Performance of Financial Institutions

Efficiency, Innovation, Regulation

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1

What Drives the Performance of Financial Institutions?

Patrick T. Harker[a], Stavros A. Zenios[b]

Abstract

While the efficiency of financial markets is widely and extensively studied, little has been done to date to develop our understanding of what drives the performance of the institutions that operate in these markets. Unavoidably, however, the efficient operation of financial intermediaries – banks, insurance and pension fund firms, government agencies, and so on – is instrumental for the efficient functioning of the financial system. In this chapter we present in a coherent framework our current understanding on *what is* and *what drives* performance of financial institutions. The chapter provides the necessary background and the wider context for the remaining chapters of this book.

1 Introduction

The financial services sector is perhaps the most significant economic sector in modern societies. In the more advanced service economies – like the United States' – the financial sector employs more people than the manufacturing of apparel, automobiles, computers, pharmaceuticals, and steel combined; 5.4 million people are employed by financial services firms in the U.S. Financial services account for almost 5% of the Gross Domestic Product in the U.S., about 5.5% in Germany, 3.5% in

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Italy, and similar statistics are found for other European Union economies with highly developed financial intermediaries. The Japanese financial sector accounted for almost 9% of the GDP until 1993 (recently it has experienced severe decline), and the Singapore sector is 6.5% of the GDP. (Data are obtained as the sum of all entries in the rows of Table 5 of Demirguc-Kunt and Levine, 1996.) In smaller economies – especially those that aspire to a significant presence in the international markets through offshore banking activities – the financial services sector could be even more significant. The Swiss financial sector accounts for over 9% of the country's GDP. Cyprus – a small Mediterranean economy offering off-shore banking services to the former Soviet Union states and Eastern European countries – has more than 18% of its GDP arising from financial and business services, and these sectors employ almost 10% of the population. Eighteen percent of the Israeli GDP is due to the combined financial and business services sectors, which employ 10% of the population.

Impressive as these statistics may be, they belie the much larger *indirect* role that this industry plays in the economy. In a nutshell, the financial sector mobilizes savings and allocates credit across space and time. It enables firms and households to cope with economic uncertainties by hedging, pooling, sharing, and pricing risks, thereby facilitating the flow of funds from the ultimate lenders to the ultimate borrowers, improving both the quantity and quality of real investments, and thereby increasing income per capita and raising our standards of living. Herring and Santomero (1991) give a comprehensive contemporary analysis of the role of the financial sector in economic performance.

It is therefore well justified that the performance of the financial sector receives extensive scrutiny from scholars and industry thinkers. While the efficiency of the financial markets has been studied and debated at length, much less has been done in understanding the performance of the institutions that operate in these markets; see, e.g., Merton (1990). Under intense competitive pressures, financial institutions are forced to take a careful look into their performance and the role they are called upon to play in the economies of the 21st century.

Banking institutions face today a dynamic, fast-paced, competitive environment at a global scale. This environment is the catalyst for major restructuring of the industry. Table 1.1 summarizes the changes in the U.S. banking industry over the 15-year period from 1979 – the aftermath of financial deregulation and the collapse of the Bretton-Woods agreement. The total number of banking institutions shrunk by one-third, but more than half of the small banks were eliminated in the process. The

Table 1.1. *Changes in the U.S. banking industry 1979–1994.*

Item	1979	1994
Total number of banking organizations	12,463	7,926
Number of small banks	10,014	5,636
Industry gross total assets (trillions of 1994 USD)	3.26	4.02
Industry assets in small banks	13.9%	7.0%
Total number of employees	1,396,970	1,489,171
Number of automated teller machines	13,800	109,080
Cost (1994 USD) of processing a paper check	0.0199	0.0253
Cost (1994 USD) of an electronic deposit	0.0910	0.0138

Source: Berger, Kashyap, and Scalise, 1995.

total number of employees increased by a meager 7% while the number of automated teller machines increased almost ten-fold.

Liberalized domestic regulations in the U.S., financial unification policies in Europe, intensified international competition, rapid innovation in new financial instruments and changing consumer demands, and the explosive growth in information technology fuel these changes. In response, firms are forced to adapt in order to survive, and firm-level innovation brings about more change of the competitive environment. Frei, Harker, and Hunter (1997) discuss various forms of innovation of retail financial institutions in response to these competitive pressures.

Where are the competitive pressures coming from? A recent study on the future of retail banking by Deloitte and Touche (1995) argues that the banking industry is today fragmented due to its inability to exploit *economies of scale and scope*. Before we elaborate on the implications of this argument, we add that studies by Berger and colleagues (see, e.g., Berger and Humphrey, 1991, and Berger, Hancock, and Humphrey, 1993) claim that inefficiencies are far more important than unexploited scale and scope economies. Further work (Berger, Hunter, and Timme, 1993; Soteriou and Zenios, 1999) shows that serious inefficiencies are on the output side, reducing revenues, than on the input side, raising costs. A number of recent indicators lead us to believe that retail banking is increasingly becoming susceptible to scale economies. Declining costs of information technology – hardware and software – and the gradual shift of banking operations from hybrid paper-electronic systems to seamless end-to-end automation lead to restructuring and disaggregation of retail

banking. It can be argued that today's mergers and acquisitions do not necessarily add value, but are reactions to competitive threats (Frei, Harker, and Hunter, 1997; Singh and Zollo, 1997). However, evidence is gradually emerging (Pilloff and Santomero, 1997) that consolidation does add value, thus lending credibility to Deloitte and Touche's somewhat speculative study.

