

Chapter 29

Empirical Methods of Event Studies in Corporate Finance

Rex Thompson

Cox School of Business, Southern Methodist University, Dallas, TX 75275, U.S.A.

1. Introduction

Empirical work in corporate finance is directed toward three primary topic areas: how various decisions and events affect the value of existing corporate debt and equity claims; how corporations choose the mix of financial claims that comprises their capital structure; and the effect of capital structure on a corporation's future decisions. While empirical work in all of the three topic areas is important, this review focuses on the methodology of event studies, the common expression given for the first category. I have chosen this focus because finance distinguishes itself from other branches of applied economics by its emphasis on the role of security markets and the underlying security pricing process. Many empirical investigations into capital structure choice and how capital structure affects future decisions also rely on the use of security prices and are, therefore, indirectly contained in the first topic area¹.

Although experimental research in finance is gaining popularity, particularly in the area of how markets assimilate information [see Cadsby, Frank & Maksimovic, 1990, and references], virtually all corporate empirical work to date revolves around the actual experiences of existing corporations, with data collected *ex post*. While this type of empirical work does not have the benefit of a control experiment, in this review I will call the collection and processing of observational

¹ The branch of corporate empirical work that will not be discussed involves correlating economic and financial decisions with capital structure variables and other, exogenous variables hypothesized to influence these decisions. This type of empirical analysis is done both cross-sectionally and in time series. Logit models are popular estimation methods to infer, say, the importance of ownership structure in determining whether a firm is involved in a control contest [Mikkelsen & Partch, 1989], or engages in management turnover [Gilson, 1989; Warner, Watts & Wruck, 1988]. Logit has been used for estimating the importance of financial variables in predicting bankruptcy [Ohlson, 1980; Zmijewski, 1984], takeovers [Palepu, 1986] or the existence of particular bond covenants [Begley, 1990]. The econometric methods chosen by researchers are similar to those chosen in other areas of applied economics in which there is a focus on the correlation between decision variables and exogenous variables.

data on corporations an experiment, and treat the lack of control over the independent variables as an inherent limitation of the experimental design.

In event studies the design of experiments follows the traditional structure underlying the scientific method as applied in positive economics. A theory of decision-making within the corporation is proposed that contains a set of refutable predictions for observed phenomena. An experiment is contrived that involves the collection of observational data from past experience. Classical hypothesis tests are performed to determine the conformity between the data and the predictions of the theory. The theory is either supported or rejected according to the results.

Conclusions about competing theories are often couched in terms of which has the best descriptive validity. The concept of descriptive validity is intuitive but somewhat informal as applied in corporate finance². Most researchers acknowledge that all parsimonious theories are to some extent false. Therefore, the goal is to find the best among available theories.

Because the complex environment surrounding the modern corporation can create a gulf between what theory is able to model and what data are generated by actual experience, many empirical investigations involve aggregating data and summarizing empirical regularities without the clear direction of theory. Empirical regularities, however, form a pool of stylized facts that serves to motivate new theoretical modeling. Thus the empirical work in corporate finance serves two functions: first, to identify the most descriptive among competing theories and, second, to provide motivation for new theoretical analysis. This second function is served, for example, by research into empirical regularities that are considered unexplainable by existing theory. Further, because the researcher is not testing a formal hypothesis when the objective is to identify stylized facts about the corporate experience, this latter area of empirical work is justifiably less formal, less structured and less rigorous in its experimental design.

There is a final issue concerning the design of experiments in corporate finance that deserves mentioning before the details surrounding specific applications are explored in later sections. As in all empirical modeling, refinements in methodology frequently come through the careful specification of underlying assumptions about both economic behavior and the nature of the stochastic processes that generate observable variables. Where the assumptions are valid, refinements improve the power of tests and the efficiency of parameter estimates. Where assumptions are invalid or incapable of being tested directly, researchers are forced to evaluate tradeoffs between simple and sophisticated econometric methods. The criterion of what works best becomes a matter of judgement and experience. In later sections, I discuss several tradeoffs that have received attention in the literature. In my conclusions, I also offer some thoughts on the potential costs of adopting an informal notion of what works best as a guide to careful empirical modeling.

² Formal Bayesian constructs for discriminating among competing theories, such as the posterior odds ratio, are only recently gaining attention in corporate finance. See Malatesta & Thompson [1993] for an application.