A Risk Professional’s Survival Guide
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A Risk Professional’s Survival Guide

Applied Best Practices in Risk Management

CLIFFORD ROSSI

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To Linda; with this adventure astern,  
may calm winds carry us toward new horizons.
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The intent of this book is to provide the next generation of risk leaders, as well as current practitioners of financial risk management, a handy reference of techniques and concepts for identifying, measuring, and mitigating the major risks facing financial institutions. Risk management has evolved over the past decade into a highly quantitative field, drawing on increasingly complex mathematical and statistical concepts to portray a variety of traditional risks such as credit, counterparty, market, and interest rate risk. At the same time, the financial crisis of 2008–2009 laid bare the limitations of sophisticated quantitative analysis. Advances in quantitative risk management will continue; however, risk managers must be mindful of the “art” of risk management, namely judgment and experience that augments the “science” of risk management. Many risk management books focus on the quantitative aspects of the field rather than explore the importance of the qualitative side of risk management. This book is an attempt to bring both perspectives together in a cohesive fashion.

Another feature of this book is to provide readers with a framework for thinking about risk not as a singular outcome, but one that has consequences that may ripple across other parts of the business or risks. Leveraging experience from the crisis and afterward, the book follows the events of SifiBank, a stylized significantly important financial institution that provides the common thread of risk management practices throughout the course of the book. In that regard, this book represents a significant departure from other risk management books in that it is effectively a case study of one large complex commercial bank. To bring that story alive, a synthetic balance sheet is constructed within which specific positions, portfolios and loans are created. This information is then used in a series of Excel/VBA workbooks to provide the reader a hands on companion to the text discussion of key concepts and models.

The structure of the book starts by providing background on SifiBank, an imaginary institution that serves as an example throughout the chapters, and its historical roots, organizational and regulatory structure, competitive landscape, and markets. The reader is then guided through a risk taxonomy and governance discussion followed by a chapter introducing the reader to
value-at-risk (VaR) and risk-adjusted performance metrics in light of the importance of such metrics for measuring a broad variety of risks.

Following these foundational chapters, the book delves into specific risk types, with an emphasis on identifying and measuring risk. Following each risk the reader is introduced to techniques and structures for mitigating major risk types. The book also presents chapters on operational, model, regulatory, reputation, and legal risk, all of which are of increasing importance for financial institutions following the financial crisis. Finally, the book ends with a look at integrated risk management and how risk managers should be thinking holistically across risks and the firm in performing their risk assessment.

The book is designed for a variety of readers. Readers with technical backgrounds will be able to delve into details surrounding a number of key quantitative concepts and techniques such as Monte Carlo simulation, Principal Components Analysis, copula methods, and econometric models for estimating default risk, to name a few. The Excel/VBA workbooks will be useful to such readers to reinforce concepts and allow sensitivity analysis to be performed. At the same time, readers with an interest in obtaining a basic understanding of key concepts rather than implementing risk models can review the chapter discussion to gain an overall understanding of a particular risk issue.

At the university level, the book is targeted to advanced undergraduate or graduate students in risk management, business, finance, and insurance. The book provides material for a semester long course in financial risk management or bank management or can be easily adapted for a two-course sequence. End of chapter questions provide students an opportunity to test their understanding of important concepts covered and the Test Bank provided to instructors contains ready-made examinations that can be used directly in class. Further, a set of comprehensive PowerPoint instruction slides is provided for each chapter, tying directly to the material discussed in the chapter. Instructors are invited to visit www.wiley.com for additional materials.

As a former senior risk executive at several large financial institutions, my staff and I were always looking for useful references on risk management that could help us improve our understanding of applied risk management concepts and methodologies. In that spirit, this book is meant to fill a gap in this field that provides a comprehensive applied reference for risk managers, now and in the future.
While my name appears on the cover of this book, this project could not have been completed without the direct and indirect support from a number of people critical to the process. First, and foremost, Jim Thompson, a colleague of mine from a former workplace is credited with putting together the Excel/VBA workbooks contained in this book. Jim’s exceptional work, particularly evidenced in the Market Risk, Interest Rate Risk, and Consumer Credit Risk chapters provides readers with user-friendly tools, allowing them to test highly complex risk methodologies easily. These Excel tools bring the story of SifiBank alive and without this material the utility of this book would be severely limited.

