

## **ARTIFICIAL INTELLIGENCE IN ACCOUNTING**

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### **ABSTRACT**

In this paper, in addition to a brief introduction of advanced technology, artificial intelligence, particularly with regard to their unique properties are used in finance and investment, the classification of high-technology applications in the field of artificial intelligence discuss financial issues.

**KEYWORDS:** Financial Management, Artificial Intelligence, Expert Systems, Forecasts and Estimates

### **INTRODUCTION**

Artificial intelligence represents the most advanced computer application that attempts to date to mimic certain human logic. With all the attention, the man thinks that the concept of artificial intelligence new. In the area of financial management and investment issues after widespread use of computers and software packages software development in this area was much deeper and is applying artificial intelligence to analyze the company's financial position and financial decisions. Undoubtedly the result of the application of artificial intelligence systems in the industry financial services has made great development. After the effectiveness of intelligent systems in the management of investment securities and reduce many of the concerns Investment firms in exchange, of course, was not the only area of financial management of intelligence based systems artificial board, areas such as banking and insurance as well as in determining the complexity and the large volume of they need to use this system began. In areas that have large amounts of data are insufficient and their decisions are complex and consequently a large uncertainty associated with such projections and estimates of future yields and stock prices, assessment and approval of credit, bankruptcy evaluation and pricing of new issues of intelligence tool artificial continually used. the introduction of artificial intelligence tools and classification of finance and investment associated with the tool, it's important to help financial managers, investors, analysts and researchers, financial issues, because they are proportional to the area of financial activity, can benefit from these systems and, if necessary, they are operate.

### **Artificial Intelligence Applications in Different Areas of Finance**

In this section, the areas of financial management and investment suggests that the artificial intelligence tools are have been used extensively, certainly, in this paper, it is not fully explain topics them. the reader is informed that the aim is simply proportional to the area of financial activities, can help if they need to have systems in place to work. Financial simulation: the financial structure of the business operations, complex and dynamic. Although the duties of a financial manager can be components, sub-divided, but the interrelationships between these smaller subtasks still very complicated. Helpspecial specific models that are tailored to the financial structure over time companies maintain their dynamic and responsive relationships with other sectors of the financial modeling and non-financial corporations and international organizations are. For example, we can construct a neural network model of consumer credit behavior with changes in

economic conditions simulation. The input data can involve the general economic information and specific information about customers and output data patterns can buy or pay the customers. The teaching model of data customers can use the previous behavior. Such a system for planning and expenditure for doubtful accounts seasonal fluctuations in the valuation of accounts receivable and credit and credit ceilings for different clients, very useful. For fund management, capital project evaluation, risk management assets and personal property, rate risk management equality, and the anticipated cost of credit and availability of funds can be used for simulation. Three areas the following is the main:

### **Predict the Future**

However, in some areas, financial forecasting, computer software and traditional, more optimal network models neural and hybrid instruments. Especially if we have known models of computing seek, in these cases, the use of traditional computer-effective and logical models. but financial analyst in more concerned about the impact of specific actions on the behavior of investors. In this case, the model does not have a defined relationship. Investors based distributed information about the company, it's not respond. All data are also influenced by the various resources of the company to reach them. Build a simulation model that investors react to changes in dividend policy, accounting methods, reported earnings, capital structure, or any other issue or increase capital stock splits meet. Education such a model that estimates of real investors and the documented information is used. Studies the last of these, mainly to assess the reaction of investors to rely on changes in stock prices, but investors other than buy or sell, other reactions show. Artificial neural system can be used as a financial analyst the increase in the reaction of investors to predict changes in corporate financial policy. Model that are designed this way, alternative models that, in the framework of statistical methods were designed. Using linear regression techniques or polynomial regression on their own, moving averages, and even bakes- models to predict financial Jenkins has been common. Now, many tests have proven that using neural networks to respond better statistical methods leads up.

### **Evaluation**

Using neural network models and hybrid models, the value of securities and other assets are we buy, we estimate. In this case, we must simulate human evaluation process in neural network Imitation may be the most important.

