**Abstract**

The banking sector plays a pivotal role in the economic development of most of the countries. The financial crisis of 2007–2008, also known as the global financial crisis is considered by many economists to be the worst financial crisis since the Great Depression of the 1930s. It resulted in the threat of total collapse of large financial institutions and downturns in stock markets around the world. It is believed that an examination of indicators that led to the problems suffered by Indian banks will be of enormous benefit. Indian banking sector is ideal for this study as the banks enjoyed profitability during the pre-crisis period and were the most severely affected by the financial crisis in 2008. The models exhibit high classification accuracy of more than 90% in the identification process. Logistic regression and Artificial Neural Network was used to analyze the data sample from 2004 to 2013. Capital adequacy, Return on Equity and Management efficiency are essential to the financial health of banks and these parameters are measured using the financial ratios. It is hoped this study would identify financial ratios that would measure the financial health of the banks which would be useful to bankers and regulators in identifying problem banks in India. The results would throw light on the various strategies to be adopted by Banks and Government regulators to manage crisis effectively.