Linda Rossi, my wife, not only endured the writing and editing process, but also volunteered her time to take on the role of project manager and jack-of-all-trades in manuscript preparation and version control. Without her assistance and moral support throughout the project, this process would have been significantly more difficult for me.

Finally, a number of people have provided reviews and support along this path. Professor Larry Gordon, from the Robert H. Smith School of Business, University of Maryland, provided guidance and insight on the book-writing process from his own experience, motivating me to take on this project. Likewise, Dean Alex Triantis, Robert H. Smith School of Business, University of Maryland, provided support and an introduction to Bill Falloon at John Wiley & Sons. Bill’s support of the concept for the book provided the catalyst for it to become something more than just an idea. Thanks also go out to Meg Freeborn and Vincent Nordhaus whose editorial skills greatly enhanced the end product while keeping me on schedule.

Finally, I would like to thank the MS Finance students taking my Corporate Risk Management course at the Robert H. Smith School of Business, University of Maryland, who provided feedback and critical input on the materials during the project.

To all of you go my sincerest thanks for your patience and understanding. Your support enabled the book to come to fruition, and any remaining errors and omissions are solely my own.
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Navigating Risk at SifiBank

OVERVIEW

Managing risk at a banking institution is one of the most critical activities carried out by financial firms. Banks could not expect to have much longevity if risk management were ignored or poorly executed. The subprime mortgage crisis of 2008 offers a once-in-a-lifetime case study of how many different types of financial institutions lost sight of the importance of risk management and either went out of business, were forced to merge with healthier firms or had to take a bailout from U.S. taxpayers. And this was not a U.S. phenomenon limited to only the U.S. banking industry: The global financial sector during the 2008–2009 period was in virtual free fall with many experts fearing an economic depression on an unprecedented scale. While many causes have been attributed to the crisis—a number of gaps in regulation, a financial incentive structure that rewarded short-run profitability and production, the interconnectedness of banks and other financial entities comprising the so-called shadow banking sector—nevertheless, at the heart of the crisis was a fundamental lapse in risk management across a great swath of the industry. Particularly problematic was that the largest financial institutions were among the companies where risk management deficiencies were most acute. Given the scale and scope of these global financial behemoths, these gaps in risk management at the institution level would manifest as systemic risk and contribute to one of the worst financial calamities on a global scale. These institutions became the focus of intense scrutiny by regulators after the crisis and have been designated as systemically important financial institutions, or SIFIs for short.

We begin our journey of risk management by taking one such SIFI (we will refer to it as SifiBank) and following it though its various business functions with the intention of understanding how such firms identify, measure and manage their risks. Risk management is not a separate discipline as is finance or accounting, and in practice every employee of a bank should take
an active role in risk management, whether they are in sales and production, trading, operations, or other important areas of the company.

SIFIs are a unique class of financial institution. The term SIFI surfaced after the crisis as concerns arose over the size and complexity of some firms to become, in principle and reality, too-big-to-fail (TBTF). Institutions were designed as SIFIs by U.S. federal regulators and as G-SIFIs by the United Kingdom’s Financial Stability Board (FSB) based on their size, complexity of operations, degree of interconnectedness across the financial sector, global reach and substitutability of activities. The largest banking institutions worldwide have found their way onto this list and in addition, regulators have developed a set of criteria to designate other institutions as systematically important, such as insurance companies and nonbank companies.¹

SifiBank makes an excellent case study for risk management since its far-flung businesses touch on every aspect of financial risk management that most banks would encounter. In fact, one could say that banks are in the business to take prudent risk. As will be seen shortly, banks that take zero risk are not going to be profitable enterprises. Similarly, banks taking excessive risk—that is, risk not well understood and outside the firm’s capabilities to price and manage that risk and its risk appetite—will eventually be doomed. That’s why the term prudent risk is critical to understanding the process of risk management.

