

BANKRUPTCY PREDICTION USING CAMEL RATIOS: THE CASE OF THE STOCK EXCHANGE OF THAILAND

Malinee Ronapat

Department of Finance and Banking, ABAC School of Management, Assumption University

Abstract

The objective of this paper is to find a model to predict bankruptcy of firms listed on the Stock Exchange of Thailand (SET) by using a secondary data approach. Using five ratios and applying logistic regression approach, the CAMEL model was then created. The results show the model could be used as a predictor; however, the degree of accuracy may vary with different time, situations and environments.

INTRODUCTION

Business bankruptcy is defined as the inability of a firm to pay its debts. Bankruptcy is widely perceived to be damaging to the economy (Kaufman 1996). Many researchers and rating companies have investigated the causes of business failures and identified them into four factors; financial, economic, natural disasters and others (Brigham et al. 1999). More importantly, researchers have searched for techniques to analyze possible business failures and one of the techniques is by using financial ratios that are referred to as **CAMEL** ratios. CAMEL stands for **C**apital, **A**ssets quality, **M**anagement, **E**arnings and **L**iquidity (Bennett & Loucks 1996, Kane et al. 1998, Luther 1998, Gunther 1999, Estrella 2000, McKee 2000, Mongid 2000 and Shah & Murtaza 2000).

Researchers have argued that ratios attempt to predict a going concern's condition and the overall performance of business. It is claimed that the ratios can be used as an effective tool to identify business problems. Therefore it is important to investigate whether the CAMEL ratios could be used as a predicting tool in emerging capital markets such as Thailand. The objective of this research is to identify whether CAMEL ratios are an accurate predictor of business failure in Thailand. This paper seeks to investigate and answer this question.

This paper applies the secondary data technique. Therefore, all publicly listed firms in the SET (Stock Exchange of Thailand) were selected from year 2000 to 2003, except firms from the banking and finance sectors due to incomplete information. Listed firms are classified depending on their business status in time

t (current year) in order to predict their performances in $t+1$ (one year in advance), $t+2$ (two years in advance) and $t+3$ (three years in advance). In discussing CAMEL ratios, descriptive statistics and logistic regression techniques are applied.

This paper is organized as follows: (1) literature review and selected methodology (2) analysis and discussion (3) conclusion and implications.

LITERATURE REVIEW AND SELECTED METHODOLOGY

Beaver started investigating business failures in 1966 by using financial ratios known as univariate analysis. The ratios are grouped into "best predictors", "second best predictors" and "worst predictor". Beaver suggested that financial ratios are useful for bankruptcy predictions (Beaver, 1966). Altman (1968) advanced the theory by using a multiple discriminant analysis (MDA) prediction model. The accuracy of the model is 95% for data one year before bankruptcy and 70% for two years before bankruptcy. Other researchers who followed Altman by using MDA are Deakin (1972) and McKee (2000). However, Ohlson (1980) applied a logistic regression model to increase the accuracy of prediction to 96.3%. Other researchers who followed were Zmijewski (1984) and Zavgren (1985).

Although there is a range of research into bankruptcy applying different methodologies and models (Santoso, 1996), the three studies above are considered as foundations and are referred to the most in recent bankruptcy studies.