Reorganization resolution and distressed stock return forecasts

Abstract

With the increase in bankruptcy and reorganization filings, the market for trading in distressed stocks has significantly increased in recent years and the numbers of distressed-stock investors in the world have multiplied. However, literature surrounding bankruptcy reorganization resolution or distressed-stock return issues in stock market prediction is still very scarce. Additionally, given the nonlinearity in the relation between stock returns and fundamental variables, none of these studies have employed an artificial intelligence based approach for selecting variables and building models.

This study presents the risky but significant lucrative investment opportunities available in the stocks of financially troubled firms. Our results suggest that an ex ante trading strategy of investing in distressed stocks with a 36.92% (50.77%) likelihood of being a winner generate \( CAR_{F0 \text{ to } F+30} \) (\( CAR_{R0 \text{ to } R+30} \)) of +23.230% (+27.956%). We further analyze the possibilities of the hybrid GA-BPN and logit for constructing human skill-based distressed-stock trading models in order to mimic the behavior of investment winners by assigning them a set of continuous rules that explain the environment. In addition, this paper extends previous work by applying Receiver Operating Characteristic (ROC) curve analysis to compare the model performance of logit with that of the hybrid GA-BPN. The results show that trading decisions based on the GA-BPN forecasts can achieve higher predictive accuracy than those based on logit.

Introduction

When markets work, the cost of capital to a company is equal to the expected return on its stock. Investors provide capital for an expected return in exactly the way a lending bank provides capital in exchange for an expected interest rate (Miller & Modigliani, 1958). Explicitly, investing in stock is like lending money to a firm.

In normal circumstances a financially distressed firm would pay a higher interest rate than healthy firms in order to recompense the bank for its poorer earnings prospects and greater risk of default. The stock market similarly expects a higher return from a distressed firm than from a healthy firm. This induces investors to buy distressed stocks. If healthy firm had a higher expected return, or even the same expected return, nobody would buy distressed-firm stocks. Investors buy the distressed stocks because the market sets the discount rate so that these stocks have higher expected returns (Fama, 2000).

The more successful vulture investments became models to be emulated by the early and mid-1980s. In the 1980s, the investment opportunities for vultures grew for two reasons. First, severe downward spirals in sectors of the economy such as energy and steel sent many firms tumbling. Second, managers at struggling firms began to realize that the 1978 revision of the bankruptcy code encouraged bankrupt firms to reorganize, and they took advantage of the new system. By the late 1990s, the distressed securities market has turned from a cottage industry into a real marketplace. After the early 1990s — in what some now call the golden era of distressed investing — numerous new investors entered this niche field for high returns in a
low-interest-rate economy.

Over the long term, investors in distressed-firm stocks are rewarded. Overall, the stocks of distressed firms have outperformed the stocks of healthy firms on average since such records began in the US, and also in other markets around the world. In diversified portfolios, distressed stocks are expected to outperform healthy stocks over the long run (Fama & French, 1992). Indro, Leach, & Lee, (1999) report the potential substantial gains associated with investing in the equity securities of financially distressed firms. Altman (1998) also confirms that stocks emanating from Chapter 11 proceedings during the period 1980-1993 outperformed the relevant market indices by over 20% during their first 200 trading days. Moreover, prior research indicates that investment attention on distressed securities will not only continue but will increase in both supply and demand in the near-term future as well as the long run (cf. Hotchkiss & Mooradian, 1997; Altman, 1998; Chi & Tang, 2005).

Distressed-security investing is a journey to the distant frontiers of risk and return. A troubled outfit may be moving toward the scrap heap, but if it can stage a comeback, the returns may be enormous. However, there is a considerable risk that a favorable outcome will never materialize. In examining distressed firms, very simply, one must see the market as either verifying a trade or moving against the avoidable, that is a high stock price, a rickety balance sheet, and poor management. Most investors think interesting profitable firms have higher expected returns than besieged poorly-earning firms. A firm teetering on the brink of financial distress doesn’t sound like a very good investment opportunity. But in many instances it can be significantly profitable for those who understand distressed-securities investing.

To shed some light on the intricacies involved in distressed-stock investing, this study dissects this little-known but increasingly common high-stakes investment vehicle; i.e., this study presents the risky but significant lucrative investment opportunities available in the stocks of financially troubled firms.

**Conclusions**

This study documents the effect of the information released by a reorganization announcement on investors in distressed stock. Substantial adverse stock price reaction to the filing announcement is presented. More interestingly, the results show that the winners and losers react differently to the information revealed by the filing announcement. The winners are unaffected by the filing and yet experience significant increases of 27.380% on day F0. Furthermore, a significant price rebound is observed for the period surrounding the final resolution for our entire sample. This may be due to the resolution of substantial uncertainty and/or the fact that the investor optimistically expects to make a gain at the time of plan confirmation. Another notable observation is that we find significant insider sales (buy) prior to a decrease (increase) in the mean of stock returns around day F-5 (day R-3), that is to say that insiders seem to exploit private information about the firm for their own personal gains.

We have realized that every winning system will have losses and that these losses have to be avoided or minimized as much as possible. Very simply, one must see the market as either confirming a trade or moving against it. In this study, we focus on finding an improved method for creating lucrative investment opportunities. Furthermore, in our study as much attention is allocated to the selections of key variables and model evaluation method as is allocated to the selection of the modeling method. ROC curves allow the summary and comparison between different modeling performances. In addition, the curve provides
information that will enable the researcher and practitioner to optimise the use of a method through targeted selection of cut-off values for particular grouping strategies. However, the selection of which method to use is contingent upon the information available regarding misclassification costs. If no information is available, the ROC curve and the $\theta$ measurement are the most appropriate evaluation method. As the ROC curve integrates all possible iterations of misclassification error severities, many irrelevant ranges will be incorporated in the computation.

We have shown the superiority and effectiveness of the hybrid GA-BPN system for both training and predictive performance. Specifically, our study suggests that distressed stocks with a 36.92% (50.77%) probability of being a winner generate $\text{CAR}_{F0 \text{ to } F+30}$ ($\text{CAR}_{R0 \text{ to } R+30}$) of +23.230% (+27.956%).