Thinking of risk management as a process or system in itself is helpful since managing risk effectively entails establishing a feedback loop (Figure 1.1) in which risk tolerance is communicated across the organization;

`FIGURE 1.1  Risk Management Feedback Loop`

¹A nonbank financial company engages in financial services activities but is not a regulated depository institution such as a commercial bank, thrift or credit union. An insurance company or hedge fund would be examples of nonbank institutions.
expectations are set in terms of how much risk is acceptable for businesses to take (usually expressed in terms of capital allocated to each line of business); there is ongoing measurement and reporting of risks, there are processes and controls for managing risk coming into the firm in the way of transactions, loans, and services; there are techniques and controls for mitigating risk on the books of the firm; and there are methods to adjust the level of risk on an ongoing basis consistent with the above process as well as market and environmental considerations.

Unlike most products of nonfinancial companies, financial products are not physical in nature. Loans, deposits, and investment products for example provide customers with access to credit, enabling them to purchase physical products and services or compensate them for storing their financial assets with the institution. Risk management is an inextricable component of financial product development as a result. The features of financial products such as the term of the loan or deposit, the rate of interest, payment features, and eligibility criteria are effectively levers that the bank uses to manage the risk that the borrower defaults or the bank faces losses from interest rate risk exposure, among others. Consequently, effective risk management requires a deep understanding and appreciation for the business of the bank, the market, its competition, and the regulatory landscape it operates in as well as the structure and organizational dynamics of the firm itself.

FINANCIAL INTERMEDIATION AND PROFIT MAXIMIZATION

At its core, SifiBank, like other commercial banks, engages in profit-maximizing financial intermediation. Profit $\pi_i$ is defined as:

$$\pi_i = \sum_{i=1}^{n} r_i q_i - \sum_{j=1}^{m} i_j x_j$$

where $r_i$ represents the rate on earning assets $q$ for the $i$th product, and $i_j$ is the cost associated with the $j$th input $x$, either financial (e.g., deposits) or real (e.g., personnel).

Financial intermediation refers to the process by which banks take in a variety of liabilities such as deposits and debt and transform them into earning assets. Liabilities for banks are inputs into their production process that are used in creating loans, investments and services to bank customers.

Further, the bank is expected to maximize profit subject to technical conditions underlying a production function, $P(q_1, \ldots, q_m, x_1, \ldots, x_m) = 0$. In developing their strategic plans for the coming year, banks take into consideration a host of other information in setting their asset targets. These
include such factors as relative peer profitability and other indicators of performance, and business structural issues such as product concentrations and competitive conditions, among others. Through the production function whereby the bank as a financial intermediary uses its financial inputs—including various forms of deposits including retail and wholesale sources as well as other funding sources—and nonfinancial inputs such as physical premises and personnel, the bank determines its level and combination of assets to produce, taking into account other external factors as described. As a result, the relationship between bank output and inputs could be described by the following first-order condition of the following simple constant elasticity of substitution (CES) production function:

\[ q = C\left(\alpha x_1^\rho + (1-\alpha)x_2^{-\rho}\right)^{-\frac{1}{\rho}} \]

\[
\frac{\partial q}{\partial x_1} = \frac{\alpha}{C^\rho} \left[\frac{q}{x_1}\right]^{\rho+1} \\
\frac{\partial q}{\partial x_2} = \frac{1-\alpha}{C^\rho} \left[\frac{q}{x_2}\right]^{\rho+1} 
\]

To illustrate the link between assets and deposits in this construct, assume the bank has a single asset denoted $q$ in the model above that is produced using two types of deposits; $x_1$ represents retail deposits and $x_2$ describes brokered deposits. The relationship described by the CES production function shows that both inputs as factors of production define the level of assets for the firm. In equilibrium, the bank will select a target level of output $q$ that maximizes the expected utility of profit formally described below. The input combinations of $x_1$ and $x_2$ are then optimized by their least cost combination in the profit function subject to any technical production constraint such as funding limitations. External factors driving target output for the bank such as peer performance or other metrics could be subsumed within the constant term $C$ of the production function.

