Web: www.census.gov; Information Please ® Database © Pearson Education Inc.

24. According to the U.S. Census Bureau's Report on Minorities by County released August 9, 2007, approximately one in every 10 of the nation's 3,141 counties has a population that is greater than 50 percent minority.
25. Congressional Hispanic Caucus Institute HOGAR Initiative, *An Assessment of Hispanic Homeownership—Trends and Opportunities*, 2005, Section 1: Executive Summary, p. 3.
26. See Congressional Hispanic Caucus Institute, *National Housing Initiative Focus Group Findings: Cross-Site Report*, June 2004, findings from Atlanta, GA, Section IV Major Findings, Part B. Barriers to Homeownership, p. 36, for detailed supporting examples.

The number of consumers in the underserved market is in the tens of millions, with some portion falling into the underbanked or thin credit file category, and the rest is identified as unbanked.[27] By default, these consumers today may be denied credit or put into programs geared toward the subprime segment of the consumer credit pool. In the latter case, they are charged higher prices (rates, fees, margins) than those offered to "more established" consumers.[28]

Loan originators can significantly help provide fair access and pricing to individuals and households that fall outside of the more traditional credit-based financing model. In order to more rapidly assimilate the massive number of consumers who fall outside of the mainstream usage of credit, a key area is finding new ways to view and model their default risk. To do so, one must identify and tap alternative data sources that can provide significant information value relative to qualifying unbanked and underbanked consumers for financial products and services.[29] We recognize that some utility and other payment information has been available, and assessed to some degree, prior to this time. At least one of the major credit bureaus has maintained this type of information in some markets for over 20 years. In addition, a standard means for reporting alternative data has already been developed, for example, the Metro II format from the Service Bureau.[30] Over the past few years, the Information Policy Institute has conducted research on how underserved consumers can gain increased access to credit, especially in the area of nontraditional data.[31] Key findings of their latest study of 8 million credit files (including consumers with *thin files* or those that are *unscorable*) are that:

- There is similarity in risk profiles among traditional consumers and their nontraditional counterparts.
- Nontraditional data make extending credit easier.
- Minorities and the poor benefit more than expected from nontraditional data.
- Nontraditional data decrease credit risk and increase access.
- Nontraditional data has relatively little effect on the mainstream population.
- Scoring models can be improved with more comprehensive data.

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27. "Lenders rely heavily on credit scores to make credit decisions. An estimated 32 million Americans, however, have credit files that do not have sufficient information to calculate standard credit scores. An additional 22 million have no files at all." See Afshar, Anna. "Use of Alternative Credit Data Offers Promise, Raises Issues," *New England Community Developments—Emerging Issues in Community Development and Consumer Affairs, Federal Reserve Bank of Boston*, Issue 1, Third Quarter 2005.
28. Studies have found that in case of "thin" or no credit history, minority applicants are more likely to be denied for a loan than nonminority applicants. For example, an analysis of the Boston Fed data (Han, Song, Learning and Statistical Discrimination in Lending, unpublished manuscript, 2002) found that, for the subsample with no credit history information, very large racial differences exist in underwriting outcomes, versus no racial differences for the subsample where information on credit history is available. This was termed as *statistical discrimination*. See also Ross, Stephen L. "What Is Known about Testing for Discrimination: Lessons Learned by Comparing across Different Markets," University of Connecticut Working Paper 2003-21, 2002, pp. 54–58. Another hypothesis that has been raised is that racial effects may be significant only for the financially disadvantaged subgroup. See Hunter, William C. and Mary Beth Walker. "The Cultural Affinity Hypothesis and Mortgage Lending Decisions," *Journal of Real Estate Finance and Economics*, Springer, vol. 13(1), 1996, pp. 57–70.
29. Afshar, 2005. Asfhar reports on alternative sources of payment data and that the "big three" national credit bureaus are beginning to investigate ways of expanding their own credit scoring models to include alternative data.
30. Using Metro II Credit Reporting Software, businesses report debtor and consumer accounts to the major credit reporting repositories. Supported industries include automobile dealers, finance companies, collection agencies, utilities, property management firms, banks, credit unions, mortgage companies, jewelry stores, government, law firms, educational institutions, medical billing agencies, and more.
31. See Turner, Michael, S. Alyssa Lee, Ann Schnare, Robin Varghese, and Patrick D. Walker. *Give Credit Where Credit Is Due: Increasing Access to Affordable Mainstream Credit Using Alternative Data*, Political and Economic Research Council and the Brookings Institution Urban Markets Initiative, December 2006; and Information Policy Institute, *Giving Underserved Consumers Better Access to the Credit System: The Promise of Non-Traditional Data*, July 2005.

Alternative information must be tapped that can be used to assess consumer riskiness; saving habits; employment stability; financial capacity; and breadth, depth, and history of relationships with providers of essentials (i.e., utilities, telecommunications, housing, transportation, etc.). Chapter 6 explores some new ways to develop models that can accommodate missing information and alternative data to help evaluate underserved and unbanked consumers for loans.