The economies of scale that lead to more integrated automation cause further *economies of scope* effects. As financial institutions – in agreement with all other retail services – realize that customer satisfaction and customer loyalty lead to long-term growth, they aim at maximizing the share of customers' wallets that they are servicing. With platform automation, an employee can get a single view of the entire customer relationship; economies of scope can be created when a firm offers suitable product mix to support its client base. Mergers and acquisitions become powerful forces impacting geographical scope and product variety, while also affecting the underlying technological and managerial infrastructures of the institutions. The recent megamerger of Citibank with Travelers Group is a manifestation of economies of scope leading to industry restructuring.

Technological innovation adds more competitive pressures. First, it opens up new delivery channels, and while those are not necessarily more cost effective for the firm, consumers get to depend on them and demand access. Whereas in the past the bank branch was the only channel for the distribution of financial services, we see today a variety of channels eroding the branch's dominance.

Furthermore, as banks struggle with the technological issues and complex organizational choices that surround the introduction of, say, PC banking services, they see the emergence of new competitors. Off-the-shelf home finance software – such as Intuit's Quicken and Microsoft's Money – provide some of the services that were traditionally offered by banks, and radically transform the way in which the client interacts with the firm. It is not sufficient for the CEO of Chase Manhattan to be concerned about the competitive strategies of Deutsche Bank or Banque Nacionale de Paris; he also has to ponder whether Microsoft is also a bank. The Deloitte and Touche study argues that technology revolutionizes the moving and storage of money and the distribution of financial products, and more complex software permits more integrated automation. However, the complexities of large software projects create some of the scale effects that reshape the industry. It is likely that new entrants, better equipped with state-of-the-art technology than current banking giants with 1970's technology, can quickly achieve lead-

ership in the retail banking field. Bank executives who wish to maintain their firm's franchise should be aware of Microsoft's and other firms' acquisitions in the area of financial software and network management, and their active interest in possibly buying a bank.

Competitive threats are likely to emerge from more unsuspecting places. Logistics firms, such as Federal Express and UPS, are well equipped to deal with the transfer of goods and information and the management of money. They currently own the process for transferring goods and information; we could expect them to take ownership of the transfer of money as well. The Deloitte and Touche study speculates that "it would not be surprising to see a joint venture between say Deutsche Telecom and Quelle, the large German mail order firm, in which they jointly undertook to design and distribute financial service products." (This hypothetical merger was the subject of a recent article in *The Economist*.)

Perhaps the strongest force of change, however, is the *consumer*. Consumers are demanding anytime-anywhere delivery of financial services, while demonstrating a rapid evolution of their needs and desires. In 1980, almost 40% of the U.S. consumer financial assets were in bank deposits. By 1996 bank deposits accounted for less than 20% of consumers' financial assets with mutual funds and insurance/pension funds absorbing the difference. As a result of changing consumer needs, we have seen an accelerated growth of financial innovation. See, for instance, Allen and Gale (1994) or Consiglio and Zenios (1997) for a discussion of financial innovation and security design. The emergence of new and diverse financial products creates new challenges for financial institutions that now face a host of product-mix and marketing questions along with new competitors. Whereas the typical bank offers a dozen or two different choices of mutual funds, institutions such as Fidelity Investment or Merrill Lynch each offer over 100 different products.

Modern consumers also demand access to more than one delivery channel. While a personal visit to the branch remains the predominant way of doing business, a significant percentage of U.S. households use non-branch channels as well (phone, electronic transfer, ATM); see Figure 1.1.

Some interesting case studies amplify the point we are making on the significant transformation of the banking industry and the challenges facing its institutions. Marks and Spencer, the famous retailer in the United Kingdom, made a significant entry into financial services. By restricting in-store payment to cash, check, or the store's own card, Marks and Spencer has recruited a large number of cardholders. Ana-

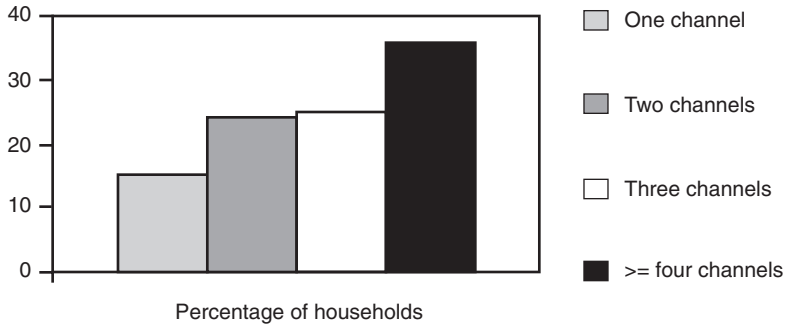

Figure 1.1. Percentage of U.S. households using alternative delivery channels. (Data from Kennickell and Kwast, 1997.)

lyzing the spending patterns of its clients has enabled Marks and Spencer to target these individuals for loans, saving products, pensions, and mutual funds through the mail. The firm now explicitly recognizes that selling financial products forms an increasingly larger part of its corporate strategy.

