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The impact of mean reversion of bank profitability on post-merger performance in the banking industry

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Abstract

This research study examines the tendency for serial correlation in bank holding company profitability, finding significant evidence of reversion to the industry mean in profitability. The paper then considers the impact of mean reversion on the evaluation of post-merger performance of bank holding companies. The research concludes that when an adjustment is made for the mean reversion, post-merger results significantly exceed those of the industry in the first 5 years after the merger.

JEL classification: G2/G21/G34

Keywords: Banking; Mergers; Acquisitions; Mean reversion

1. Introduction

The banking industry has been undergoing an extensive period of restructuring as a result of technological innovations and regulatory changes. The number of banking mergers has accelerated in the last decade. A whole literature that analyzes the results of these

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mergers has developed; the general conclusion is that while mergers are good for the owners of the bank being acquired, the results for the acquirer are, at best mixed (Walter, 2004). Market reactions at the time of announcement tend to be either neutral or slightly negative. This result is counterintuitive. It seems unlikely that managers would continually make major mergers that are not clearly in the best interests of the shareholders. The shareholders would rebel and remove them from office, as has happened repeatedly in other industries when management fails to perform.

Several studies have evaluated post-merger performance in the banking industry. These studies have generally indexed performance to some industry standard and then compared this indexed performance before and after the merger. The change in performance against the standard is ascribed as the effect of the merger. This approach does a good job of eliminating the effects of macroeconomic forces, regulatory changes, and other industry-wide phenomena. It assumes that absent a major event such as a merger, performance against the index is a random variable with a constant mean.

Many, but not all academic research studies of banking mergers have found the average merger to be unsuccessful. This seems contrary to conventional wisdom as numerous mergers are continually being consummated. The implication is that something may have been omitted in the prior studies. The research paper of Fama and French (FF, 2000) suggests a solution to this conundrum. They find that profitability in most firms tends to revert to the mean in their industry. In most previous research on banking mergers no adjustment was made for mean reversion of post-merger bank performance as many of these studies were only event studies and the long term effects such as mean reversion were ignored.

The omission of an adjustment for the mean reversion trend is a major part of the negative findings of prior post-merger studies. When we adjust for the mean reversion trend, we find significant improvements in merger related BHC ROE in 4 of the 5 post-merger years studied. The cash flow results are even stronger, with significant improvement versus the industry in all 5 years. One explanation of mean reversion is the basic economic argument that competitive forces, in the long-run, would bring about equality in the rates of return across the firms.

The contribution of this paper lies in several areas. First, it extends the work of FF (2000) on mean reversion to cover BHCs that were expressly omitted because FF analyzed only non-regulated industrial firms. Second, it looks at post-merger performance results and compares them with the results of the acquirer in the year before the merger. Finally, and more importantly, this research demonstrates the importance of adjusting post-merger results for mean reversion trends when analyzing the effects of mergers.

2. Literature review

The literature on post-merger performance is extensive. Rhoades (1994) summarizes 19 studies from the period 1980–1993 that examined the post-merger performance of banking institutions. Most of the studies compared operating performance of merging institutions with that of a group of banks that did not merge. A few studies used an econometrically derived production or profit function as the yardstick, and then measured efficiency against this measure. In general, most studies found no improvement in profitability or efficiency after a merger. These results were consistent across the methodologies.