The foregoing discussion has touched on the "opportunity side" of compliance and risk management. Fair lending is no longer just a compliance issue. It has a significant impact on various aspects of an institution's business growth and operations. In particular, it will evolve to more directly affect an institution's marketing strategies and revenue-generating opportunities, largely through the evolution of a new generation of credit risk models and multilevel customer segmentation strategies.[32] These models and strategies will not only pertain to customers and the parameters of the financial transaction; they will span external factors in the macroeconomic, community-based, sociological, and cultural realms.

PREPARE FOR THE CHALLENGES

The foregoing discussion implies that institutions must effectively respond to the changing environment. Failure to do so can have serious consequences. From the view of the board of directors, the regulatory community, shareholders, and corporate management, the following are critical concerns that must be satisfied by any financial institution on a continual basis:

- Trust that financial performance results will be reported accurately and in a timely manner.
- Confidence in management's ability to swiftly detect and correct problems.
- Belief that the institution has processes and plans in place of sufficient quality to safeguard the operation, while providing a fair return to shareholders.
- Ability to achieve and maintain compliance with all applicable laws and regulations.
- Adequate internal control strength to ensure operational effectiveness and compliance with internal policies.
- Constantly strive for greater efficiency by identifying and eliminating redundant or unnecessary processes, people, and systems to ensure a streamlined organization.
- Mold a culture that is customer focused and results oriented, with individual accountability at all levels of the firm.

To ensure that these concerns are met, a financial institution's primary regulator will periodically conduct various exams to perform an independent verification. In order to avoid surprises in these exams, it is desirable to know ahead of time how well an institution is performing and complying with the laws and regulations in question. Financial performance is included, in addition to laws and regulations, because regulators worry a great deal about the financial strength of financial firms. They use the Uniform Financial Institutions Rating System[33] (commonly referred to as CAMELS), which focuses on capital adequacy, asset quality, management and administration, earnings, liquidity, and sensitivity to market risks.

Several problems confront most institutions that desire to institute a proactive versus reactive compliance program. First, it is very difficult to stay on top of the mountain of information that accumulates during each exam period (usually two or more years). Information emanates from a multitude of sources in a variety of databases on a mixture of platforms and operating systems.

32. As a result, the new OCC examination procedures emphasize evaluation of credit scoring in the context of fair lending. See OCC Fair Lending Examination Procedures: Comptroller's Handbook for Compliance, Appendix D, Fair Lending Sample Size Tables, April 2006, pp. 47, 95–97.
33. See Glantz, Morton, *Managing Bank Risk: An Introduction to Broad-Based Credit Engineering*. Academic Press, 2002, pp. 375–379.

Second, data is multidimensional and often must be compiled at the transaction or account level, then organized via segment, assessed, aggregated and compared, trended, and finally summarized. Compliance staff struggle in their attempts to make a multitude of meaningful comparisons relative to their past performance; to other lenders operating in the same market; and across geographies, legal entities, different types of loans, and different groups of loan applicants. Often, they are still in a risk investigation mode, rather than a risk mitigation mode, when the regulators begin to point out suspect patterns and potential issues. In short, they find themselves behind the curve with respect to business intelligence. Third, accessibility of information instills confidence in regulators, and it can be crucial in preparation for safety and soundness examinations. Often, internal analysis is not initiated until data is in the hands of the regulatory examiner or is triggered in quick-response situations, such as when a Community Reinvestment Act (CRA)-related protest is lodged, or when a problem surfaces as the result of a customer complaint, governmental inquiry, or discovery order related to a pending legal action is received, and so forth. In these situations, banks can exhaust the review period in a defensive mode while they attempt to gather data that would demonstrate satisfactory performance.

The question becomes: "How can financial institutions avoid surprise and the attendant reaction mode that accompanies it?"

The answer to this question is more easily stated than achieved. Specifically, institutions can achieve the desired result only after they have put effective processes in place to support an ongoing rigorous compliance self-assessment program. Lenders must maintain, improve, and validate existing credit risk evaluation models that are used to measure and price the risk of borrowers and their financial transactions. These processes must afford users with the confidence that comes with knowing that the business and analytic intelligence they provide is rooted in data, processes, and analytical engines that are transparent and that have undergone rigorous and comprehensive validation. Comprehensive, accurate, and timely business and analytic intelligence results in greater insight, leading to foresight and the ability to avoid surprises and costly missteps. Issues are surfaced early on and are dealt with appropriately before they pose problems and consume significant resources.

There are three regulatory concerns that have echoed across financial services over the past few years: (1) the need for process validation, (2) the necessity of having an issue surfacing culture, and (3) transparency.

Process Validation

With respect to any law, or regulation, or internal policy or guideline, how does an institution satisfy itself that it is *in compliance*? Often, compliance failures go undetected for some period of time, only to surface long after their occurrence during a formal regulatory exam, as the result of a customer or governmental agency complaint, or from inquiries from the news media. Enterprise compliance solutions must provide a window into the multilayered infrastructure of an organization. To accomplish this, information must be brought in from a variety of sources ranging from large central transaction systems, to process-owner business rule repositories, to individual departmental data stores. The information is interpreted, translated, and, if necessary, corrected before being stored. This information value chain is completed when an intelligent storage facility enables access that facilitates analysis, visualization, and subsequent reporting of results. What we have just described is an enterprise intelligence platform (EIP).[34]

Errors can originate in the data, or they can occur due to processing flaws. To the extent that processes can be automated, validation of computer programs is more sustainable and can be

34. For a more in-depth explanation and review of this kind technology and its components, see Schwenk, Helena, *SAS: SAS Enterprise Intelligence Platform*, Ovum Ltd., January 2006, www.ovum.com.

achieved and demonstrated far more easily than similar manual processing. Statistical sampling can be used to monitor data quality and collection process. For compliance testing and credit underwriting and pricing, it is important to evaluate loan policy, guidelines, and approval process.[35] Another source of errors is the misuse of models or the use of inaccurate models. We devote the last chapter of the book to the topic of model validation relatively to all aspects (i.e., input, processing, and output).

