

# Navigating Risk at SifiBank

## OVERVIEW

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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 sub-prime 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.

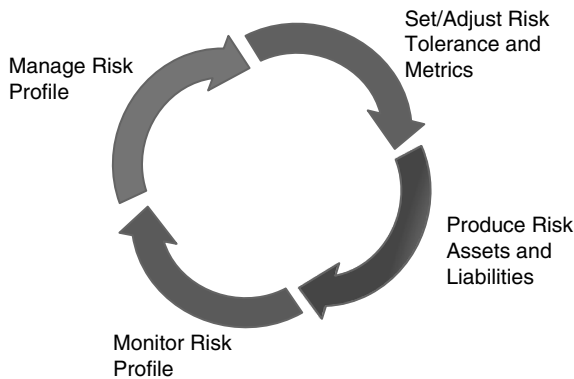
We begin our journey of risk management by taking one such SIFI (we will refer to it as SifiBank) and following it through its various business functions with the intention of understanding how such firms identify, measure and manage their risks. Risk management is not a separate discipline as is finance 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.<sup>1</sup>

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

<sup>1</sup>A 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:

$$\pi_i = \sum_{i=1}^n r_i q_i - \sum_{j=1}^m i_j x_j \quad 1.1$$

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,  $P(q_1, \dots, q_n, x_1, \dots, x_m) = 0$ . 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<sup>2</sup>:

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

$$\frac{\partial q}{\partial x_1} = \frac{\alpha}{C^\rho} \left[ \frac{q}{x_1} \right]^{\rho+1} \quad 1.2$$

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

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.<sup>3</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> 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.

The profit model can be extended to include the production function as well as to introduce uncertainty (risk) into the decision making process.

$$\pi_i = \sum_{i=1}^n r_i q_i - \sum_{j=1}^m i_j x_j + \lambda P(q_1, \dots, q_n, x_1, \dots, x_m) \tag{1.3}$$

where  $\lambda$  is a Lagrange multiplier.<sup>4</sup> Introducing output uncertainty into the model, the bank is assumed to maximize expected profit:

$$E(\pi_i) = \sum_{k=1}^K \kappa_k [r_i q_i - i_j x_j + \lambda P(q_1, \dots, q_n, x_1, \dots, x_m)] \tag{1.4}$$

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

$$\frac{\partial E(\pi_i)}{\partial q_i} = \sum_{k=1}^K \kappa_k [r_i + \lambda P'(q_1, \dots, q_n, x_1, \dots, x_m)] = 0 \tag{1.5}$$

$$\frac{\partial E(\pi_i)}{\partial x_j} = \sum_{k=1}^K \kappa_k [-i_j + \lambda P'(q_1, \dots, q_n, x_1, \dots, x_m)] = 0 \tag{1.6}$$

The term  $\frac{\partial E(\pi_i)}{\partial X_j}$  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:

$$\text{MAX } E[U(\pi_i)] = \sum_{k=1}^K \kappa_k U(\pi_i) \tag{1.7}$$

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<sup>4</sup> 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:

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

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

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

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.<sup>5</sup> 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

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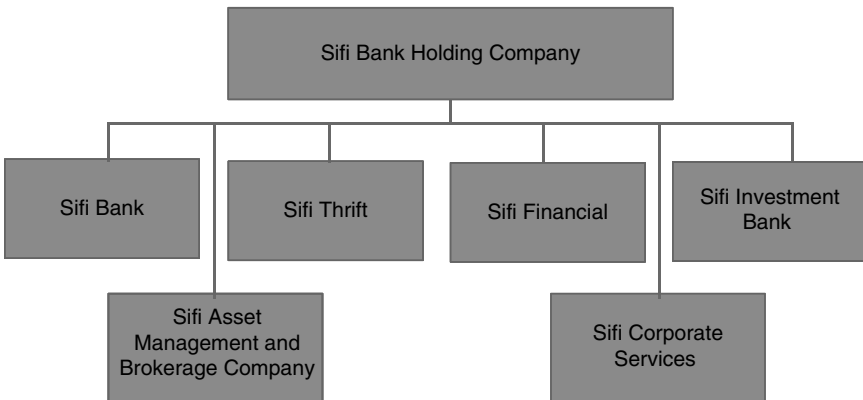
<sup>5</sup> The concept of risk-neutrality is a fundamental concept in financial theory and its treatment in detail is beyond the scope of this book. However, a risk-neutral investor is indifferent between accepting a risky payoff and one that is 100 percent certain to occur.

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.<sup>6</sup> 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



**FIGURE 1.2** SifiBank Corporate Structure

<sup>6</sup> 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 super-market 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.

## **SIFIBANK ORGANIZATIONAL STRUCTURE AND OVERSIGHT GOVERNANCE**

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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

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.

