1. Introduction

The life insurance industry worldwide is undergoing profound change. The increasing integration of financial services institutions and the globalization of insurance markets have greatly intensified competition in this mature industry. Increasing competition has produced pressures for product innovation, distribution system development, greater cost efficiency in operations, more effective use of technology, and a larger capital base.

One potential response to pressures for rapid change is to seek competitive advantage through reorganization. This strategic response appears to be prevalent in the life insurance industry. During the past decade, the U.S. life insurance industry has experienced an unprecedented wave of merger and acquisition activity. Among the merger and acquisition motives most commonly cited are that size is essential to compete in the global market for financial services and that a focus on core businesses is essential to improving efficiency and increasing profits. While these two motives offer different perspectives on competitive strategy, size is thought to be increasingly important even within niche markets.¹

These developments suggest that the quest for scale economies and
efficiency gains provide a major motivation for the recent consolidation activity in the life insurance industry. Thus, an important open question for the industry is whether mergers and acquisitions actually succeed in attaining these objectives. This chapter investigates the question by examining the scale economies and efficiency characteristics of recent life insurance acquisition targets and comparing the efficiency improvements of acquired firms to those of the non-acquired firms in the industry. We also examine the effects of acquisitions on the acquiring firms.

In evaluating firm performance, we use the concept of economic efficiency. Economic efficiency is computed relative to "best practice" efficient frontiers, consisting of the dominant firms in the industry. Two major types of efficiency are used in our analysis—cost efficiency (the firm's success in minimizing costs) and revenue efficiency (the firm's success in maximizing revenues). The efficient cost frontier represents the lowest costs attained by firms in the life insurance industry to produce a given bundle of outputs, and the efficient revenue frontier represents the maximum revenues earned by firms in the industry with a given amount of inputs. These are best practice frontiers in the sense that they represent the minimum costs and maximum revenues, respectively, actually attained by firms operating in the industry.

The technique used to estimate the efficient frontiers is data envelopment analysis (DEA), which is explained in more detail in Chapter 3 of this book (Cummins, 1999). In estimating the DEA cost frontier, a mathematical algorithm is used to find a combination of firms operating in the industry that jointly could produce a given insurer's outputs at a lower cost for a given set of input prices. If no such combination can be found, the given insurer is identified as "self efficient" and given an efficiency score of 1.0. If a set of firms can be found that jointly dominate the given insurer, the insurer is identified as being less than fully efficient. It's efficiency score is the ratio of the costs that would have been expended by the dominating combination of firms to the costs the insurer actually expended. The score is between 0 and 1 with higher scores indicating higher efficiency. For example, an efficiency score of 0.75 indicates that the given insurer is operating at 75% of full efficiency, or, equivalently, that it could reduce its costs by 25% while still producing the same level of output if it operated with the level of efficiency attained by the dominating set of firms.

To identify the factors driving cost efficiency, we decompose cost efficiency into technical efficiency and allocative efficiency. Technical efficiency measures the firm's success in producing the maximum quantity of output for the amount of inputs (e.g., capital and labor) consumed, and allocative efficiency measures the firm's success in minimizing operating