Issue Surfacing Culture

The cornerstone of this objective is clear communication that the messenger will not be shot and mistakes will happen, but attempts to conceal them will not be tolerated. Shareholder and regulator trust depends on the belief that the institution can effectively identify and manage risk exposures. It is important to quickly formulate and execute all necessary corrective measures and risk management strategies so as to lessen, or avoid, any negative consequences.

The hallmark of a chief executive officer (CEO), or C-level management, is leadership. Corporate leadership requires that executives set aside personal agendas and other conflicts of interest and do what is in the best interest of the firm and its reputation for high integrity, fairness in all business dealings, and transparency to regulator agencies, shareholders, and the public at large. Confidence that an institution knows what is going on, and quickly corrects problems before they become significant exposures is core to owning stakeholder trust and it is very difficult to recapture when major failures come to light or negative performance trends come into question. Major internal control failures that result in financial injury to customers can cause a financial institution to be put under close supervision by its primary regulatory agency. The resulting burden of greater regulatory oversight can approach an all-consuming exercise for executive management and the board audit and compliance committees. The military phrase "punishment will continue until attitude improves" may come to mind for an executive management team that finds that while they may have addressed most of the concerns that initially led to their problems, the closer oversight processes has managed to surface new and material internal control weaknesses in completely different areas, frequencies of corporate policy exceptions that are above tighter imposed regulatory thresholds, technical violations of regulations, or worse, clear violations of law.

Maintaining vigilance in this area is especially challenging in times where budgets are tight and focus is most often directed to revenue-generating activities in preference to rooting out rule-bending or rule-breaking behavior. Common reasons for not ensuring that sufficient early warning and intelligence-gathering systems are in place to detect violations of fair lending policy and law include:

- "If it doesn't appear to be broken, don't fix it."
- "We don't want to open a can of worms."
- "We don't want to waste resources checking out false warnings."
- "It is more defensible to not know about a problem than to surface possible warning signs and do nothing about them."
- "We don't want to create evidence that can be discovered by a plaintiff or government oversight/enforcement agency and used against us in court."

The path commonly referred to as the *ostrich approach* is sometimes promoted by one or more of these lines of reasoning.

Unfortunately, this sort of defensive strategy may save money in the short run, but it exposes the institution to potentially much higher future costs associated with consequences of preventable

35. This is one of the principles for credit risk management. See Basel Committee on Banking Supervision, "Principles for the Management of Credit Risk," July 1999, p. 15, paragraph 43.

and undetected regulatory violations. Those consequences include direct losses stemming from immediate financial losses on transactions, or across a portfolio or customer segment. Losses may continue over time, with lawsuits, business interruption, restitution, write-downs on asset values, regulatory and taxation penalties, higher insurance premiums, lower debt ratings, distraction of company senior management from normal priority of responsibilities, loss of shareholder value, damaged employee morale, and reputation/brand damage. A recent Wharton Business School study[36] reported that operational loss events have a significant negative impact on stock price (market value) on the institution for both the banking and insurance industries. The size of the market value loss for an institution was found to be several times (i.e., four to five times) the operational loss reported by the institution.[37]

A strategy of "not wanting the power to know what is going wrong" exposes the board of directors to civil money penalties and fines that potentially could surpass director and officer (D&O) issuance coverage. The simple truth is: What you don't know *can* hurt you, your firm, and your corporate board. Hence, it would seem that there should be ample justification for investments in time and resources on strengthening internal controls, and leveraging technology so as to lessen the likelihood that serious problems will go undetected. Putting together a business case for compliance technology investment is an exercise that must be specific to each institution. This is because risk exposures and control strength vary by institution. For example, relative to HMDA and fair lending, two institutions may have identical volume and a similar geographic footprint, but different odds ratios and disparity indices. With respect to controls, one lending institution may be using old technology or manually intensive processes that are error-prone versus another institution that has a state-of-the-art compliance solution in place. In most cases, analysis will show that the cost of such an investment is small in comparison with the expected market value erosion. As we will see in the next major section, you need to estimate expected losses by taking into account both the likelihood and impact of various sorts of problems, or outcomes, under different scenarios and adjust for market value erosion as a final step (i.e., the four to five times factor mentioned earlier).

As a key strategy, financial institutions need to *signal* their effectiveness in compliance risk management and control. Public disclosure of your ERM program is an example of one such signal. The delivery mechanism could be a supplemental section in the corporate annual report or a stand-alone report issued periodically to shareholders, stock analysts, and rating agencies. This can serve to minimize potential market value erosion when an operational event ends up happening by chance even when compliance risk management and effectiveness of controls in the institution are of high quality. Certainly, if an institution that is not subject to Basel II compliance[38] were to voluntarily raise the bar on itself and qualify for the advanced measurement approach under Basel II for credit or operational risk management, that would also be a signal.

