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Financial Distress Prediction: The Way Forward

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As a consequence of the financial crisis, the prediction of the future financial health of companies and other entities is a matter of key importance. Credit crunch and deleveraging of banks and other lenders has caused that each credit decision must be carefully studied in order to guarantee the survival of the financial institution. In this regard, tools that aid in the credit decision making process are especially useful.

Since the seminal work of Altman [1], Statistics and Artificial Intelligence have provided plenty of models to help in the financial distress forecasting process. Some of them have been widely used by banks and other institutions. This has contributed to enhance the efficiency of such institutions. However, due to the current economic conditions which were exposed above, there is an increasing demand for improved techniques which let firms survive in an environment which is now more competitive than ever. So, the research line which deals with the development of new bankruptcy forecasting models is flourishing and many papers are being published in high ranked scientific journals.

There are two ways to achieve improvements in the models. First, new data can be added to the models while retaining the statistical/computational design of previous systems. In this regard, it is noticeable that during the last years changes in the regulatory supervision process in many countries have allowed researchers to gain increased access to information of firms. This has led to the creation of publicly available databases containing accounting statements and other financial and non-financial information of firms. Specifically, a key role is being played by the eXtensible Business Reporting Language (XBRL). This is an XML-based open-source vocabulary which standardizes financial reports of firms. With XBRL a database can be automatically created using the filings of companies. In a growing number of countries, the use of XBRL is compulsory for several reporting purposes, especially those of listed companies. In this sense, the adoption of XBRL by the U.S. Securities and Exchange Commission (SEC) has marked the largest and most complex implementation of XBRL around the globe to date. The SEC is following in the footsteps of the FDIC, which has already adopted XBRL, as well as the central banks of the European Union. SEC 10Ks and other reports that are filed using XBRL can be read by computer software, screened for certain data, and reorganized in new reports. However, the potential for analysis that XBRL can provide is much broader than just external reporting and investments that are already made and can be leveraged for many types of business reporting. As the use of XBRL increases, researchers will have at their disposal new data items which can be included in a costless manner in distress prediction models. The list of XBRL standardization projects is continuously updated at www.xbrl.org. This is the site of XBRL International, which is the NGO which governs the XBRL implementation process at the international level. So, the thorough review of the different XBRL projects around the world will provide new research opportunities to enhance financial distress prediction models.

The other way to reach to better systems is by means of new statistical/computational techniques. First we must mention the possibilities that more powerful computers offer to researchers. Certain designs of genetic algorithms and neural networks which are computationally intensive are now much easier to implement. But apart from that, it is also of interest the creation of new techniques through the combination of two or more existing ones. This is called hybrid systems. For the case of financial distress prediction hybrid systems can be obtained through four ways: a) the creation of a hybrid algorithm that tightly integrates two or more other ones, b) the design of an ensemble of individual classifiers, usually by implementing a voting scheme, c) the selection of the most relevant features for failure prediction using an algorithm and then constructing the final system with another one, and d) the clustering of companies prior to the estimation of a classification model. These possibilities are reviewed in papers such as for example De Andrés et al. [2]. However, we must indicate that as long as many individual models can be combined using each one of the four hybridization alternatives, there is a high number of research opportunities in this field. In general, the performance of these four approaches for hybridization is superior (with some exceptions) to that of single approaches. Finally, we must comment on some future developments using hybrid approaches which could be relevant in the near future. First, we would like to outline the importance of the ratings of bonds issued by firms and governments. This is a problem which can be tackled using hybrid approaches. Change in ratings is another economic event which could also take benefit from the hybrid approaches. Either predicting changes of ratings or determining the variables which are more related to a downgrade is important because rating downgrades can cause dramatic increases in the cost of debt. Furthermore, the hybrid approaches can be applied to other related tasks in the field of financial statements analysis, as for example the prediction of takeovers.

References

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