**Thrifts, 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 thrifts 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 thrifts particularly vulnerable to mortgage market conditions. Moreover, thrifts 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 thrifts. Balanced against that is the fact that unlike banks and thrifts, 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 1.1** SifiBank Business Lines by Corporate Entity

Business Lines	SifiBank	SifiThrift	Sifi Financial	Sifi Capital Markets	Sifi Asset Management	Sifi Corporate Services
Consumer						
Banking						
Mortgage	✓	✓	✓			
Credit Cards	✓					
Personal Loans			✓			
Auto Loans	✓	✓	✓			
Home Equity Lines of Credit (HELOCs)	✓	✓				
Student Loans	✓	✓				
Retail Deposits and Investment Accounts	✓	✓				
Commercial Banking						
Commercial and Industrial Loans	✓	✓				
Commercial Real Estate	✓	✓				
Investment Banking Services				✓		
Debt and Equity Trading and Services				✓		
Private Equity Services				✓		
Structured Financial Product Services				✓		
Equity and Financial Research					✓	
Brokerage Services					✓	
Asset Management Services					✓	
Treasury and Financial Operations					✓	
Human Capital						✓
Operations						✓
Legal and Audit						✓
Risk Management	✓	✓	✓	✓	✓	✓

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.<sup>7</sup> 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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<sup>7</sup> 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

activities, on a day-to-day as well as longer term basis. Each day the Corporate Treasurer and her staff face a complex and well-choreographed exercise of determining how much funding is available from its retail deposit network, wholesale deposits, and short-term funding markets, including asset-backed commercial paper (ABCP), and overnight repurchases (repos), which amount to interbank borrowings. It balances its needs for short-term funds with an ability to issue debt and equity at regular intervals in order to best match its asset and liability structure while maintaining a safe cushion of liquidity on hand to meet uncertain events such as unexpected deposit outflows or other disruptions. Thus, one of the Treasury Office's major risks is from liquidity risk. In reporting directly to the Chief Financial Officer (CFO), the Treasurer also has responsibilities for asset-liability management within SifiBank. The CFO and Treasurer also work closely with each business unit CFO to maintain the right level of assets in each subsidiary's portfolio.

For SifiBank and SifiThrift, for example, the bank maintains large **held-for-investment (HFI)** mortgage positions. These are portfolios that the bank and thrift subsidiaries plan on holding for long periods of time. Some mortgages that are originated, however, are designated as **available-for-sale (AFS)**. These assets, for example, might be formed into a pool to be packaged into a mortgage-backed security (MBS) and sold to investors. Different accounting rules apply for assets held for sale than HFI. Accounting principles, for example, require fair value treatment for assets intended for sale. Depending on a number of factors, including how liquid the market is for an asset, fair value could be assessed based on observable market prices, inferences drawn from closely related assets, or even models if no market pricing is available. During the financial crisis SifiBank saw the fair value of their AFS mortgage securities positions fall 50 percent as investors retreated from the market. Meanwhile, the bank's HFI portfolios experienced a much smaller decline limited to its expectation of credit losses forming in the portfolio. In originating loans, the bank engages in a "best execution" assessment that determines the highest price it would be able to obtain for a loan whether that is an HFS or AFS disposition. A detailed financial analysis of the value from retaining or selling the asset is performed.

### **SifiBank Balance Sheet Composition**

At an aggregate level, the variety and composition of SifiBank's balance sheet at the holding company level is illustrated in Tables 1.2 and 1.3. At a glance, Sifibank holds nearly a quarter of its assets in consumer loans, 50 percent of which are in mortgages, with credit cards accounting for another 44 percent. As mentioned before, trends in the economy and housing market will feature prominently in SifiBank's assessment of the credit and interest rate

**TABLE 1.2** SifiBank Asset Composition

ASSETS	%	\$ Balances
<b>Cash and Deposits with Banks</b>	11	\$ 110,000,000,000
Cash and Due from Banks	16	\$ 17,600,000,000
Interest Bearing Deposits	84	\$ 92,400,000,000
<b>Fed Funds Sold and Securities Borrowed</b>	17	\$ 170,000,000,000
<b>Consumer Loans</b>	24	\$ 240,000,000,000
Mortgages	50	\$ 120,000,000,000
Auto Loans	6	\$ 14,400,000,000
Credit Cards	44	\$ 105,600,000,000
<b>Commercial Loans</b>	13	\$ 130,000,000,000
CRE	50	\$ 65,000,000,000
C&I	50	\$ 65,000,000,000
Direct Outstandings	50	\$ 32,500,000,000
Unfunded Commitments	50	\$ 32,500,000,000
<b>Trading Account Assets</b>	18	\$ 180,000,000,000
Mortgage-backed Securities	12	\$ 21,600,000,000
US Treasuries	8	\$ 14,400,000,000
State and Municipal Securities	3	\$ 5,400,000,000
Corporate Debt Securities	13	\$ 23,400,000,000
Derivatives	21	\$ 37,800,000,000
<b>Trading Derivatives</b>		
Interest Rate Contracts		\$ 28,350,000,000
Swaps	72	\$ 20,412,000,000
Futures and Forwards	9	\$ 2,551,500,000
Written Options	9.9	\$ 2,806,650,000
Purchased Options	9.1	\$ 2,579,850,000
Total Interest Rate Contracts		
Foreign Exchange Contracts		\$ 3,402,000,000
Swaps	22	\$ 748,440,000
Futures and Forwards	58	\$ 1,973,160,000
Written Options	11	\$ 374,220,000
Purchased Options	9	\$ 306,180,000
Total Foreign Exchange Contracts		



