Chapter VIII

Corporate Strategy and Wealth Creation: An Application of Neural Network Analysis

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INTRODUCTION

Corporate managers, business consultants, stock analysts, and academic researchers have long maintained that the strategic decisions of managers have a direct influence on firm performance. Although societal and economic trends, industry characteristics, and chance all influence performance, the strategic decisions made by managers are believed to play a decisive role in shaping financial performance. Even so, researchers investigating this relationship have reported largely ambiguous results (Rumelt, 1974; Ramanujam and Varadarajan, 1989; Hoskisson and Hitt, 1990; Robbins and Pearce, 1992; Markides and Williamson, 1994; Barker, 1994). Furthermore, attempts by analysts to forecast future financial performance by scrutinizing current strategy decisions have been plagued with problems. Can firm financial performance be predicted with accuracy from the corporate strategy decisions of the executive management team?

The inconclusive and sometimes conflicting findings of academic research studies may be attributable to the limitations of most research designs and
techniques used to model the relationships. One of the limitations of research into strategy-performance relationships is the tendency to look for performance changes following a very specific strategic decision or event, such as an acquisition, a divestiture, or a new product announcement. For example, strategy researchers might look for a relationship between a decision to retrench, measured by lay-offs or a divestiture, and shareholder wealth creation, measured by cumulative abnormal stock market returns. In practice, however, a firm may pursue one strategy that is not valued by the stock market and that depletes earnings, while simultaneously pursuing other strategies that are well received by the market and are profitable. Owners and investors evaluate simultaneously all of the strategies that a firm pursues at any given point in time. From their perspective, it is this overall pattern of strategies that generates wealth for investors. A second limitation of some strategy research relates to traditional data analysis techniques. In general, most existing data analysis techniques make assumptions about linearity even though non-linear relationships would seem to be particularly common in strategic decision-making (Burgess, 1982; Jacobson, 1992; Istvan, 1992).

To address these concerns – complex patterns, interdependencies, and non-linearity – we turned to neural network analysis. Neural network analysis, an artificial intelligence technique that simulates the human brain’s ability to recognize patterns in a series of actions or decisions, is being used with increased frequency in the business disciplines to model patterns in a stream of business decisions (Cheng, McClain and Kelly, 1997; Murphy, Koehler and Folger, 1997). Neural networks have been used extensively by researchers in biology, physics, and computer science and have been employed in studies of market segmentation (Fish, Barnes and Aiken, 1995) and financial statement analysis (Lacher, Coats, Sharma and Fant, 1995). Our objective was to use the pattern of corporate strategy decisions employed by several large corporations over a period of 5 years to predict performance differences. By training the neural network on the strategies and health of a sub-sample of firms, and then applying the network to a new sample of firms, the trained neural network may be used to predict which firms will create wealth and which will destroy wealth at a point in the future.

**CORPORATE STRATEGIES AND PERFORMANCE**

An organization’s strategy is defined by the pattern of decisions and actions that it takes over time (Andrews, 1980; Hrebinjak, 1984). Corporate strategies are concerned with decisions about (1) what businesses to be in, including the type and extent of portfolio diversification, and (2) the level and
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