Another Wharton Study[39] showed that there is spillover effect (in terms of stock price drop) on other institutions in the industry when large loss events occur. That is, investors perceive the report of a large operational event as symptomatic of poor operational risk management and controls throughout the industry. An industry effect generally makes sense for certain environmental factors (e.g., movements in interest rates, where compression of spreads occurs when rates rise and widening of spreads occurs when rates fall). Still balance sheet structure can amplify, or mute, the industry average affect. The market does have access to a fair amount of financial information.

36. See Cummins, J. David, Christopher M. Lewis, and Ran Wei. "The Market Value Impact of Operational Loss Events for US banks and insurers," *Journal of Banking & Finance*, Vol. 30, Issue 10, October 2006, pp. 2605–2634.
37. Recent settlements in compliance areas such as predatory and subprime lending practices that have been in the multi-hundred-million-dollar range represent huge operational losses stemming from thousands of individual transactions.
38. For example, insurance companies, nonbank financial companies, medium-sized banks in the United States.
39. Cummins, Lewis, and Wei, 2006.

In the case of operational failures, this result falls more into the category of "guilt by association." Markets do not have access to control strength information to gauge vulnerability to the same type of event across firms. The spillover impact is scary because it is not rooted in demonstrable linkages, but rather market perception. Thus, a financial institution can suffer market value erosion due to poor compliance risk management in other institutions—something completely beyond its control. Of course, the average effect is much smaller than the average market value erosion of the institution in which the event happened.

All the more reasons for good financial institutions to signal their effectiveness in compliance risk management and control to the market. Signaling is needed because, in the foreseeable future, investors and rating agencies will not be in a position to determine after the fact whether one institution is better than another in compliance risk management.

Transparency

Transparency refers to the ability of any interested party to view the operation and all of its parts in such a manner as to make it readily apparent to the observer what is being performed and how it is being performed. This not only facilitates third-party review (e.g., internal audit or primary regulator), but it also facilitates end-to-end process validation. For starters, transparency begins with compliance solution design and standards that:

- Foster self-documenting procedures and system-generated reports and analysis.
- Require internal program comments by developers.
- Produce external functional documentation that provides linkage to specific regulatory requirements.
- Afford extensive solution operational documentation that specifies exactly how the application operates, its source inputs, data translations, data and metadata management, algorithms, analysis methodology, and how outputs are derived.

Cryptic annotations understood only by the original developers will not suffice. Solution development and application documentation are very different skills—rarely found in the same individuals, particularly for complex, large-scale solutions.

You will need to have documentation expertise available not only for the development stage and ongoing change management of the automated portions of your self-assessment program, but also to document the manual procedures followed by staff as they perform tasks throughout the self-examination cycle. This becomes even more important during a regulatory examination, where examiners expect full disclosure of the entire process. In-house compliance staff must be prepared and capable of convincing corporate executives, the board of directors, external auditors, and regulatory examiners that compliance program verification is achieved on an ongoing basis. That can become a daunting task, especially with large and complicated in-house systems. Point solutions, which are not end to end, become fragmented, and process validation must be made transparent at every control point where a separate application boundary is crossed, such as import/export to a spreadsheet or a proprietary reporting package. Transparency is elusive when dealing with a multivendor, multicomponent fair lending solution strategy.

If public attention is drawn to your lending practices, it will be hard to defend your position if the compliance system lacks auditability. Simply put, your self-assessment solution must provide the ability to trace a logical line from origination systems to aggregate reports. Preliminary adverse findings and trends should be subjected to statistical analysis and significant and material results must be traceable to root causes and supporting information.

Determine Compliance Strategies

The previous section discussed fundamental principles for lending institutions to prepare for challenges posed by changes in markets and regulations. Now we discuss how to develop strategies to put these principles into action. These strategies will not only require new and improved policies and procedures, but also the means to measure and monitor performance of compliance programs. It is important to evaluate your current position in terms of program maturity in order to design appropriate compliance strategies.

Compliance program evolution is intertwined with corporate information evolution. Davis, Miller, and Russell (2006) present an information evolution model. The model classifies companies based on their maturity in "managing information as a strategic asset as a function of infrastructure, people, process and culture." The model entails five stages relative to information capabilities.[40] Compliance programs also fall into one of five different stages of maturity, and Figure 1.3 shows the stages in order of increasing maturity, effectiveness, efficiency, and control strength.[41]

At Stage 1, governance is in place (e.g., committees meet regularly with written charters, and a basic program is in place that is board approved). Processes are largely manual and unreliable. Standards lack consistency and controls are poor.