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2 A constant elasticity of substitution production function exhibits the property that production is a function of a constant relationship between the substitutability between factor inputs such as retail deposits and personnel.

3 Brokered deposits are a form of wholesale deposit that banks may use to augment their retail branch generated deposit base. They may be purchased in markets from brokers that buy and package these deposits from other institutions.
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The profit model can be extended to include the production function as well as to introduce uncertainty (risk) into the decision making process.

\[ \pi_i = \sum_{i=1}^{n} r_i q_i - \sum_{j=1}^{m} i_j x_j + \lambda P(q_1, \ldots, q_n, x_1, \ldots, x_m) \]  

where \( \lambda \) is a Lagrange multiplier.\(^4\) Introducing output uncertainty into the model, the bank is assumed to maximize expected profit:

\[ E(\pi_i) = \sum_{k=1}^{K} \kappa_k \left[ r_i q_i - i_i x_j + \lambda P(q_1, \ldots, q_n, x_1, \ldots, x_m) \right] \]

where \( K_k \) represents the probability of output \( q_i \). The first-order conditions with respect to output and input are as follows:

\[ \frac{\partial E(\pi_i)}{\partial q_i} = \sum_{k=1}^{K} \kappa_k \left[ r_i + \lambda P'(q_1, \ldots, q_n, x_1, \ldots, x_m) \right] = 0 \]

\[ \frac{\partial E(\pi_i)}{\partial x_j} = \sum_{k=1}^{K} \kappa_k \left[ -i_i + \lambda P'(q_1, \ldots, q_n, x_1, \ldots, x_m) \right] = 0 \]

The term \( \frac{\partial E(\pi_i)}{\partial x_i} \) represents the input demand function for the \( j \)th input \( x \). In this specification, input demands are a function of input prices \( i \) as well as the production function. Taking, for example, brokered deposits as an input variable of interest, the change in expected profit for a unit change in the level of brokered deposits would be dependent upon changes in the costs of its inputs as well as the relationship between bank outputs (assets) and inputs (liabilities and other real inputs) as established by the production function \( P \). In other words, changes in profit arising from changes in brokered deposits are driven by underlying structural economic relationships. Taking these theoretical relationships further, we can postulate the relationship between asset growth and risk-taking that figures prominently in policy discussions of brokered deposits. Adapting the profit model above, assume that the bank maximizes the expected utility of profit as follows:

\[ \text{MAX } E[U(\pi_i)] = \sum_{k=1}^{K} \kappa_k U(\pi_i) \]

\(^4\) Lagrange multipliers are used in some types of constrained optimization problems where closed form solutions may be difficult to otherwise obtain.
Setting the derivative of output $q$ equal to zero yields:

$$\frac{dE[U(\pi_i)]}{dq_i} = \sum \kappa_k U'(\pi_i)(r_i + \lambda P') = 0 \quad 1.8$$

Assuming that the bank utility function follows Neumann-Morgenstern expected conditions, a bank that is risk-neutral would exhibit second-order conditions:

$$\frac{d^2 U}{d\pi^2} = 0 \quad 1.9$$

In the case that the bank is a risk-taker, it can be shown that the second-order condition must satisfy the following:

$$\frac{d^2 U}{d\pi^2} > 0 \quad 1.10$$

which implies that $\sum \kappa_k U'(\pi_i)(r_i + \lambda P(q^*)) > 0$, where $q^*$ is the level of bank output that solves the profit maximization problem above. In such situations, $q^*$ is greater than the equilibrium level of $q$ that solves. $\sum \kappa_k U'(\pi_i)(r_i + \lambda P(q^*)) > 0$.