ASSETS	%	\$ Balances
Equity Contracts		\$ 756,000,000
Swaps	7	\$ 52,920,000
Futures and Forwards	1	\$ 7,560,000
Written Options	48	\$ 362,880,000
Purchased Options	44	\$ 332,640,000
Total Equity Contracts		
Commodity Contracts		\$ 567,000,000
Swaps	8	\$ 45,360,000
Futures and Forwards	26	\$ 147,420,000
Written Options	31	\$ 175,770,000
Purchased Options	35	\$ 198,450,000
Total Commodity Contracts		
Credit Derivatives		\$ 4,725,000,000
Protection Sold	48	\$ 2,268,000,000
Protection Bought	52	\$ 2,457,000,000
Total Credit Derivatives		
Foreign Government Securities	27	\$ 48,600,000,000
Equity Securities	14	\$ 25,200,000,000
Asset-backed Securities	2	\$ 3,600,000,000
<b>Investments</b>	<b>17</b>	<b>\$ 170,000,000,000</b>
Mortgage-backed Securities	19	\$ 32,300,000,000
US Treasuries	32	\$ 54,400,000,000
State and Municipal Securities	5	\$ 8,500,000,000
Corporate Debt Securities	4	\$ 6,800,000,000
Foreign Government Securities	32	\$ 54,400,000,000
Equity Securities	3	\$ 5,100,000,000
Asset-backed Securities	5	\$ 8,500,000,000
<b>TOTAL ASSETS</b>		<b>\$1,000,000,000,000</b>

Note: Subcategory percents add up to 100 percent for each category.

**TABLE 1.3** SifiBank Liabilities and Equity

LIABILITIES	%	\$ Balances
<b>Deposits</b>		
Demand and Time Core Deposits	55	\$ 495,000,000,000
Wholesale and NonCore Deposits	50	\$ 247,500,000,000
Time Deposits	50	\$ 247,500,000,000
<b>Fed Funds Purchased and Securities Sold</b>	13	\$ 117,000,000,000
<b>Trading Account Liabilities</b>	8	\$ 72,000,000,000
<b>Derivatives</b>		
Interest Rate Contracts		\$ 30,240,000,000
Swaps	72	\$ 21,772,800,000
Futures and Forwards	9	\$ 2,721,600,000
Written Options	9.9	\$ 2,993,760,000
Purchased Options	9.1	\$ 2,751,840,000
Foreign Exchange Contracts		\$ 3,628,800,000
Swaps	22	\$ 798,336,000
Futures and Forwards	58	\$ 2,104,704,000
Written Options	11	\$ 399,168,000
Purchased Options	9	\$ 326,592,000
Equity Contracts		\$ 806,400,000
Swaps	7	\$ 56,448,000
Futures and Forwards	1	\$ 8,064,000
Written Options	48	\$ 387,072,000
Purchased Options	44	\$ 354,816,000
Commodity Contracts		\$ 604,800,000
Swaps	8	\$ 48,384,000
Futures and Forwards	26	\$ 157,248,000
Written Options	31	\$ 187,488,000
Purchased Options	35	\$ 211,680,000
Total Commodity Contracts	100	
Credit Derivatives		\$ 5,040,000,000
Protection Sold	48	\$ 2,419,200,000
Protection Bought	52	\$ 2,620,800,000
Securities Sold Not Purchased		\$ 31,680,000,000

LIABILITIES	%	\$ Balances
<b>Debt</b>	24	\$ 216,000,000,000
Short-term	4	
Commercial Paper		\$ 14,400,000,000
Secured Financing-Repurchase Agreements		\$ 10,800,000,000
FHLB Advances		\$ 10,800,000,000
Long-term	20	
Senior/Subordinated Debt		\$108,000,000,000.00
Securitized Debt		\$ 18,000,000,000.00
FHLB Borrowings		\$ 41,400,000,000.00
Undrawn Lines of Credit		\$ 12,600,000,000.00
<b>TOTAL LIABILITIES</b>		\$ 900,000,000,000
<b>Total Equity</b>		\$ 100,000,000,000

Note: Subcategory percents add up to 100 percent for each category.

risk profile of this portfolio. Commercial lending represents about half the size of the consumer business with commercial and industrial loans (C&I) and commercial real estate (CRE) lending evenly split. The consumer and commercial lending businesses couldn't be more different in many respects. Consumer lending such as the credit card business tends to rely on relatively homogeneous populations to assess risk, which lends itself to intensive data mining analysis. Underwriting for a credit card is more heavily automated than commercial lending which, due to large differences in client, loan size and purpose, among other factors, makes commercial lending a much more manual underwriting process.

