8. CONCLUSIONS AND SCOPE FOR FUTURE WORK

CAS is an expert system shell which is designed specially to build expert systems for credit rating analysis. The special features of credit granting process is financial organizations supports this idea. There is a significant amount of interest in industrial non financial corporations to exploit advances in artificial intelligence technology by creating expert systems. In CAS the relational data base coupled with fourth generation procedural languages provides an attractive environment for designing such a system. Such knowledge representation scheme has been applied to the corporate credit rating process with considerable success. The CAS enables the corporate credit manager to create an expert support system for credit granting process.

One of the objectives of the CAS is to avoid the need of knowledge engineer while developing an expert system for credit granting process with less risk. The user friendly nature of the shell facilitates the credit officer to spend less time even though he/she is new to the world of shells. CAS uses forward chaining technique for inferencing process.
The knowledge based decision support system developed currently is for credit analysis and rating of firms for loan application. It has been developed mostly on the knowledge obtained from the existing literature on the topic and from the experts working in commercial banks as loan officers. The rule base construction was made to depend fully on fuzzy logic. This makes the system more general converting completely the crisp logic. The knowledge of the decision system will be increased enormously with a very few number of rules which is the most crucial factor for certain shells. Many of the early expert systems were handicapped due to the lack of knowledge, which is a result of the constraint on the number of rules allowed. Other than this fuzzy logic does not allow the problem of inability to make rational decisions in an environment of imprecision and uncertainty.

Membership function which is the backbone of the process of fuzzification and defuzzification is constructed for the state variables with much care. The statistical data of the variables are collected based on which the probability density function followed is recognized. Then using this, probability density function is produced, as per the steps which are explained earlier, which is proved to be optimal and unique. The CAS is provided with the facilities so as to support the fuzzy implementation in the knowledge base. The knowledge base is tested by getting the results checked by experts of credit analysis and the changes
are made accordingly in rules. This testing is iteratively carried out till the results are satisfactory.

**Scope for Future work:**

The CAS is designed and developed for supporting the problem of credit analysis only considering a good number of advantages we get. Hence developing expert systems which are not similar to credit analysis is not possible with CAS. So the work can be extended by making the shell more generalized, at the same time not losing the cited advantages. The iterative process of building an expert system is a never ending story. In this the rules can be streamlined more and more. Then the number of divisions into which the state variables are divided can also be increased to an optimal level through some procedural proven methods. The other important area where a mathematical extension leads to a more realistic system is the building of the probability density function. The probability density function is developed considering a sample data. This can be extended to data which will represent a population in a much better way of reality.

Our empirical investigations have shown that CAS could identify credit worthy applicants in most cases. It is an interesting future study to see to what extent the non-normality inherent in the Data would affect the decisions of CAS.
Only a limited empirical study can be made on the effect of granting bad loans on the banks themselves. Bad loans of the order of several crores, naturally, crippled the profitability of the banks. However, this subject in itself, is so multidimensional as to deserve a full scale study in the future.