In Stage 2, previously mastered tasks can be repeated. This stage is characterized by the existence of some business unit–level standards, policies, and procedures, especially relative to

	Maturity				
Characteristics	**Stage 1 Initial**	**Stage 2 Repeatable**	**Stage 3 Defined**	**Stage 4 Managed**	**Stage 5 Optimizing**
Governance in place: committees with BOD-approved charters meet regularly	X	X	X	X	X
Departmental policy and procedures in place for at least the most risky activities		X	X	X	X
Technology deployed and compliance testing performed but not risk based or effective		X			
Compliance testing performed effectively			X	X	X
Technology effectively utilized			X	X	X
Enterprise policy and procedures and metrics in place				X	X
High-level enterprise risk assessment				X	X
Detail-level enterprise risk assessment					X
Consistent continuous testing and self-evolving standards and policies					X

FIGURE 1.3 COMPLIANCE PROGRAM MATURITY MODEL

40. The five stages are (1) Operate, (2) Consolidate, (3) Integrate, (4) Optimize, and (5) Innovate, as described by Davis, Jim, Gloria J. Miller, and Allan Russell. *Information Revolution: Using the Information Evolution Model to Grow Your Business.* John Wiley & Sons, 2006.
41. Brickman, Joel, and Paul Kurgan, "New Challenges for Enhancing Regulatory Risk Management on an Enterprise Level," Regulatory Compliance Risk Management Conference, American Conference Institute, November 29–30, 2006, slides 19–20.

the more risky activities undertaken through the normal course of business. Technology is in place, but is not effectively implemented. Compliance testing is performed but is not risk based or effective in many instances.

In Stage 3 the key compliance processes are characterized and fairly well understood, and where risk assessments are performed for all business units. Standards, policies, and procedures are adequate to address risks at the business unit level. Technology and testing are effectively implemented, but enterprise reporting is still hampered by inability to aggregate information and the existence of silo inconsistencies.

By Stage 4, the compliance processes are measured and controlled. This stage is where enterprise risk metrics are defined, and tolerances are board approved in policies and enforced through documented procedures and assigned responsibilities. Effective surfacing and proper escalation of issues and accountability for timely resolution is commonplace. High-level assessment is performed at the enterprise level. Standards, policies, and procedures are consistent throughout, and technology and compliance testing are aligned. There is more focus on developing integrated information and technology that will support cross-functional needs and initiatives. Stage 4 builds on the achievements of Stage 3 via continuous process improvement of ways to better identify, measure, monitor, and control compliance risk and strengthen internal controls. Strategies are formulated from more powerful risk evaluations of current and potential exposures that, in turn, are fueled by more complete and meaningful information. The insight gained results in greater foresight.

At Stage 5, the focus is on process improvement. This stage is where a firm realizes a sustainable advantage in the compliance risk management arena. Detail-level enterprise assessments are performed. Standards, policies, and procedures self-evolve. There is consistent, continuous testing performed and consistent reporting performed at all levels. Repeatability and adaptability of analytical processes is routine.

Clearly, an institution would benefit from attaining stage 5, the highest compliance maturity level. The general consensus is that most firms are at stage 3 of compliance program maturity. Therefore, most companies need to make the case for stronger, more mature programs. However, it is challenging to make the case to invest in the areas that will safeguard as opposed to generating revenue. It is more difficult for a CEO to (1) justify to Wall Street investors his decision to spend money on preventative measures such as strengthening internal controls and the corporate compliance self-assessment program that reduce shareholder return, than it is to (2) justify to the board of directors spending four times as much (or more) to mount a legal defense and gather supporting data and analysis in the wake of a class-action lawsuit alleging lending discrimination. The reason is that in the first instance, capital spending is voluntary, whereas in the second instance there is no choice in the matter and spending even greater sums of money has become a necessity. The reason for emphasizing the foregoing points is to make the case for a proactive compliance program that anticipates and heads off trouble, rather than reacting after the fact and mounting a defensive strategy. The next section discusses the tangible returns associated with a solid compliance program, and Appendix 1B frames the business case for a significant compliance risk management technology upgrade in a simple and intuitive manner.

RETURN ON COMPLIANCE

Historically, there has not been much attention given to making business cases for compliance risk management. This is primarily due to a couple of factors. First, compliance solutions tended to cover the bare minimum to meet the legal or regulatory requirement. Second, the requirement had to be met, so there could be little debate over whether to spend money to avoid a violation of law.

Today, the landscape has changed. It is no longer enough to be "compliant" at a point in time. It is now important to anticipate, and indeed head off, future violations. A recent survey of 175

executives at global financial firms revealed that compliance is the number two profit concern, with globalization capturing the top spot, and risk in the number three spot.[42] The same study found that advanced compliance capabilities can be a competitive advantage. It also noted that noncompliance is more costly than just penalties, that costs of piecemeal approaches are escalating, and that lack of coordination among initiatives is a common problem.

Fortunately, on a parallel track, we have seen great strides in technology, especially with the advent of business intelligence that can deliver compliance and risk solutions for an ever widening area of regulations, including credit risk management and fair lending. One of the impediments to any modeling exercise is getting the required data. The source of the data consists of a combination of quantitative modeling results for disparate impact and disparate treatment testing, and various other sources of compliance intelligence that we point to in the nonquantitative realm in Figure 2.10, such as mystery shopping results, policy assessments, and so on. With additional choices now available, management is confronted with the question: "What is it worth to have the power to know the institution's potential compliance exposures, so that appropriate action can be taken to fix current problems and head off future ones?"

