**Software**

**Multicriteria Decision Support for Financial Classification Problems: The FINCLAS system**

*by*

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In the field of finance several problems are better addressed through the sorting "problematique" (classification). Such problems include credit granting, business failure prediction, country risk assessment, portfolio selection and management, etc. In the past, financial researchers addressed such problems using traditional statistical and econometric techniques. However, recently alternative non-parametric techniques have gained significant interest among researchers.

Among these alternative techniques, multiple criteria decision aid (MCDA) provides a wide set of powerful tools and methods to address financial classification decision problems in a flexible and realistic context. The preference modeling capabilities of MCDA methods enable the decision makers to develop decision models of high classification accuracy, and in addition to gain significant insight information regarding their implicit preferences.

The implementation of MCDA methods to make real time financial decisions, is realized through the development of multicriteria decision support systems (MCDSSs). MCDSSsí interactive structure and operation enables them to integrate database management with MCDA methods, to be flexible and adaptable to the changes in the decision environment as well as to the cognitive style and the preferences of different decision makers.

Based on this methodological approach the FINCLAS (FINancial Classification) multicriteria decision support system has been developed [3]. The FINCLAS system is the outcome of an attempt to integrate powerful methodologies from the preference disaggregation approach of MCDA with decision support systems technology, in order to provide financial/credit analysts with a user friendly but powerful tool to study financial classification decision problems efficiently in real time.

The present form of the FINCLAS system is oriented towards the analysis and assessment of corporate performance and viability, as well as the credit risk evaluation. The FINCLAS system through the combination of powerful preference disaggregation techniques with the decision support systemsí technology, enables financial and credit analysts, managers of firms, as well as individual investors to study effectively a wide spectrum of significant financial classification problems, including bankruptcy risk evaluation, credit granting, assessment of corporate performance, etc. Furthermore, the system can be easily adapted to the study of other financial classification problems, including country risk assessment, portfolio selection and management, and venture capital investments, among others.

The analysis of corporate performance and viability through the FINCLAS system is based on the financial aspects of the firms as well as on a series of qualitative factors related to the operation of each firm and its relation to the market. Such qualitative factors include the quality of management, the organization, the know-how that firms possess, the market trend, the market niche/position, etc.

The system incorporates an enriched financial model base module, including several well known financial modeling techniques such as the table of sources and uses of funds, and financial forecasting methods (the linear regression and the sales percentage method).

The model base of the system incorporates a family of sorting techniques based on the preference disaggregation approach [2] and more specifically on the UTADIS method (UTilités Additives DIScriminantes; [1],[4]). The incorporation of these methods in the structure of the FINCLAS system enables the user to develop corporate assessment models that assign the firms under consideration into predefined classes according to their level of performance and viability.

The Ionian Bank of Greece, the Commercial Bank of Greece, the General Bank of Greece and the Bank of Greece are currently using the FINCLAS system in their daily practice regarding the assessment and monitoring of corporate performance and viability. Furthermore, the University of Macedonia, the Athens University of Business and Economics and the Technological and Educational Institute of Crete, also use the FINCLAS system for educational purposes with regard to financial analysis and the contribution of MCDA in this field.

**References**

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