Smaller and more protected economies of the world run the risk of procrastinating in their liberalization efforts. Behind protective barriers, national retail banks may remain for a while ignorant of the changes that threaten to destroy them. However, this is not a sustainable state of affairs and eventually new entrants will emerge either locally funded or set up by foreign banks. This is precisely what happened in Portugal, where a group of capital providers funded a new start-up bank, Banco Commercial Portugues, which is a new institution revolutionizing the Portuguese banking industry.

Since the late 1970's, banking institutions have been transformed from almost purely *financial intermediaries* to *retail service providers*. Not long ago, banks would entice customers to deposit their money by giving away free coffee makers and toasters for opening new accounts. The management of the customers' money would then drive most of the bank's profits (and pay for the toaster too!). Today banks such as Wells Fargo sublet branch space to Starbucks Coffee, and customers visit the branch to get a large spectrum of retail services – including coffee that is now paid for by the customer! Data from Berger, Kashyap, and Scalise (1995) highlight the magnitude of the shift towards retail servicing: the

ratio of noninterest income to operating income rose from 7 in 1979 to 20.9 in 1994 for the large U.S. banks, and from 3.5 to 8.3 for the smaller banks.

As a result of the transformation towards retail servicing and the competitive pressures outlined earlier, retail banking is now focused on the portfolio of interlinked activities that a banking institution may be called upon to perform:

1. Product origination: formulating products such as mortgages or savings for delivery either to clients directly or to intermediaries.
2. Retail servicing: selling and servicing a range of products to individual customers through a range of delivery channels of the customers' choosing.
3. Back office operations: providing the support functions required for the successful and efficient execution of the two primary activities.

The Deloitte and Touche study argues that banking institutions are gradually being reshaped and disaggregated into entities that perform one or more of these activities within a context of strategic partners and alliances, while dealing with a myriad of issues (regulatory barriers to competitive entrants, marketing and product-mix strategies, etc.).

How do we then measure the *performance* of a financial institution in this changing landscape? What drives this performance? What can an institution do to improve it? This is a book of carefully selected, peer-reviewed, scholarly papers that address these questions. It is the product of a two-day international conference held in May 1997 at the Wharton School of the University of Pennsylvania under the auspices of the Wharton Financial Institutions Center. The themes developed in the chapters of this book advance our understanding of what is – and what drives – performance of financial institutions. It is our expectation that the better understanding of performance and its drivers will lead to managerial practices that improve the performance of this significant sector of economic activity.

Measuring performance in our modern world is a challenging problem. In the old economy – where the central feature was mass production and consumption of commodities – "output" or "quantity" measures were adequate indicators of performance. Modern economies are based on production and consumption of increasingly differentiated goods and services. In the case of banking, this increased variety leads to the fragmentation and changing nature of the banking services described above. In this environment, traditional productivity measures are not only extremely difficult to compute, but they also tell us less

than they used to; Fornell (1995) and Fornell et al. (1996) discuss these issues at the national and firm level. Griliches (1992) laments the rise of the "unmeasurable" sector of the economy which makes it difficult to measure "performance," however it is defined. Section 2 of this chapter discusses several measures of performance for financial institutions.

A CEO may not rest, however, once he or she understands what is performance and finds ways to measure it. The next challenge is to discover what drives performance so that appropriate managerial actions can be taken. Once more, this is not a simple issue. The drivers of performance are many and are tightly intertwined as their relationships can be quite complex and nonlinear. The complex interactions of various factors that affect performance are exemplified in the study by Roth and van der Velde (1991, 1992), and steps in disentangling and better understanding the relationships are made in Roth and Jackson (1995) and Soteriou and Zenios (1999). In a nutshell, these studies identify the interactions between the design of the operating system and operational efficiency with the quality of the provided services – either from the perspective of internal or external customers – and the ultimate impact of operations and service quality on profitability. Section 3 classifies the drivers of performance in three categories: (*i*) *strategy*, (*ii*) *execution of strategy*, and (*iii*) *the environment*. Within each category we discuss specific drivers.

Section 4 gives a summary of what is currently known on the performance of financial institutions and its drivers. It is not meant to be an exhaustive guide to the literature; the topic of this volume is much too broad to be covered completely in a single volume and summarized in this introductory chapter. Instead, we focus on a few important findings and pay particular emphasis to some of the conclusions of the conference as documented in the papers published herein. Finally Section 5 charts those areas of the bank-performance landscape, where knowledge is scant and where we believe future directions of research should concentrate.

The careful reader must have noticed that while we talk about the performance of financial institutions, in general, most of the discussion in this and other chapters in this book focuses on banking institutions, and on retail banking in particular. By focusing on a single class of financial institutions, we have been able, collectively, to make substantial progress in understanding their performance and its drivers. While not all the findings are applicable to other institutions, commonalities do exist between financial service firms. We hope that the body of knowledge presented

here can guide efforts in understanding the performance of other financial institutions as well.

