Chapter 1

Financial Risk and Financial Imbalances: Does Information Technology Matter?

Carlos Piñeiro Sanchez
Universidade da Coruña, Spain

Pablo de Llano-Monelos
Universidade da Coruña, Spain

ABSTRACT

The study of the financial imbalances of companies is a common topic for academics and practitioners because bankruptcy affects financial stability and modifies the investors’ behavior. Since the 1960s, financial ratios have been used as diagnostic tools and also as independent variables within models aimed at quantifying firms’ financial risk (e.g., Altman’s Z-Score). In parallel, the strategic theory has developed theoretical constructs to explain why competitiveness is empirically heterogeneous. The resource-based view argues that companies can outperform rivals if they manage scarce, expensive, and hard-to-imitate resources. Ultimately, outperformers should be able to avoid (or overcome) financial imbalances. This chapter intends to analyze whether IT resources modify firm performance and financial risk. To do that, the authors collected data from a random sample of Galician SMEs, combining questionnaires, focused interviews, and public financial data. Hypotheses are explored by applying parametric statistical methods.

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INTRODUCTION

As Argenti (1976) stated, bankruptcy is the final stage of a predictable sequence of facts. All companies suffer from weaknesses, often caused by restrictions on access to resources and limited capabilities. When erroneous decisions are also made, these weaknesses become more serious and tend to become chronic over time. At some point, symptoms of imbalance arise, but it is often too late to take corrective action. As Knight (1921) stated, “Hence it is our imperfect knowledge of the future (…) which is crucial for our understanding of our problem” (p. 198).

In his pioneering work, Beaver (1966) offered solid statistical evidence that financial ratios took on different values in failed enterprises. Taking these findings as a starting point, Altman (1968) formulated what is recognized as the first quantitative model capable of scoring financial risk and classifying companies that are likely to go bankrupt.

Altman’s model is in line with Argenti’s approach and allows bankruptcy to be interpreted as a temporal sequence: preexisting operational anomalies reduce the capacity to generate resources and self-finance, and force companies to increase their indebtedness; at the same time, they try to increase their chances of survival by reducing expenses. Often these decisions lead to a feedback process that exacerbates financial tensions and leads to failure.

MDA has been extensively used to classify healthy and failed firms (e.g. Altman, 1968 Altman, Haldeman & Narayanan, 1977). Within the parametric models, the main alternative to the discriminant analysis is the logistic regression (Martin 1977, Ohlson, 1980; Zmijewski, 1984); however, many machine-learning techniques have been also suggested: recursive partitioning (Frydman, Altman & Kao, 1985) expert systems, and artificial neural networks (Messier & Hansen, 1988; Bell, Ribar & Verchio, 1990, Hansen & Messier, 1991, Serrano & Martin, 1993; Koh & Tan, 1999, Brockett, Golden, Jang & Yang, 2006). Some forecasting models are built upon fuzzy set theory and fuzzy logic (Dubois & Prade, 1992, Slowinski & Zopounidis, 1995, McKee & Lensberg, 2002). Recently, multicriteria analysis models have been developed, combining group decision support systems (GDSS) and the Analytic Hierarchy Process (AHP) (Sun & Li, 2009).

Most of these models rely on financial ratios to diagnose the situation of the company and measure financial risk; however, there is little agreement about which are the relevant independent variables. Many forecasting models are not strictly generalizable, as they must be recalibrated before they are applied in different countries and/or time horizons.

Some researchers have explored the use of additional variables, e.g. macroeconomic conditions (Rose, Andrews & Giroux, 1982) and evidence from external audit
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