A simplified framework for constructing a business case for elevating the institution's compliance program to the next level of maturity, or for maintaining a mature program in the wake of constant changes and challenges, appears in Appendix 1B.[43] Most companies budget for expenses and capital expenditures on an annual basis. Constructing a business case is usually a prerequisite for obtaining approval to add resources, upgrading technology, and so forth. This high-level business case for a compliance technology upgrade points out examples of the sorts of things that need quantification. In developing this simple business case, we have tapped the examination guidelines to identify four primary areas of key risk factors; exam focal points typically will drive off of these, and they vary by institution based on a number of criteria (e.g., past examination findings, HMDA data, prevailing customer complaints, etc.). Business intelligence solutions can help trace events to their root cause in order to find and fix problems. By benchmarking performance and setting thresholds on key indicators, you can identify performance that is out of the norm or trending negatively, and set priorities and focus accordingly. This presumes the following questions have been answered. How should performance be measured, and what level of compliance performance is desired? Who decides and who sets the standards? How often should the standards be reviewed and changed? Should reviews be performance triggered?

In addition to making a business case for improving regulatory compliance risk management, we see a solid case to be made for adopting a more integrated approach toward compliance risk management and ERM in general. At the highest level, the board of directors has responsibility for gauging the risk-bearing capacity of the firm and setting risk tolerances accordingly. The board, however, can only know based on what management provides to them, the opinions of independent auditors, and possibly external legal counsel and consultants retained by it or management. It is vital that critical information on risk exposures be appropriately quantified and surfaced to the board in a timely manner. This requires solid risk management and rigorous control assessment. All forms of internal and environmental changes must be monitored. The process should be efficient to ensure complete coverage, while avoiding redundancy. We assert that a more fully integrated approach strengthens the capability to account for, indeed exploit, natural dependencies that exist across compliance areas so as to avoid over/underestimating risk exposures. An example would

42. Ribeiro, Jack. "Global Services Industry Outlook—Shaping Your Strategy in a Changing World." Deloitte & Touche USA LLP, 2006 and Brickman and Kurgan, 2006, slides 2–4.

43. Model assumptions concerning the probability distributions of various categories of compliance exposures and the impact of compliance controls may be based on experience in the field, and also on data and test results from the institution's fair lending self-examination program. The impact of fair lending exposures can be estimated from both past internal information, and also external sources such as public disclosures of the terms of settlements of lawsuits brought for violations of related laws and regulations.

be credit risk management and fair lending compliance, because credit scoring impacts access to credit in addition to controlling credit default risk. Another would be incorporating CRA goal setting with effective tapping of emerging markets using alternative credit underwriting models for nontraditional users of credit, while simultaneously satisfying strategic plan goals aimed at improving the lender's annual HMDA peer fair lending results. In Chapter 8, we explore ways to address these multiple objectives using a credit and compliance optimization process (CCOP).

Appendix 1A

Taxonomy of Enterprise Risks

Credit risk Risk arising from an obligor's failure to meet the terms of any contract with the bank or otherwise failing to perform as agreed. Arises anytime bank funds are extended, committed, or otherwise exposed through actual or implied contractual agreements.

Interest rate risk Risk arising from movements in interest rates. The economic perspective focuses on the value of the bank in today's interest rate environment and the sensitivity of that value to changes in interest rates.

Liquidity risk Risk arising from an inability to meet obligations when they come due, possibly incurring unacceptable losses. Includes the inability to manage unplanned decreases or changes in funding sources or address changes in market conditions.

Price risk Risk to earnings or capital arising from changes in the value of portfolios of financial instruments. This risk arises from market-making, dealing, and position-taking activities in interest rate, foreign exchange, equity, and commodities markets.

Transaction risk The current and prospective risk to earnings and capital arising from fraud, error, and the inability to deliver products and services, maintain a competitive position, and manage information. Risk is inherent in efforts to gain strategic advantage and in the failure to keep pace with changes in the financial services marketplace. Transaction risk is evident in each product and service offered. Transaction risk encompasses product development and delivery, transaction processing, systems development, computing systems, complexity of products and services, and the internal control environment.

Compliance risk Risk arising from violations or nonconformance with laws, rules, regulations, prescribed practices, or ethical standards.

Strategy risk Risk arising from adverse business decisions or improper implementation of those decisions. A function of the compatibility of an organization's strategic goals, strategies developed to achieve those goals, and the quality of implementation.

Reputation risk Risk arising from negative public opinion. Affects the ability to establish new relationships or services, or to continue servicing existing relationships. Can expose the bank to litigation, financial loss, or damage to its reputation.

Appendix 1B

Making the Business Case

This appendix presents a simplified numerical example to illustrate return on compliance program investment. The modeling technique used is Monte Carlo simulation. Model assumptions concerning the probability distributions of various categories of compliance exposures and the impact of compliance controls can be estimated. The basic idea is that we have risks, controls designed to deal with risks, and a gap that exists when dollar risk exposures are netted against controls over dollar exposures. The gap may be positive, negative, or zero. A positive gap says that there is some residual risk of loss. A negative gap says that there is a surplus of capacity to deal with risks that exceed those considered to fall within assumed ranges for the modeling exercise. A zero gap means that according to the model assumptions and current business environment, the risk exposure is covered.