2 What Is Performance?

Financial institutions are for-profit organizations, and we can define *performance* to mean economic performance as measured by a host of financial indicators. Price-to-earnings ratios, the firm's stock beta and alpha, and Tobin's q-ratios are indicators for short- and long-term financial performance. In particular, Tobin's q – the ratio of market value to replacement cost – is a measure of the firm's incentive to invest and thus is an indicator of its long-term financial performance. For financial institutions where the majority of investments are publicly traded financial assets, the q ratio measures the market capitalization of a firm's franchise value or goodwill. Part, if not all, of this franchise value will be lost in the event of insolvency or substantial increase in financial distress. It is therefore in the best interest of the financial institution to protect its franchise value. But how? Financial indicators (such as q) are not actionable: they measure the market's reactions to the institution's actions, but they cannot be directly acted upon.

What can the institution do to improve its q? Broadly speaking, a financial institution does two things: (*i*) provides products and services to its clients, and (*ii*) engages in financial intermediation and the management of risk. It turns out that along both of these axes – servicing and intermediation – we can define further measures of performance that have a direct positive impact on financial measures, and that are *actionable*. These are (*i*) quality of the provided services, and (*ii*) efficiency of risk management, respectively.

There is an accumulating body of empirical evidence that quality measures are predictive of future changes in shareholders' value; see Nayyar (1995), Ittner and Larcker (1996), and Fornell, Itner, and Larcker (1996). Why this is the case has been articulated by the proponents of the American Customer Satisfaction Index – ACSI (Fornell et al., 1996):

> For managers and investors, ACSI provides an important measure of the firm's past and current performance, as well as future financial wealth. The ACSI provides a means of measuring one of a firm's most fundamental revenue-generating assets: its customers. Higher customer satisfaction should increase loyalty, reduce price elasticities, insulate current market share from competitors, lower transaction costs and the cost of attracting new customers, and help build a

firm's reputation in the market place. As such, ACSI provides a leading indicator of the firm's future financial health.

A financial institution could jeopardize its franchise value not only by displeasing its customers, but also by undertaking some financial risks that should not have been undertaken, thus mishandling the risk management process. Keeley (1988) demonstrates a clear relation between decreased franchise value and increased risk for commercial banks. Staking and Babbel (1995) establish the negative impact of interest rate risk on the market value of equity for property and liability insurance firms. While empirical evidence on the effects of risk management on banks' financial performance is scant and outdated, there is an extensive body of literature arguing that risk management does matter; see Santomero and Babbel (1997) for a review. While there is to date no consensus on the theory that explains why risk management matters, there is consensus that it does matter and we adopt this point of view herein.

In conclusion, the financial performance of an institution – observable but non-actionable – can be affected by its performance along the axes of service delivery and financial intermediation. The performance along both of those axes is both observable and actionable.

We turn our attention to performance along the axis of service delivery, and attempt to unbundle those factors that drive performance in the delivery of banking services. We do not ask here what drives the performance of financial institutions in the domain of risk management. This question was addressed at two previous conferences of the Wharton Financial Institutions Center, and the proceedings have appeared in special issues of journals: *Journal of Financial Services Research*, 12 (2/3), 1997, publishes the proceedings for bank risk management, and *The Journal of Risk and Insurance*, 64(2), 1997, publishes the proceedings for insurance firms' risk management.

3 What Drives Performance?

We classify drivers of performance into three broad classes: (*i*) *strategy*, (*ii*) *execution of strategy*, and (*iii*) *the environment*. Within each category we give details of the various factors that affect performance and provide supporting evidence that these factors do indeed drive performance.

3.1 Strategy

What should a bank do? The articulation of a strategy is a key driver for success and especially so in dynamic, competitive environments such as that in the financial services industry; see, e.g., Boyd (1991) and Capon,

Farley, and Hulbert (1994) for empirical evidence on the *strategic success hypothesis*. In the context of banking institutions, the selection of a strategy primarily involves the decision on how the global banking organization should restructure into the components of the "disaggregated" bank. Here are some of the strategic choices:

1. *Product mix*: Should the bank be a product originator and if so, which portfolio of products should it support? In the United Kingdom, for instance, the Royal Bank of Scotland set up Direct Line as a completely autonomous enterprise to concentrate on consumer automobile insurance. Countrywide Pasadena in the U.S. focuses on a single product: mortgages. Bank of Montreal in Canada has set up a separate, non-branch-based organization called Mbanx that to some extent competes against its branch-based operation.