The implication from this result is that risk-taking leads to higher output produced by the bank than if the bank were risk-neutral.\(^5\) With this result we can establish then that asset growth for the bank must be related to the risk appetite of the firm. With the model establishing input demand as a function of input prices and the production function, the model describes how risk-taking at the bank relates to a target level of output. This framework suggests that deposits certainly are a factor of production, but that asset growth and investment in riskier products is driven more by overall risk-taking of the firm rather than fueled by deposit strategies. In this formulation, output is determined by the least cost combination of inputs subject to various constraints on those inputs. The existence of technical constraints on inputs can influence input allocation. For instance, if banks set a target level of assets for the next year that cannot be funded solely with retail deposits due to capacity constraints, then brokered and other wholesale deposits would be used to fill the gap, subject again to profit maximization conditions. With this framework describing the bank’s conceptual constrained profit maximization problem, it is instructive to dig deeper into

\(^5\)The concept of risk-neutrality is a fundamental concept in financial theory and its treatment in detail is beyond the scope of this book. However, a risk-neutral investor is indifferent between accepting a risky payoff and one that is 100 percent certain to occur.
some of the structural, market and regulatory aspects of banking that affect the way risk management is performed.

SIFIBANK STRUCTURE AND HISTORY

SifiBank is actually made up of a collection of legal vehicles; that is, structural entities of a particular type of financial institution including a commercial bank, thrift, investment company and finance company. As a result, SifiBank is technically a bank holding company, a parent entity formed around the subsidiary banking units. Conceptually, the structure of SifiBank is shown in Figure 1.2. A bank holding company was created to oversee the subsidiary companies. Within the holding company structure are a bank holding company that has several commercial banks, a thrift and a finance company. In addition, SifiBank has a capital markets division (SifiInvestment Bank), and asset management and brokerage division and a corporate services unit.

The origins of SifiBank go back 200 years when First National Bank and Trust of Baltimore (FNBTB) was founded by the son of one of the signers of the Declaration of Independence. The bank grew over the next 170 years largely through organic growth as opposed to merger and acquisition. The bank had for nearly two centuries operated under very conservative

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Figure 1.2  SifiBank Corporate Structure

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6 A finance company is a type of nondepository institution, a firm that does not rely on deposit-gathering activities like a traditional bank and instead is dependent upon capital market financing.
business standards that kept it largely out of financial trouble even during a series of major and minor financial panics, including the Great Depression.

In 1987, the bank underwent a change in CEO and president when the bank itself was bought out by a rival institution with less name brand recognition. That institution recognized the value of FNBTB and embarked on a strategy to opportunistically grow the bank by purchasing weak but well-known thrifts that had large retail footprints in markets complementary to FNBTB. Over this period FNBTB tripled its size in terms of total consolidated assets across all subsidiaries and it was during this period that SifiBank was born. By 2014, total assets of the bank had grown to $1 trillion, making it one of the largest financial institutions in the world and number three by asset size in the United States.

The chairman and CEO of SifiBank was an icon in banking, credited with turning a number of sick banks into financial powerhouses largely based on heavy cost-cutting, and a strategy of creating a financial supermarket that would find broad appeal cutting across different customers and product segments. The theory was that by offering a full service array of products and services to all types of consumers, corporations and even sovereign clients, the bank would be able to diversify its revenue streams and expand its markets better than any peers. While it began as a United States-only institution, by the 1990s it had branched out into several countries in Europe and Asia. Today, revenue from its foreign branches accounts for less than 10 percent of SifiBank’s revenues. While the strategy of a “universal” bank lived up to its promise of delivering significant growth for its shareholders, it also came with significant risks. The holding company structure became unwieldy as it established hundreds of subsidiary units to take advantage of tax regulations, accounting rules and other legal benefits from these structures. However, this complex web of various subsidiary organizations led to a fragmentation in management and oversight of the company, making it extremely difficult to get a holistic perspective on the operating units and risks each posed to SifiBank.