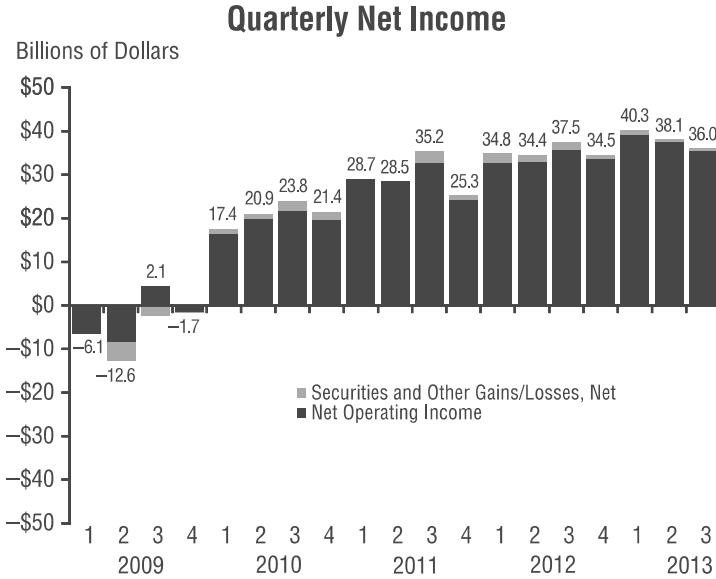
The bulk of SifiBank's remaining assets are distributed across its trading and investment units. More than one-fifth of the bank's assets are in a variety of derivatives positions. The bank faces significant risk in the fluctuations of prices in these assets known as market risk. In addition, the vast fixed income and MBS holdings are subject to fluctuations in the value of these securities due to interest rate movements, which expose the firm to considerable interest rate risk. Finally, the bank retains 11 percent of its assets in liquid positions such as cash, and a variety of short-term positions. The bank faces the risk that it does not have sufficient assets that could be sold quickly with little or no price effect in the event of an unforeseen problem such as a bank run. Alternatively it must balance that risk against the reduction in income that it realizes for allocating a sizable portion of its assets to no or low earnings investments.

Turning to the other side of the balance sheet, SifiBank shows liabilities totaling \$900 billion against \$1 trillion in assets. The difference is the amount of equity in SifiBank, or \$100 billion. As will be explained in a later section, not all forms of equity (for example, common and preferred stock, loan loss reserves, and subordinated debt instruments) are created equal in the eyes of the regulator. As a result, SifiBank must comply with a variety of different capital requirements as a regulated depository institution.

The liability structure of SifiBank broadly speaking comprises deposits and nondeposits. Just over half of the bank's liabilities are in deposits and these are evenly split between **retail** (branch-sourced) and **wholesale deposits**. Retail deposits are cheapest since federal deposit insurance backs up each account to a significant level which helps hold funding costs down at banks and thrifts. However, as banks grow, their ability to grow deposits from retail branches may not be able to keep pace with asset generation and so bank treasurers may seek out wholesale deposits that can be procured in open markets. **Brokered deposits** are one such type of wholesale deposit, which allows banks to buy deposits from intermediaries at higher costs than would be the case for retail deposits. Bank regulators for many years have looked at brokered deposits as a source for fueling aggressive risk-taking at some banks that ultimately led to their failure. While such funding sources do need to be carefully evaluated, they can be an important way to augment funding when gaps exist. SifiBank also uses a wide variety of debt instruments of various terms (**tenors**). As previously mentioned, the bank must manage the composition of both its assets and liabilities in order to reduce exposure to interest rate risk. The weighted average life, or better yet the duration of its assets and liabilities, must be in relative balance for the bank to avoid major declines in the bank's **market value of equity (MVE)**. Since SifiBank has a large portion of its portfolio in mortgages and other longer-dated investments, it needs to extend the life of its liabilities in an effort to accomplish its **asset-liability management (ALM)** objectives.

### **Industry Structure and Competition**

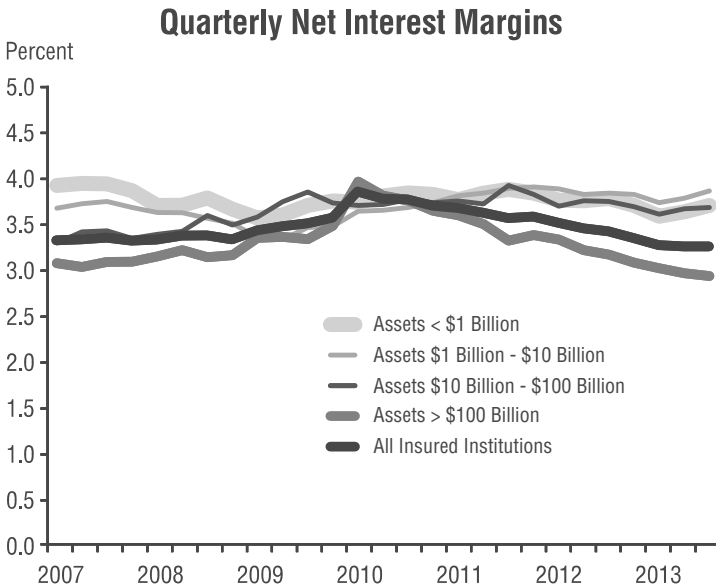
Since SifiBank operates in nearly every corner of the traditional banking sector, its competition comes from a variety of different entities. Banking in the United States has undergone significant consolidation for decades as economic forces have driven a large number of banks and thrifts into insolvency or merger precipitated either by economic downturns or weak performance at individual institutions. The nature of bank competition directly influences the risk exposure of SifiBank since its profitability and growth depend on how effectively it can compete in different businesses. To provide some perspective on the overall banking sector, at the end of 2013, there



**FIGURE 1.3** Bank Net Income over Time  
*Source:* FDIC Quarterly Banking Profile, 2013.

were nearly 7,000 commercial banks and thrift institutions operating in the United States. The industry at that time had a combined asset base of \$14.6 trillion. However, 106 firms had assets greater than \$10 billion and this group accounted for about 80 percent of the industry’s assets, illustrating a high level of concentration among the largest institutions. More astonishing, 36 banking institutions in the United States had assets at or above \$50 billion and these firms accounted for 70 percent of all banking assets in the country.