   It is worth noting that choosing a product mix not only defines the strategy of the institution in providing services, it is also a strategic decision in the context of risk management. Specification of a product mix is equivalent to a choice of the financial risks that the institution plans to manage.
2. *Client mix*: What kind of services does the institution wish to offer to clients? Should it focus on consumer financing or retailing, and which client profile fits best with the bank's line of products? Casework by Deloitte and Touche for a French bank showed that 5% of its clients accounted for 250% of the total profits of this bank's region. The same study found that 20% of the bank's profits were due to clients with low usage of their current accounts, 30% were due to clients that held at least one more product in addition to the current account (these clients account for 14% of the total client base), and only 30% of the client base was profitable. A successful strategic decision then hinges upon matching a targeted client segment with well-priced products.
3. *Geographical location*: Where should a bank operate, locally or internationally? Regulatory restrictions and the choice of product and client mix may determine the geographical scope of the institution. For instance, Countrywide Pasadena operates in California selling mortgage products to local homebuyers. Bank of Cyprus operates branches in New York, Toronto, and London offering full services to wealthy expatriates, and also sells the mutual funds of Swiss Bank Corporation to local clients who want to invest in the international markets. We note once more that the choice of geographical location also implies strategic choices on the risk-management axis of a bank's operations. International operations assume automatically currency exchange risks.
4. *Distribution channels*: As products are differentiated, customer segments are targeted, and geographical locations become dispersed, the choice of suitable distribution channel(s) becomes a crucial linchpin. Successful strategies hinge upon matching a targeted client segment with well-priced products through one or more appropriate delivery

channels. By focusing on one activity, Countrywide Pasadena was able to invest heavily in automation and promote its product through non-traditional media such as advertising, telephone, and print. However, alternative distribution channels are not only a marketing medium, they also provide the means for cost containment. For instance, the cost of an electronic deposit is half that of depositing a paper check, and banks must proactively manage consumers' behavior towards the most cost-effective channels.

5. *Organizational form*: Which organizational form should the bank adopt in the global environment? Should the bank diversify through a multi-bank bank holding company (MBHC) or through a more consolidated structure like an interstate branch-banking network? These issues need to be addressed in conjuction with the strategic choices on geographic location (item 3 above).

Further strategic factors also affect performance in conjunction with the major choices outlined above: the organization of back-office services is currently an integral part of the banks' operations, but gradually may be outsourced to specialized firms; the formation of strategic alliances to support clients in product areas or through delivery channels that are not the bank's primary choice; the choice of a scale of operation that exploits economies of scale without the adverse effects of complexity of scale. Each of these factors on its own is a driver of performance, but the proper *alignment* of these factors is also a driver of performance. Indeed, the Bank Administration Study (Roth and van der Velde, 1992) concluded that best-in-class institutions excel simultaneously in multiple dimensions.

3.2 Strategy Execution

The second broad set of performance drivers deals with the execution of a strategy, and the operational decisions that a bank makes in order to achieve its strategic goals. Considering once more *quality of services* as the actionable measure of performance, we identify the factors that drive this particular measure. The study of the Bank Administration Institute (see Roth and van der Velde, 1991, 1992) established that marketing, design of operations, organizational structure, and human resource management are tightly interlinked in a bank's search for excellence. These findings led to the formulation of the service management strategy encapsulated in the triad *operational capabilities–service quality–performance* (C-SQ-P) – see Roth and Jackson (1995). The C-SQ-P triad is, in turn, a focused view of the *service-profit chain* described earlier by Heskett et al. (1994), based on their analysis of successful service organizations; see also Heskett, Sasser, and Schlesinger (1997). Soteriou and

Zenios (1999) develop benchmarking models that formally test several links of the service-profit chain for banking institutions.

The arguments of the service-profit chain proceed as follows: (*i*) profit and growth are stimulated primarily by customer loyalty; (*ii*) loyalty is a direct result of customer satisfaction; (*iii*) satisfaction is largely influenced by the value of services provided to customers; (*iv*) value is created by satisfied, loyal, and productive employees; (*v*) employee satisfaction results primarily from high-quality support services and policies that enable employees to deliver results to customers. Without altering these arguments Soteriou and Zenios (1999) added the design of the operating system – operational practices, policies, and procedures – as a direct driver of satisfaction in links (*iii*) and (*v*).

While this service-profit chain is yet to be fully validated using empirical data – see Heskett et al. (1997), Roth, Chase, and Voss (1997), and Soteriou and Zenios (1999) for current work in this direction – it does provide a framework for identifying those operational and tactical factors that drive performance.

1. *X-efficiency*: Introduced by Leibenstein (1966, 1980) this measure describes all technical and allocative efficiencies of individual firms that are not scale or scope dependent. Thus X-efficiency is a measure of how well management is aligning technology, human resource management, and other resources to produce a given level of output, and it has a positive effect on links (*iii*) and (*iv*) of the service-profit chain.

   This is the most traditional and widely studied driver of performance for financial institutions. It views the bank as a "factory" that consumes various resources to produce several products and establishes the efficiency with which this transformation takes place. Early studies in this direction viewed the bank – usually at the branch level – as a "black box" and attempted to identify those banks branches that excel; see Chapter 2 by Berger and Humphrey for a survey. This line of research has led to the development of models for reducing X-inefficiencies, and such models have been employed in practice by banks as documented in Zenios (1999).

   X-efficiency can be viewed as a driver of performance in the sense that it affects positively some links of the service-profit chain, and a positive correlation exists between our definition of performance in terms of quality and X-efficiency (Soteriou and Zenios, 1998). However, it can also be argued that X-efficiency is not really an action taken in the execution of strategy, but is a result of actions.

   More recent work has focused in prying open the "black box" and understanding what strategy execution actions can be taken to improve X-efficiency; see Chapter 3 by Berger and Mester and Chapter 8 by Frei, Harker, and Hunter. From these efforts stems our further understanding on the drivers of performance, and in particular what drives X-efficiency.