Mergers and acquisitions accounted for 80 percent of the growth of SifiBank over the past 30 years. When a prospective acquisition target was identified, SifiBank’s M&A team ran the financials to ensure the acquisition had accretive value to the overall firm. Importantly, left out of that financial analysis was the cost of integrating different origination, financial, accounting, servicing, and risk information systems across platforms and subsidiaries. Eventually, SifiBank was forced to maintain 10 different operating systems for financial management and reporting. In some cases it was nearly impossible to roll up a consolidated view of a particular class of assets as data and metrics oftentimes did not align across businesses. For mortgages, SifiBank originated loans primarily from three commercial
bank subsidiaries of SifiCommercial Bank, a thrift subsidiary consolidated from several it bought during the thrift crisis and a finance company that catered to subprime borrowers. It used one definition of mortgage default based on the Mortgage Bankers Association definition for its banking entities, but used different definitions for both its thrift and finance company units. Beyond this problem the bank experienced significant difficulties in aggregating its exposures and was plagued by a host of data accuracy and reporting issues. These system issues, while ignored during the M&A decision-making process, had come home to roost for SifiBank. By greatly impairing its ability to understand the kinds of risks it was taking on across the firm in a timely fashion, this infrastructure problem played a major role in limiting the bank’s reaction to the growing asset bubble forming in the housing market in the mid-2000s. Something more subtle and pervasive within SifiBank would ultimately result in the near death of the company in the aftermath of the financial crisis of 2008. Specifically, this was the company’s focus on growth, the lack of a risk culture, and weak governance during that period.

SIFI BANK ORGANIZATIONAL STRUCTURE AND OVERSIGHT GOVERNANCE

SifiHolding Company is a publicly traded company that was headed by the CEO who also held the title of Chairman of the Board of Directors in the years leading up to the financial crisis. This consolidated power of having both the CEO and chairman titles along with this individual’s unique personal stature in the industry afforded him an ability to run SifiBank in a fashion that met with little opposition to the direction he sought for the company.

The board was composed of 10 members, all handpicked by the CEO and all well-known friends or associates. Two members had some related background in financial services—specifically, having been CEOs of an insurance company and investment company—and no one on the board had any direct risk management experience. The board met quarterly for one day each time and in addition to holding a meeting of the full board to review important issues it also broke up into several committee sessions. Among the committees it had were audit, operations and human capital, legal, and finance.

The CEO believed in having a small management team reporting to him and this meant that only the presidents of SifiBank, SifiThrift, SifiFinancial, SifiInvestment Bank, SifiAsset Management, the CFO, General Counsel, General Auditor, and Head of Human Resources had direct access to the

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CEO. The CEO had handpicked the presidents as well and all had track records for achieving aggressive product objectives.

At this time the bank had only created the role of Chief Risk Officer two years before the crisis and this was largely a corporate oversight role. In fact at times, the role of the CRO and General Auditor seemed to overlap, creating significant confusion and concern by management that the bank was carrying too many risk oversight staff at a time when margins were thin. The CRO reported into the CFO, leaving an additional layer of management between the senior risk officer of the company and the board. The board did not hold executive sessions with the CRO separate from the CFO or CEO.