The performance of the banking sector not surprisingly ebbs and flows with regional and general economic conditions as seen in Figure 1.3. The figure shows how in the period immediately following the financial crisis, net income for the sector was negative, driven to a great extent by mounting credit losses taking place around mortgages. With extraordinary measures taken by the Federal Reserve and Treasury Department to support banking, in time net incomes rose and the industry has stabilized since that time. Another way to look at the relative performance of the industry is to compare **net interest margin (NIM)** by bank asset size category (Figure 1.4). Net interest margin is defined as the difference between interest income and expense as a percent of average assets. NIM has steadily declined for banks



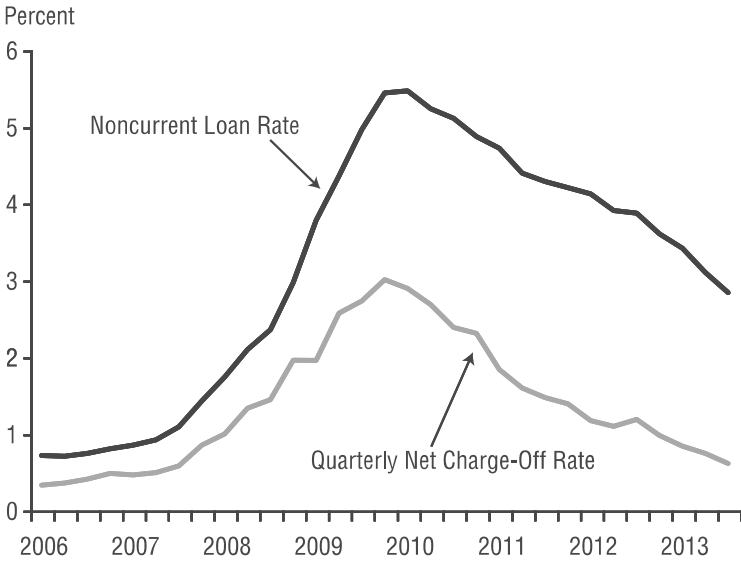
**FIGURE 1.4** Bank Net Interest Margins Over Time  
*Source:* FDIC Quarterly Banking Profile, 2013.

since 2010, reflecting lower income from mortgages as interest rates began rising over time and banks started to see erosion in its fixed income sales as interest rates began coming off very low levels after the crisis.

Figure 1.5 provides insight into the extent of damage done to the banking sector during the crisis as reflected in **nonperforming loans** (loans that are 90 days past due or worse). Banks write off (**charge-off**) bad loans as they become apparent and during the crisis, the noncurrent loan rate was five times that of 2006 levels and the charge-off rate was about six times 2006 levels. Since peaking at the end of 2009, credit performance has significantly improved.

SifiBank did not escape the financial crisis and in fact in the months following the failure of Lehman Brothers in September 2008 and both mortgage government sponsored enterprises Fannie Mae and Freddie Mac were placed into conservatorship under their regulator, SifiBank saw its stock price nearly evaporate from a price of \$50 to just under \$2 per share. Bank management realized that it was in trouble both in terms of liquidity and capital. It had not adequately developed its contingency liquidity plan; a framework for maintaining a level of liquidity that would allow the firm to operate under extreme conditions in which funding dried up and/or became

### Noncurrent Loan Rate and Quarterly Net Charge-Off Rate



**FIGURE 1.5** Bank Trends in Credit Performance  
*Source:* FDIC Quarterly Banking Profile, 2013.

prohibitively expensive, for the crisis that unfolded proved to be devastating to capital markets. The bank suffered several downgrades in the months leading up to receiving this special financing. It had been rated by all three credit rating agencies as AA but by October 2008, it was rated C making it more difficult and costly to raise capital. In October of 2008, the U.S. Treasury offered a financial lifeline to SifiBank in the amount of \$250 billion to ensure the company would be able to weather further erosion in financial markets.

SifiBank got into this situation through a combination of errors in the way the company was managed that led it to take oversized risks as well as by way of systemic risk to the entire financial system that created a contagion effect throughout the industry. The degree of interconnectedness of capital markets and financial institutions during the year leading up to the crisis led to a sort of financial flu that spread across the sector like a viral pandemic.

In the years leading up to the crisis, senior management ignored repeated warnings from its enterprise CRO regarding an excessive buildup of mortgage loans and securities in its HFI and AFS portfolios. The bank

during that period had compounded their problems by originating a set of brand-new mortgage products that had variable payment terms and other features that while flexible for borrowers often meant that they would likely run into payment shock if and when interest rates rose in the future. There had been no prior experience with such products from which to develop an estimate of credit losses and yet the bank accelerated its production of these loans at the request of senior management.