2. *Human resource management*: It covers a number of areas for both managerial and non-managerial employees, such as compensation, hiring and selection, staffing, training, work organization, and employee involvement. Since employee satisfaction is one of the links in the service-profit chain, we may expect human resource management to be a key driver of employee performance and, hence, organizational performance. Indeed, there is solid empirical evidence to support this hypothesis; see Chapter 8 for several references in this direction. Recast in terms of the literature on banking efficiency, these findings imply that some of the inefficiencies in banking may be attributed to the ineffective management of human resources.

   Human resource management practices can be viewed at multiple levels. The "architecture" of a human resource management system provides a high-level framework, while policies bring this framework closer to an operational level. System architecture and operational decisions should be properly *aligned* if human resource management is to deliver value added. Furthermore, in large complex organizations such as banks, different subsystems of human resource management govern different groups of employees, and these subsystems should also be properly aligned. The relationship between the CEO and the board – one more dimension of human resource management – with the system architecture and operational decisions of the firm is being studied extensively in executive compensation studies (see, e.g., Lambert, Larcker, and Verrecchia, 1991, or Ittner, Larcker, and Rajan, 1997). However, it has not been recognized as yet another aspect of the broader alignment issue outlined above.
3. *Use of technology*: Large banks in the U.S. spend approximately 20% of non-interest expenses on information technology, and this investment shows no sign of abating. Roth and van der Velde (1991) show that a typical large U.S. bank spends $392K per year on platform automation and an additional $502K on upgrading information and transaction processing. There is substantial evidence that information technology (IT) investments improve productivity – empirical evidence estimates return-on-investment from IT of the order of 50–60%. However, this evidence is available for a broad pool of manufacturing and service firms (Lichtenberg, 1995; Brynjolfsson and Hitt, 1996). Brynjolfsson and Hitt (1995) established the existence of firm effects in IT productivity measures. Although they found that the elasticity of IT remains positive and statistically significant for the firms in their pool, financial services firms were not explicitly included in this analysis. In fact, a recent study by the National Research Council (1994, p. 81) concluded that current productivity measurements are unable to account for improvements in the quality of services offered to customers or for the availability of a much wider array of banking services. Improvements in the speed of credit application processing or the availability of 24-hour banking through call centers and ATMs are not captured as higher banking outputs. The proclaimed benefits of computerization are hard to see in the data, and scholars are still debating this so-called *computer paradox*.

However, while it may still be debatable whether IT investments make banks more profitable, information technology cannot be overlooked as a key driver of performance. As demonstrated earlier in this chapter, customers demand delivery of an increasingly wider array of services, using a variety of delivery channels. Hence, IT becomes an asset in the quest for quality in the delivery of banking services. Furthermore, the cost for transaction processing varies significantly by channel – $1.40 per transaction through a teller, $1.00 through a human-operated call center, $0.15 through an automated voice response unit, and $0.40 through an ATM – and technology is also a key factor in cost containment.

4. *Process design* is the mechanism through which inputs are transformed to outputs; i.e., it is the principles by which work is organized in order to produce a specific set of outputs. Conventional wisdom holds the view that as long as all of the inputs to a service process – human, material, machine, method, management, environment, and measurement system – remain unchanged, the service output will be consistent in their characteristics. In reality, consistency of service performance is a utopia, and Frei, Kalakota, and Marx (1997) provide large-scale evidence from several bank holding companies on the prevalence of process variation.

   Reduction of process variability becomes then another driver of performance. Large variation means that more service outputs are closer to the boundary of the range acceptable to the consumer, or even that some outputs are above or below customer specifications if the products are not carefully measured and monitored. In the former case – exceeding customer specifications – the result will be higher-than-expected costs, in the latter – falling short of the specifications – the result will be dissatisfied customers with the negative effects on performance prescribed by the service-profit chain.
5. An overarching factor that drives performance at the level of strategy execution is the *alignment* of human resource management, the use of technology, and the design of processes, with each other and with the institution's strategy. While the value of alignment is still debated – over-alignment may be considered a recipe for competitive failure – Frei, Harker, and Hunter provide in Chapter 4 the first empirical evidence that alignment does matter. They study separately the effects of aligning human resource management practices within diverse units of a bank, the significance of aligning human resource management with IT investments, the significance of aligning production processes, and the significance of aligning inputs with strategy.

   Empirical evidence from a large-scale study of bank holding companies (Prassad and Harker, 1997) reveals that the elasticity of IT capital is positive but small, and with very low significance (7%), indicating that there is a very high probability (0.93) that investment in IT has no positive effect on bank productivity. Is this in disagreement with the findings of Lichtenberg (1995) and Brynjolfsson and Hitt (1996), and our arguments above that IT is a driver of performance? Prassad and Harker go further to show that the elasticities of IT labor are both large

and significant at the 100% level. Hence, the empirical data seem to indicate that the banks in their sample can reap significant benefits from hiring and training IT labor. IT remains a significant driver of performance, but not so much through IT capital as through IT labor. This is further evidence that alignment is significant – in this case, alignment of IT technology with IT labor.