For the purposes of illustration we adopt a simplified view of quantifying fair lending regulatory risk. There are several other areas of fair lending exposure; here, we consider just four, namely underwriting, pricing, steering, and redlining. We will not go through all four areas in detail, but we do want to drill down a bit further into one of them, namely, pricing, to examine how one can quantify exposures and then postulate a model that can be used to construct a range of possible outcomes.

Consider pricing risk from a fair lending perspective, which we cover in greater detail in Chapter 4. Actual damages are authorized by the Equal Credit Opportunity Act (ECOA), Fair Housing Act (FHA), Unfair and Deceptive Acts and Practices (UDAP), and state statutes (predatory lending laws), and pertain to economic injury. For punitive damages, a plaintiff must show intent (e.g., predatory lending where minorities are targeted, etc.). The general idea is that pricing exposures are a function of monetary damages, the cost of policy and procedure changes, staff training, regulatory fines and greater oversight burden, direct legal defense and court costs, consequences of damaged reputation, and so forth.

Isolating compensatory monetary damages, we find that these expenses are a function of the injured class definition, and the loss definition. The injured class and loss definitions are based on the allegation that entails the amount of points and interest differential and the incidence by product type, geographic area, and time period. Measurement of damages requires a definition of what level of statistical significance is material[44] and scenario testing where assumptions are varied to gauge the effect on damages. The damage measurement can be done on a group average differences basis or on actual differences by borrower. For example, if the method is average differences, we might have 5,000 class members with a protected class average loan rate of 9 percent, a nonprotected class average loan rate of 6 percent, for a difference of 3 percent. If the average loan amount is $100,000 and the average actual loan term is 60 months, then the average

44. This may be determined by the court, negotiated based on statistical significance, the Reasonable Person Rule, etc.

settlement for a single loan would be in the neighborhood of $15,000, and for the entire class the damages would be in the neighborhood of $75 million!

So far, we have only quantified compensatory monetary damages. The injured class can request a jury trial. Publicity and potential damages are very significant, and agreeing to a settlement to avoid that scenario can be very costly. Increased regulatory oversight can consume management and open cans of worms everywhere—not just around the cause of the action. The question becomes: "What else is wrong with the institution's internal controls that pose a serious risk that remains undetected?" With heightened scrutiny, problems can snowball. The other categories of risk exposures can be estimated in a similar fashion. To recap, the process consists of identifying how many instances of a potential violation exist, estimating the likelihood that an issue will be raised, and gauging the impact per instance and then multiplying probabilities times the impact to estimate total exposure.

Turning to controls, quantification can be done relative to each exposure individually to net out to a residual risk exposure, or it can be done at a high level. For the sake of illustration we use a collective, high-level range—best/worst case ($16/$10.5 million) and most likely ($12 million) estimate. This assumes an average $12 million risk reduction with the current level of staffing and costs associated with fair lending compliance areas. Realistically, you can only throw so many bodies at a problem, and we assume in this particular case that $16 million is the limit without changing the technical environment. The other levers that are available would be the parameters around your internal control structure, such as:

- *Underwriting.* Regression 95 percent confidence level by channel, by loan purpose, by region.
- *Pricing.* Overage/underage incidence 0.5 percent; amount = 15 basis points (bp).
- *Pricing.* HMDA peer data average spread = 25 bp over/75 bp under threshold.
- *Steering.* Percent subprime qualified for prime less than 5 percent.
- *Redlining.* HMDA peer data market penetration disparity index less than 1.5x.

Tightening your control structure by incrementally performing more rigorous monitoring as problems surface, by adding metrics and lowering policy thresholds to reduce false negatives, is the most commonly encountered strategy. A compliance intelligence solution upgrade represents another option that requires a larger initial investment, but can afford significant reduction in exposures to costly compliance failures. The compliance solution upgrade can also include technology that can test with models having a closer fit to the business reality, so that problems can be better surfaced without dramatically increasing the number of false positives, as would be the case by simply tightening down the parameters described above. Analogous to the operational risk paradigm, the expected compliance exposure (cost) is the average annual aggregate financial impact, and unexpected compliance exposure represents the volatility above this average at a specified confidence level.

Figure 1.4 provides the estimated exposures by compliance area for our business case. For pricing, we are assuming that there is a minimum exposure of zero dollars, maximum of $18 million, and most likely exposure of $2 million. These estimates are based on the institution's pricing disparity ratios in the HMDA data, on compliance testing results relative to underages and overages, both amount and incidence, and so on. Similarly for the other areas, the estimates would be based on key risk indicators and also specific compliance testing results for those respective areas. (We describe these tests in Chapters 3, 4, and 5.)

We do not go into the derivation of the distributions, and emphasis here is not on the specific form of the distributions, but rather the idea of using standard distributions to model risk. By specifying risk distributions, the volatility is captured to incorporate unexpected outcomes in the business case. The dollar exposures are estimated by running 6,000 trials using these distributions.