The bank, as stated earlier, had been under pressure to grow earnings and these new nontraditional mortgages enabled SifiBank to originate mortgages at spreads to Treasuries that were significantly above mortgages originated and sold to Fannie Mae and Freddie Mac. The business line CRO for the bank whose bonus was dependent in part on the success of this program acquiesced to a significant amount of risk layering taking place in credit underwriting on these new loans to the point that significant credit risk was embedded in the products for which the bank was not being appropriately compensated. **Risk layering** occurs when individual risk attributes such as credit score and loan-to-value (LTV) ratio are combined in ways that materially raise the credit risk profile of the loan. For instance, allowing a lower credit score for a low downpayment mortgage raises the likelihood of default for the loan beyond a loan that has both higher FICO and lower LTV (i.e., is less risky). The bank had little historical information on which to base its loan loss reserve or price these new loans and so its models reflected the low level of risk that had been present for the last decade. As a consequence it vastly underestimated the amount of credit risk it was putting on its books.

During this same period, the bank continued to reduce its corporate risk management staff believing that they would be able to save costs by avoiding redundancies with the business risk functions. Moreover, when the products were presented to the board, the CFO and president of the consumer loan division of SifiBank were the corporate officers engaged with the board on this initiative with negligible input from the enterprise CRO. Compounding this problem was the fact that none of the board members had any mortgage or risk background and so little pushback from the board occurred on the potential risks of these products.

Simultaneous to the bank's origination of these loans, SifiInvestment Bank realized that it could expand its structured finance business by selling CDS that had mortgages as the reference asset. Senior management of the capital markets group convinced the board that these new products would be able to serve a wide range of investor appetites and transform credit risk transfer in the mortgage market by allowing CDS buyers to seek credit protection against mortgage defaults while allowing credit investors to participate in mortgage financing without actually originating or owning the



loans on balance sheet. For SifiInvestment Bank it could both be involved in creating the CDS for market as well as take positions (i.e., sell CDSs) and create a stable income stream over time from the premiums paid by CDS buyers. With the bank projecting very low defaults looking into the future, it seemed like a sound business decision in 2004. By 2008 SifiInvestment Bank was reeling from losses that it incurred under its CDS program. As mortgage loans defaulted, the bank as seller of CDS protection was forced to cover losses of its counterparties. These losses, as well as those emanating from the bank's retained portfolio, were the primary source of capital erosion for the bank. Had the federal government not stepped in when it did, SifiBank was most likely going to fail within a short period of time.

As these losses were being publicized, creditors and other Wall Street counterparties began pulling back from SifiBank. Lines of credit for the bank were at first being renewed at higher rates but over time access for credit dried up. Spreads on ABCP issued by SifiBank widened to such a degree as to be prohibitive for the company in raising short-term financing. Banks no longer wanted to enter into repo agreements with SifiBank and more concerning, the bank began experiencing considerable withdrawal of deposits in the weeks preceding the announcement of financing from the government.<sup>8</sup>

In order to meet its production targets for its new mortgage program, SifiBank had streamlined a number of its processes and controls in underwriting, closing and servicing loans. Operational efficiencies in mortgage production can mean the difference between becoming a market leader or a follower. SifiBank management pressed hard to place itself as one of the top three mortgage originators in the country before the crisis and to do so meant finding ways to reduce the operational burdens of the loan manufacturing process.

Streamlining bank processes included allowing some loan production staff to bundle closing documents together and sign off with little review of what was being signed. Loan programs allowed many borrowers to avoid having to produce documents verifying their income and employment. Servicing staff was further reduced because, after all, mortgage defaults were expected to remain low. Automation was accelerated in both underwriting and collateral valuation where possible, thus reducing the number of underwriters and property appraisals in the process.

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<sup>8</sup> A repurchase agreement, or repo, is a sale of securities (such as Treasury instruments) typically over a short window of time (e.g., overnight). The seller buys back the securities at the end of the contractual period and in this manner the seller is in a borrowing position. A reverse repo looks at the repo transaction from the perspective of the buyer of the securities and puts them in an effective lending position.

To no one's surprise, fraud, both internal and external was rampant in these programs and surfaced once loan defaults began rising during the crisis. Counterparties and investors in securities created by SifiBank sued the company for billions of dollars of repurchases based on claims that the loans violated the terms of the contract relating to fraud and misrepresentation. Loan documents went missing during this period and once the deluge of defaults hit the bank, it did not have sufficient servicing resources to handle the caseload. Many borrowers were erroneously foreclosed on as a result, which caught the attention of the media, regulators and litigators. SifiBank faced billions of dollars of legal damages and settlements as state attorneys general and the U.S. Justice Department lodged suits against the bank.

The government's decision to intervene and prop SifiBank up at the beginning of the financial crisis was very difficult. On the one hand, the government realized that there was a reasonable likelihood that not intervening could lead to SifiBank's insolvency. If the third-largest U.S. bank were to fail, it would send shock waves through an already weak financial sector potentially resulting in a cascade of bank failures and precipitating an economic depression. But in saving SifiBank, the government risked not only the ire of the U.S. taxpayer but also created a perverse incentive that if a bank was perceived as too-big-to-fail, it could continue to engage in risky behavior knowing that eventually the company would be bailed out.