Further studies on the interaction between information technology, work practices, and wages were undertaken by Hunter and Lafkas (1998). This study, analyzing micro-level data gathered from over 300 U.S. bank branches, established the association between IT and wages for bank employees, and the interaction effects between technology and work practices. For instance, they establish that different work practices are appropriate in the presence of "automating" information technology, and other practices are warranted when IT is "informating" in the sense of creating more information. Informating technologies are associated with higher wages, while automating technologies tend to reduce them. Hence, alignment of work practices with IT is significant, but this alignment is context-dependent and could be quite complicated.

3.3 The Environment

We have argued in the introduction to this chapter that changes in the banking industry are the result of changes in the environment: technological, market, regulatory, etc. Environmental factors are indirectly controlled by the banks – through lobbying activities, marketing efforts, research and development – and hence, they can also be viewed as major factors in understanding performance. Which are, then, the environmental factors in explaining performance?

1. *Technology* and, in particular, *information technology* (IT) is the predominant production technology in financial services. We have argued in Section 3.2 that the use of technology is a key driver of performance. In this section we also argue that the technological environment and the changes it is undergoing are also major factors of the performance puzzle. Technological progress has led to quality-adjusted price decline of computers of 20% or more per year (Berndt and Griliches, 1990). Furthermore, from 1978 to 1989 the computer industry had the highest level of research and development intensity of any industry in the manufacturing sector, and its products appear to have exhibited unmatched quality improvements. Technological progress in networking has been equally rapid: the cost of moving data has dropped by a factor of 100 between 1987 and 1993. These developments led to the success of the information superhighway and the World Wide Web. The storage and moving of money are increasingly resembling a small corner of the overall world of telecommunications. These changes are partly responsible for the restructuring of the industry described in the Deloitte and Touche study by creating the so-far elusive economies of scale. The technological developments also facilitate some of the disaggregation

of the industry. For instance, while in the past back-office operations would usually reside in the same physical location where the customer service would take place, it is now conceivable that back-office operations can take place in a centralized firm-wide processing center at a remote location. Back-office operations could very easily take place overseas at a country with a highly skilled labor force, a good telecommunications infrastructure, and lower wages and tax rates. If Japanese automobile manufacturers could produce in the U.S., and U.S. manufacturers in Mexico, it is easy to see banks outsourcing their operations to an Eastern European country with a highly educated work force (but presently a poor telecommunications infrastructure). Conceptually, there is no reason why a bank could not reside on a high-end personal computer. The transmission of data for a simple instruction such as moving money between two accounts is virtually free on the Internet.

The technical changes of IT are only one part of the equation. We also observe increasing access of consumers to IT. The presence of personal computers in households is commonplace and access to the Internet is increasing rapidly. Changing consumer tastes affect the delivery channels that a bank's client is likely to use. The Deloitte and Touche study found that deposits remain the only product for which consumers use traditional delivery channels – the branch – in large percentages (99%), and this number has remained constant. In several other products – consumer loans, housing finance, mutual funds, life insurance – the use of non-traditional delivery channels is much higher, and is continuously gaining ground. How exactly these changes affect performance is unclear; however, they should be recognized as major factors in understanding performance. Banking institutions can take a proactive position in assimilating these changes, as happened for instance with the establishment of the HERMES Laboratory at the Wharton School that studied the developments of high-performance supercomputing for risk-management applications (Zenios, 1991; Worzel and Zenios, 1992). There is evidence (see the Deloitte and Touche study) that the assimilation of new money-moving technologies by banking institutions is a global trend. For instance, cash withdrawals through ATM as compared to the total amount of cash in circulation almost doubled in the U.K. and Italy during the period 1988–1992, and substantial increases were observed in most Western economies.

2. The choice of a client mix was targeted as one of the strategic drivers of performance in Section 3.1. However, *consumer tastes* change and these changes are also major environmental factors in the performance of financial institutions. We have already described some of the changes in the Introduction: the shift of consumer assets from bank deposits to other financial markets and the use of multiple distribution channels. However, consumers are typically conservative in financial matters, and this conservatism has contained a tidal wave of change in the banking industry. Younger people seem more willing to experiment with novel banking products and delivery channels, as well as to switch banks. Half of the banking users in the U.K. in the age group 18–34 use telephone

banking, compared to 40% of those in the 35–45 age group, and less than 10% of the 55+ age group. As the younger group ages, and its share of assets in the economy increases, the banking sector will increasingly feel the effects from this group's changing needs.

3. The banking industry is, in most countries, tightly regulated. However, Europe is moving towards a single market in retail banking and, in the United States, the forces to repeal or substantially weaken the Glass-Steagall Act are stronger than ever. Changing *regulations* is a key environmental factor in understanding performance. First, deregulation allows the fragmentation and reshaping of the industry, while technology facilitates this movement. There is empirical evidence from the United States that deregulation reduced the number of banks and banking companies while increasing their size. Deregulation also brought about reduction in the ratio of non-interest expenses to assets and loan charge-offs, and these reductions were passed on to consumers as cost savings. Post-deregulation periods have also witnessed increases in the market share of high-profit banks.