Furthermore, risk management activities were spread across the business, operations and audit functions in a decentralized model. As a result, the SifiBank board would pick up risk management issues in piecemeal fashion and only as management decided what was important to elevate to the board. A decentralized risk management function has its own merits over a risk management structure within the corporate center; however, it can lead to a number of governance issues that the firm must understand. In the case of SifiBank, the board of directors delegates development of credit and other major risk policies to the CRO. But since the CRO does not have any responsibility over managing the risk exposure of an individual line of business, a delegation of authority policy would need to be established by the CRO to allow business staff designated to manage risk at the unit level to operate within stated risk objectives. Such a policy would outline the size of deals, loans, and transactions that could be approved by employees, which is oftentimes based on seniority and expertise. By having a small corporate risk office and a large business risk function, it allows an independent review of risk management activities to be conducted by the corporate risk office while allowing the business risk units to be responsible for day-to-day implementation of risk management within each line of business. SifiBank had set up such a structure where each business unit had a CRO who reported directly to each division’s president and indirectly to the CRO. The presidents each created their own performance plans for their CROs with input from the corporate CRO (sometimes also referred to as the enterprise CRO). In the years preceding the crisis, SifiBank’s CEO gave clear direction to the heads of each business that they had to grow their businesses each year by at least 10 percent. As a result, these objectives were handed down to each executive in the operating units, including the business line CROs. For the business CROs, 85 percent of their performance was based on supporting product and sales within the division and only 15 percent was placed on managing the risk exposure of the unit. This executive compensation structure fueled significant risk-taking by SifiBank in the years leading up to the financial crisis.
Lines of Business

SifiBank operates along a complicated product and institutional structure as depicted in Table 1.1. Due largely to historical arrangements, several business lines cross corporate segments. While SifiBank remains the flagship entity with respect to consumer and commercial banking activities, its thrift and finance company divisions provide specialized consumer and commercial banking oriented in some measure to their unique charters.

Thriffs, or savings and loans (S&Ls) as they are sometimes known, are depository institutions like commercial banks and are granted operating charters from the state or federal government that allow them to access cheaper (federally subsidized) deposits. But a major differentiator between commercial banks and thriffs is that a thrift institution must maintain 65 percent of its assets in certain qualifying assets, much of which are mortgage-related. This specialization makes thriffs particularly vulnerable to mortgage market conditions. Moreover, thriffs are especially sensitive to interest rate risk, where losses can be realized due to mismatches between typically shorter-dated funding sources and mortgage loans that have long maturities. This will be examined in more detail in later chapters. SifiThrift Company is regulated by the Office of the Comptroller of the Currency (OCC).

SifiFinance Company had been an independent company prior to its purchase by SifiBank in 1999. As a finance company it did not hold a bank charter, which meant that it had to derive its funding via capital market debt issuance. The lack of subsidized deposits puts finance companies at a competitive disadvantage to commercial banks and thriffs. Balanced against that is the fact that unlike banks and thriffs, finance companies are not subject to safety and soundness regulations. They are subject to various state and federal consumer regulations such as those overseen by the Consumer Financial Protection Bureau (CFPB). However, by focusing on subprime borrowers, SifiFinance Company was able to earn substantial income by charging interest rates and fees significantly above that for prime borrowers. The company traditionally offered small ($500–$1,000) short-term (<1 year) unsecured (i.e., requiring no collateralization) personal loans realizing that the average loss rate on this business was between 12 and 18 percent. Borrowers could be graduated to larger loans, eventually after demonstrated payment ability over time, allowing them to obtain a mortgage loan from SifiFinance Company.

SifiBank, as mentioned earlier, is comprised of several commercial bank subsidiaries. SifiBank, having a federal charter, is technically a national bank, overseen from a safety and soundness perspective by the OCC. The Federal Reserve oversees banks that have state charters and are members of the...
<table>
<thead>
<tr>
<th>Business Lines</th>
<th>SifiBank</th>
<th>SifiThrift</th>
<th>Sifi Financial</th>
<th>Sifi Capital Markets</th>
<th>Sifi Asset Management</th>
<th>Sifi Corporate Services</th>
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<tr>
<td>Consumer</td>
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Federal Reserve System (FRS) as well as bank holding companies. The Federal Deposit Insurance Corporation (FDIC) oversees state-chartered banks that are nonmembers of the FRS.