The government financing for Sifibank came with several strings attached. The government insisted that the CEO and chairman must be replaced as well as several key members of the executive team and board of directors. The bank was also forced into an agreement in which the U.S. Treasury would receive a large number of warrants, effectively allowing the government to exercise options to buy its stock in SifiBank at a favorable price that it held as part of the agreement. The government would also have greater involvement over key decisions for a period of time until the bank was able to repay its obligation to the government. These events ushered in an unprecedented amount of scrutiny for SifiBank and while the morale of company employees took a massive hit, over time it allowed the bank to re-make its tarnished image to the public, investors and employees by reinvigorating the principles that had led the company to greatness in its early years.

Within several months of the ouster of the CEO and chairman, the board hired a new CEO, who had formerly been the enterprise CRO of a major competitor and had 20-plus years of banking experience running commercial bank businesses. With this background SifiBank was well on its way to becoming an industry leader in risk management. On the day the new CEO took office he called for the separation of the combined position of CEO and chairman in order to reduce potential conflicts of interest. He further went on to describe his vision for the bank, which was to be built

upon a foundation of strong risk management that would allow the bank to operate prudently in all economic environments while positioning itself to grow its businesses profitably and creating significant value for shareholders, customers and employees. SifiBank was to become a risk-centric organization and one that would be admired by its peers and customers over time. But even with that vision, the bank faced regulatory headwinds that posed a number of challenges for the new management team.

## **BANK REGULATORY LANDSCAPE**

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Unlike many other industries, the banking sector is heavily regulated by a patchwork of federal and state regulatory authorities. The larger the institution, the greater the regulatory scrutiny that occurs, and this has only heightened since the financial crisis. As a national bank, SifiBank's primary regulator for safety and soundness of its operation is the OCC. In this capacity, the OCC maintains regular contact with the bank, in fact deploying 75 examiners headed by an examiner-in-charge (EIC). This team actually works onsite at SifiBank and has regular access to management, reports and other information, allowing the examination team to stay abreast of ongoing developments at the bank.

The OCC has a responsibility to ensure the bank operates in a safe and sound fashion and to carry out these responsibilities the OCC conducts periodic standard and as needed targeted examinations. SifiBank receives a 1–5 (best to worst performance) rating each year by the OCC referred to as a CAMELS rating, which comprises an assessment of the bank's capital adequacy (C), asset quality (A), management quality (M), earnings (E), liquidity (L), and sensitivity to market risk (S). The OCC has an array of punitive actions that it can take to ensure the bank complies with regulatory standards and policies. The examination process is critically important to SifiBank as the OCC's findings on a particular exam could lead to severe monetary penalties as well as cease and desist orders that could limit the bank's ability to operate in certain ways. The OCC appears at SifiBank's board meetings and provides a summary of their findings and any management required actions (MRAs) they demand from the management team following a major exam.

Since SifiBank has a bank holding company structure it is also overseen from that standpoint by the Federal Reserve Board (FRB). As a BHC, SifiBank is subject to a variety of regulations imposed by the FRB, which will also conduct periodic examinations. After the crisis, one of the more significant requirements imposed on SifiBank was compliance with regular stress tests on its capital, a program known as the Comprehensive Capital Analysis and Review (CCAR). The process requires Sifibank to provide

detailed data and analysis on its various positions under a set of FRB established stress scenarios. The FRB conducts this on bank holding companies with assets of \$50 billion and greater, although it has added an additional 12 financial institutions to this list of 18 BHCs. This is just one of many regulations imposed by the FRB on SifiBank. In addition, SifiBank enjoys access to the Fed discount window, which provides backup low-cost, short-term funding to the bank.

Another important regulator for SifiBank is the Federal Deposit Insurance Corporation (FDIC) that is charged with overseeing the federally insured deposit insurance fund and resolving institutional failures in addition to its examination of state chartered banking institutions. The FDIC sets deposit insurance premiums for the banking system based on a variety of factors including bank ratings and size, among others. As a result, deposit premiums have a risk-based component to incent the right behavior from institutions. Since the financial crisis the FDIC has an increasing oversight of banks due to changes in legislation known as the **Dodd-Frank Wall Street Reform and Consumer Protection Act (DFA)**.

Following the financial crisis, Congress and the Administration came together to pass the most comprehensive legislation to affect the banking industry since the Great Depression: the DFA. The Act touches virtually every aspect of banking and even sets out guidance for regulating nonbank SIFIs. Among key provisions of the Act are regulations regarding derivatives trading such as **over-the-counter (OTC)** transactions, which includes CDS; securities that experienced significant losses during the crisis; a ban on proprietary trading by banks also known as the Volcker Rule; creation of a new Consumer Financial Protection Bureau (CFPB) and associated regulations on the mortgage industry; establishment of the Financial Stability Oversight Council (FSOC) and its analytics agency, the Office of Financial Research (OFR) charged with overseeing the buildup of systemic risk across the entire financial sector; and establishes an orderly liquidation facility for banks, requiring them to create their own “living wills” for how they would liquidate their operations under an insolvency, among other reasons.