Compliance Examination Area	Assumed Distribution and Parameters	Estimated Dollar Exposure
Underwriting	Truncated normal distribution $\mu = 1$; $\sigma = 2$; Min = 0; Max = \$6MM	**\$2,008,919**
Pricing	Triangular distribution Min = 0; Max = \$18MM; Most likely = \$2MM	**\$6,559,755**
Redlining	Truncated normal distribution $\mu = 1.5$; $\sigma = 3$; Min = 0; Max = \$12MM	**\$3,009,435**
Steering	Lognormal distribution $\mu = 2$; $\sigma = 1.5$	**\$1,986,977**
Total	**Exposure composite distribution**	**\$13,565,086**

FIGURE 1.4 EXPOSURE DISTRIBUTIONS BY COMPLIANCE EXAMINATION AREAS

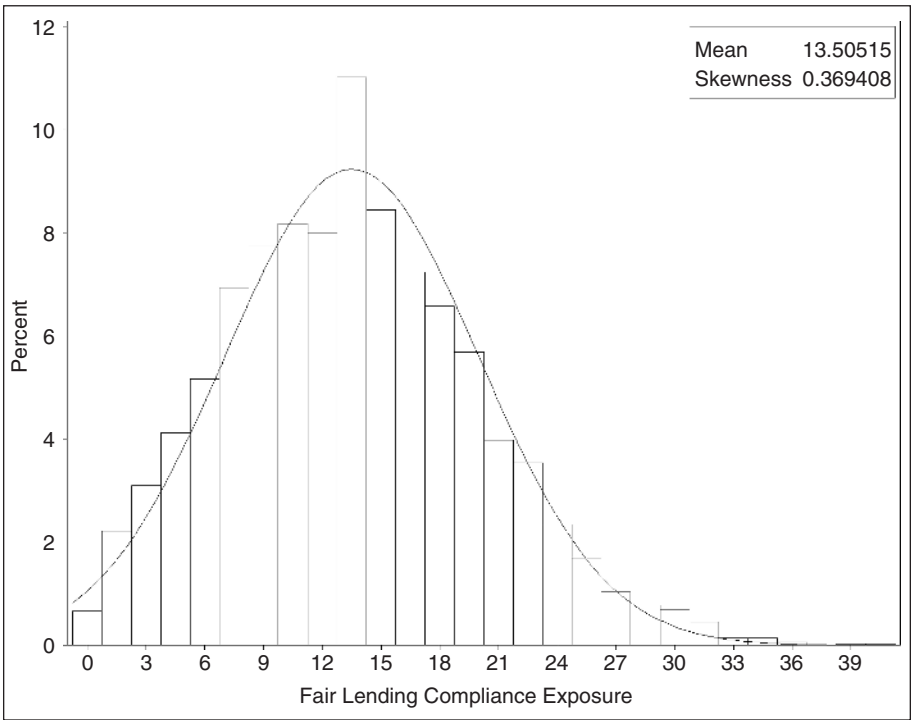

FIGURE 1.5 ANNUAL FAIR LENDING COMPLIANCE EXPOSURE DISTRIBUTION (\$MILLIONS)

The combination of these outcomes represents the \$13.5 million total exposure to fair lending risk in a single year as depicted in Figure 1.5.

In the beginning of this appendix we introduced the concept of the gap, and this result, coupled with a simulated \$12,750,000 risk reduction from current control structures (based on the triangular distribution assumptions stated earlier), leaves a quantified gap for the business case that amounts to an average of \$750,000 in year one. The simulation model in this example also tells us that if our goal is a zero gap over each of the next five years, the likelihood of meeting goal with a

status quo strategy in each of years 1 through 5 is approximately 73, 19, 43, 56, and 63 percent, respectively.

Using the prevailing five-year cost of funds rate as a conservative discounting factor, and discounting beginning in year two, we find that the exposure over five years is $7.5 million, in today's dollars, in order to maintain the status quo. As an alternate strategy, we consider the impact of a technology upgrade. Suppose that the compliance department, in partnership with the Mortgage Subsidiary and Community Development Bank, purchases a new integrated compliance solution that spans Fair Lending/HMDA/CRA at a cost of $5.0 million over five years. The result is a lowering or risk of operational losses associated with potential violations of various laws and regulations. Under the Basel II Advanced Measurement Approach, the institution will have an updated control self-assessment relative to operational risk. We consider the case where the impact on capital is to lower requirements by $10 million due to reduced likelihood of violations either occurring or going undetected relative to the following regulations and areas:

- Regulation C—HMDA
- Regulation BB—CRA
- Fair Lending—FHA/ECOA
- Regulation Z—TILA/HOEPA
- Sales practices: Regulation AA—UDAP
- External broker/dealer
- Marketing diversity
- Systems and technology infrastructure

If we assume a hurdle rate of 15 percent, then there is an annual pretax benefit of $1.5 million associated with the $10 million in capital that has been more profitably deployed. Over five years, discounting again at 7 percent per year (beginning in year one), the accumulated savings in present day's dollars is $6.15 million pretax.[45]

We see in this example that a $5 million investment in new technology can substantially strengthen internal controls and achieve a gap of zero over the next five years. Capital reserve reduction associated with the new technology results in an additional $10 million of capital being productively deployed at the hurdle rate. The benefit from this alone can pay for a significant portion of the cost of a new solution.

45. Some cash flows in this example are discounted over time, while others are not, such as the capital reserve reduction. This is not material to the overall result.