   We note that regulation is imposed along both axes of the banks operations: service delivery and financial intermediation. Presumably regulators do not wish to impose restrictions on a bank's operations unless the services provided affect the financial intermediation process and the depositors' risk exposure. As we argued before, these two primary activities of a bank are tightly intertwined and, in the mind of policymakers, the former is an integral part of the latter. Chapter 13 by Jayaratne and Strahan surveys the effects of regulation on bank performance and provides empirical evidence that deregulation drives performance.

4 What Do We Know About Performance and Its Drivers?

The 15 chapters of this book present the state of the art in our understanding of performance and its drivers along the axes described above. The chapters are organized in four logical parts. The first part ("Introduction") contains two survey papers on international studies exploring the efficiency of financial institutions and efforts in understanding differences in efficiency. Efficiency at the operational level (X-efficiency) has been historically the most widely studied topic on the performance of financial institutions. Chapters 2 and 3 aptly summarize the status of international efforts in measuring the efficiency of financial institutions, and our understanding on what drives differences in operational efficiency. This understanding lays the background from which the novel contributions of the Wharton Conference stem. The rest of this volume builds upon and substantially expands the body of knowledge summarized in these two chapters.

The second part ("Drivers of Performance") contains papers con-

cerned with the identification of drivers of performance, the specification and measurement of these drivers, and the measurement and benchmarking of performance per se. These papers focus on the more well understood and widely accepted drivers of performance, such as economies of scale and scope, diversification, alignment, human resource management, etc. The third part ("Environmental Drivers of Performance") deals with technological and regulatory issues and the effects of innovation on performance; these are external drivers of performance due to environmental conditions for which the institution may have little or no control. Finally the two chapters in Part 4, "Performance and Risk Management," make a contribution in bringing together performance and risk management.

4.1 Drivers of Performance: Identification, Specification, and Measurement

The most current and comprehensive knowledge on strategic drivers of performance is derived from the Bank Administration Institute study (Roth and van der Velde, 1991, 1992). This study – based on questionnaires administered to the heads of retail banking at all commercial banks in the U.S. with a minimum of $1 billion in assets – identified several success factors: flexibility and responsiveness in operations; ability to understand time-based competition in response to customer needs and expectation; ability to change capacity rapidly and improve customer access; ability to introduce innovative products quickly through superior workforce and systems; and ability to match products to customer expectations effectively. Best-in-class banks were found to excel in marketing, operations, organizational structure, and human resource management simultaneously. This study concluded by proclaiming customer-perceived quality as the key driver for retail banking performance in the 1990's. Some of the case-based findings of the Bank Administration Institute study are further corroborated and expanded upon by the chapters in Part 1.

Klein and Saidenberg and Meador, Ryan, and Schellhorn study economy of scope effects and the advantages of offering multiple products through complex organizational structures. Chapter 4, *Diversification, Organization, and Efficiency: Evidence from Bank Holding Companies*, is concerned with value-added from the recent wave of takeovers, restructuring, and consolidations in the banking industry. Multi-bank bank holding companies (MBHCs) in the U.S. are diversified interstate financial firms that are emerging as a result of the forces of change described in the earlier sections of this chapter. They are also a

manifestation of the restructured organizations anticipated by the Deloitte and Touche study. Empirical analysis of data from 412 MBHCs over the period 1990 to 1994 provides evidence that diversification – in product and geographical scope – adds value. Where is this value-added coming from? The authors provide an *efficiency theory* explanation: diversified institutions benefit from opportunities for internal resource allocation and, therefore, can hold less capital and do more lending than more focused institutions. The extra income thus earned is more than adequate in compensating for the increased cost of the complexities of the internal organization. Similar issues are addressed in Chapter 5, *Product Focus Versus Diversification: Estimates of X-Efficiency for the U.S. Life Insurance Industry*. The authors study X-efficiency of 321 insurance firms over the period 1990 to 1995, and test for a relationship between a firm's output choice and measures of X-efficiency. Their analysis establishes that diversification across multiple product lines resulted in greater X-efficiency than more focused product strategies. It is interesting to add to the findings of these two chapters the results of the analysis in Soteriou and Zenios (1999), where they established that economies of scope and product portfolio choices have a much stronger effect than operational choices on X-efficiency. These chapters, collectively, pave the way for evaluating diversified financial providers. As companies from American Express to Sears and Ford Motor Company engage in insurance, financing, and securities underwriting beyond their primary business, the performance of diversified providers becomes a key question for regulators and policymakers. These chapters provide key inputs to managers facing strategic choices on product portfolio.

Chapter 6, *Outperformance: Does Managerial Specialization Pay?*, by P. Eichholtz, H. Op 't Veld, and M. Schweitzer, challenges the universal validity of product diversification. They study the performance of investment trusts, and in particular Real Estate Investment Trusts (REITs). They analyze the performance of 163 equity REITs over the period 1990 to 1996, studying the relationship between trust performance – over and above a broadly defined market index – and specialization by property type and geographic location. They find that companies specializing in a specific type of property outperform the market, whereas geographical specialization results in underperformance. However, the choice of REITs as the data set may limit the applicability of conclusions to real assets or to institutions that are not extensively diversified in the first place: REITs are required to invest up to 75% in real estate. It is within this restrictive investment universe that product specialization appears to pay. The inferences of this paper may not be easily applied to finan-