The DFA also put the largest financial institutions—that is, those most likely to be too-big-to-fail—under a new set of regulations known as SIFI designation criteria that expose those firms to heightened supervision and other more stringent reporting and capital requirements.

The CFPB has been quick in setting up many new consumer-friendly regulations such as defining what a quality mortgage is, and regulations on fees and interest rates charged to bank and other financial institution customers. In addition to these mandates, the Federal Reserve established a new set of rules on limits on interchange fees that banks could charge for debit transactions. The CFPB in conjunction with the U.S. Justice Department and

Housing and Urban Development (HUD) have elevated their focus on fair lending practices. This increased scrutiny has required banks to redouble their efforts on making sure their lending practices are compliant with various regulations regarding fair lending.

SifiBank is also subject to a set of capital, stress testing, and liquidity requirements (referred to as **Basel III** standards) established by the Basel Committee on Banking Supervision (BCSB) and implemented by the Federal Reserve Board. Large, complex banking institutions such as Sifibank are subject to a number of capital requirements, some of which are risk-based and require considerable data management and analytics to be performed by such banks. Banks that do not meet certain thresholds for well capitalized institutions as determined by the regulatory authorities may be subject to certain limitations on their activities and/or face other regulatory actions such as establishment of capital plans for a bank to raise capital to designated target levels.

Bank regulation requires a substantial commitment of resources and staff by SifiBank. Within the Corporate Division, a unit known as Regulatory Affairs operating under the Legal Department is charged with staying abreast of the various regulations, examination schedules, and other regulatory developments and works with the business units and risk management functions to coordinate responses and analysis to regulatory inquiries and activities. Clearly, SifiBank faces substantial regulatory risk from noncompliance with various local, state and federal regulations. This risk poses yet another important consideration in SifiBank's strategic planning and risk assessment exercises each year. Some banks have taken adversarial positions with bank regulatory agencies that they believe provides an effective check against unnecessary intrusion into bank activities. At times, however, this strategy may backfire against the bank in the event that it needs the regulator to support a particular initiative or temper a regulatory response to an uncovered deficiency. The best course of action is to cultivate a respectful relationship with the regulators that is based on credibility, trust and sound expertise.

## **SUMMARY**

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SifiBank's fortunes have ebbed and flowed over time with different management, regulatory, market and economic conditions. The financial crisis of 2008 exposed deficiencies in risk management governance and infrastructure that nearly led to its demise. The company enjoys a second chance at remaking itself into a world class institution known for its risk management expertise by virtue of a government bailout. The bank still faces a dizzying array of financial and regulatory challenges in the post-crisis environment.

Most notably, the regulatory environment is taking a heavy toll on the bank's ability to increase operating revenues while managing expenses. Fees associated with various bank services and products such as debit cards and consumer loans have dampened important income sources for SifiBank. This has incited the bank to look for other products that boost profitability without running afoul of regulatory requirements. Mortgages that lie just outside the CFPB Qualified Mortgage criteria could provide the bank with better spreads than conventional mortgages while exposing the firm to minimal legal risk in the future. However, a product development and design framework that vets the collection of bank risks against each other in a way that meets the bank's objectives would offer the most effective protection. This is where strong risk management practices can make the difference between a sustainable business model and one that experiences a major risk event that puts the entire firm at jeopardy.

Financial risk management is not an exact science despite a revolution over the past two decades to leverage quantitative approaches in measuring and managing risks. A key to successful risk management is knowing the right combination of qualitative controls and quantitative tools to use. The remainder of this book introduces the reader to a complement of key risks faced by SifiBank. While individual risks are examined within specific operating units of SifiBank, it should be understood that these risks span most divisions with variations in exposures based upon the nature of the transactions, and services in place, among other considerations. Further, while most chapters that follow focus on a particular type of risk, as discussed earlier, SifiBank's risk managers must think about risk holistically. Even within an operating unit such as the mortgage group, business risk managers must evaluate tradeoffs between the credit exposure of putting a mortgage on the balance sheet and the interest rate risk exposure and operational risk it creates. Moreover, potential reputation, regulatory and legal risks must be factored in before implementing a product strategy. Some of these risks do not lend themselves to quantification but still expose the firm to lost business, regulatory actions and penalties, and large legal tabs if not carefully accounted for in product development.

## **QUESTIONS**

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1. What is a SIFI and how does that relate to the concept of too-big-to-fail?
2. Describe the four elements of the risk management feedback loop.
3. What differentiates banks from nonfinancial corporations?
4. Describe SifiBank's profit-maximizing function.

5. Describe a conceptual model that relates risk-taking to asset generation and firm growth.
6. In a potential merger with another institution, what should SifiBank take into consideration that would mitigate potential risk later?
7. What factors led to the near death of SifiBank after the financial crisis of 2008–2009?
8. What is the Volcker Rule and what impact does it have on banking and financial risk management?
9. What are a few key measures that banks use to monitor their performance?
10. What is systemic risk and how does it affect bank risk?
11. What is risk layering?
12. What is CAMELS?
13. What are some of the key provisions of DFA?