SifiBank’s lines of business are focused on consumer and commercial customers. The bank offers a full array of consumer loan products as shown in Table 1.1 with credit cards representing one of the larger consumer asset classes. SifiCards is one of the most recognized credit cards in the market, however, a rise in cyberattacks on large retailers and banks has placed the company on guard against this risk. But one of SifiBank’s greatest strengths is in its extensive branch network. It operates more than 10,000 retail branch offices across the country, although 75 percent of its network is on the East Coast. The cost of operating branches in an increasingly e-commerce environment has pressured the bank to find ways to reduce its operating efficiency ratio defined as the dollar amount of noninterest expense as a percent of operating revenues. To be more competitive with peer institutions, the bank has waged a cost-cutting campaign for three years and senior management has considered increasing its Internet banking model in an effort to combat higher costs.

Notwithstanding such costs, the branch network represents a significant source of revenue generated from cross-selling of bank products to its customers. On average SifiBank has found that its retail bank customers have about seven products that it obtained from branch operations. That means that when a customer opens up a retail checking or savings account they are marketed for loan and investment products. This compound effect of cross-selling products has boosted revenues even as operating expenses have risen with branch growth.

SifiInvestment Bank was formed to handle all of SifiBank’s vast trading and investment activities for its clients and for proprietary trading. The bank trades in virtually all investment types including equities, fixed income, derivatives such as options, futures and swaps, foreign exchange and commodities. When trading for clients it acts as a market maker, bringing buyers and sellers together without taking a position itself. The capital markets group has developed a robust structured finance offering, which features creating, underwriting and investing in various financial instruments with complex cash flow features. Examples of structured financial instruments include mortgage-backed securities and associated resecuritizations, collateralized debt obligations (CDOs), and credit default swaps (CDSs), among

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7 There are times when SifiBank takes an offsetting position in order to meet a client’s needs when a suitable buyer or seller is not available at that time, however, this tends to be for a very short period of time until it can unwind that position.
others. These types of transactions have a variety of purposes including transfer of different risks such as credit and interest rate risk, tax optimization strategies and obtaining legal and accounting advantages. These often require the establishment of separate legal vehicles apart from the bank to meet certain requirements. Over the years, SifiInvestment Bank has created hundreds of special purpose vehicles (SPVs) for its structured finance activity. The scale and complexity of the business poses significant exposure to SifiBank in terms of counterparty, credit, market, and operational risks.

Five years earlier the capital markets group had established a proprietary trading group that was charged with taking positions in capital markets for profit-making. This type of activity made it a hedge fund within SifiBank and over the years it had performed well for the company, enjoying an annual average return of 18 percent since its inception. The trading group can invest in a wide range of instruments and has focused largely on economic bets since the financial crisis. The company made $1 billion, for example, following the Greek crisis. In the months leading up to the crisis, it took short positions in various sovereign debt instruments of countries that had similar underlying fiscal and monetary problems as Greece. It also was active in shorting various financial stocks during the banking crisis. With the implementation of the Volcker Rule banning proprietary trading at federally insured depository institutions, SifiBank faces a decision whether to spin off the hedge fund unit, shrink it to a regulatory allowable size, or change its direction and merge it with other permissible hedging activities.

SifiAsset Management Company had operated as a well-known retail investment company, founded in 1900 until it was bought out by SifiBank as part of the strategic initiative to build a universal bank franchise. SifiAsset Management is focused on advising private retail clients with wealth management services, investments and brokerage activities.

The other unit within SifiBank is the Corporate Division. This group comprises the nonbusiness-oriented activities of the entire company such as finance, accounting, treasury management services, corporate risk management, legal, IT and operations, and human resources. The company over the years adopted a center of excellence model where these activities would emanate from the corporate center for purposes of maintaining consistency and adherence with applicable laws, regulations and accounting rules as well as promoting best practices across the company. Each operating division of SifiBank maintains a cadre of staff performing these functions for its specific business, but these resources have a direct reporting line to their respective corporate offices.

An important function within the Corporate Division is the Treasury Office. This group is responsible for ensuring that SifiBank and its operating subsidiaries have the right mix and level of funding required to meet its