### **Credit Approval**

Although the task of credit ceilings, especially in the case of consumer credit, the staff and institutions of lower level managers financial transfer, but now it's time for the user. Elements of quantitative and subjective decision-maker obscures range. in addition, more information on the basis of their decision to take the final decision to grant credit in the form official data that have a specific format, not him. Artificial neural system can be taught in such a way that the input data and customer data the desired output is the real decision credit analysts. Target system to mimic the human decision maker grant or the validity of credit ceilings. There is no need for the information system can be thrown in a specific format, the input data are varied and sporadic use. Functions of neural system, the financial implications of this paper, the main work of the class classified information. the classification of new cases according to their similarities with the patterns in the model memory. What we said in the previous paragraph are the functions of forecasting and modeling. In most applications, the net financial nervous-looking model, the search continues for pattern recognition. Financial signal processing function is still not much use (unless the owner's voice identification documents such as credit cards) and these models are better ways to detect signs of such classification for sound.

### **Financial Institution**

Financial institutions, the transfer of money in the financial markets and monetary policy through a significant impact the performance of the economy. Three main financial institutions, i.e. banks, savings institutions and investment intermediaries investment by reducing transaction costs and reducing information costs, financial markets will lead to effective action.

### **Bankruptcy Evaluation (Assessment of Risk Lending)**

What about the credit rating of the above mentioned, the lending institutions will use commercial and consumer loans. Financial institutions can also help in the study of artificial neural systems and the decision on the loan request payment or non-payment of their decisions. However, these systems do not take the final decision on large loans, In this case, at least in terms of the system output can be considered an expert.

### **Asset Management and Securities Portfolio**

Financial institutions will have a number of stocks, bonds, mortgages, real physical assets such as land their choice. The risk adjustment, the supply markets, the effects of the tax, and the deadlines, and many other variables should the decision be taken continuously. Managers types of investment funds and investment banks should their decisions. The task becomes more difficult when you consider that the economic and financial environment is constantly fluctuating, a. due to the nature of unstructured decision processes portfolio manager and the uncertainty of the economic and financial situation and scattering data, an appropriate arena for the implementation of neural network models emerge. On the other hand, the professional investors have to say, given the circumstances of each investor's holdings, time horizon, risk and cash flow mode of a different opinion. The management of such assets to determine these variables the risk is minimal and maximum efficiency. Different classes of assets including currencies, bonds (bonds), stocks, insurance life, cash, real estate, gold and decorative objects, cell phones, vehicles and the like are all kinds of deposits in banks risks and returns that are different from each other. Until now, many models have been proposed to solve the problem of optimal asset each year according to the initial plans have limits on this model using quadratic programming was introduced. But if there are too many variables in this model was faced with the problem of computing. The following specialists using methods such as creating a single index, the mean absolute deviation and data envelopment analysis, attempts to convert it to have a linear method. Others also other models such as the non-linear model, artificial neural network (working class classified information), model making, planning and dynamic programming to solve their problem. Although these models are solved in theory but in practice the methods of mathematical programming problems in this area there are. the nature of risk measures to prevent the creation of a general solution becomes too general methods of solving nonlinear problems due to the non-convex objective function can't be used in addition to the normal size selected issues of assets in the real world contains hundreds of assets that return and risk of the assets using the series time comes. Thus, given the large size of the optimization problem is solved with software packages commonly used in problem solving. Mathematical programming is not possible. Investment manager's act as constraints on the optimization of their assets actions that caused this problem becomes more complex due to the problems existing in the model solution nonlinear programming problem of assets, other researchers in mathematical programming techniques are used to solve the problem. The "meta-heuristic methods for solving optimization problems are considered and many researches in this field are. In particular, genetic algorithm was widely used as an efficient search method.

### Pricing of New Issues

Financial institutions in countries with developed capital markets, the pricing of new issues are responsible. This pricing is a complicated process that has a direct impact on the company's rate of return. In the first panel prices in Tehran stock exchange has always been problematic and is the subject of much controversy. Information about the issuer may be incomplete, non-standard forms of information provision, and only a short time period will be included. Information relating to the same company and the same industry, as well as information on current and future economic conditions should be considered. In addition, a subjective element in his work to the degree of acceptance of the investor and the rate of interest to be measured and appropriate time for the new securities issue to be determined. Here again, the neural network can be trained so that the decisions of human experts through all data and actual outcomes of decisions taken in the past, emulate. In addition, in this environment, the system has the potential to improve the performance of a human expert, because the input data can include the price changes actual sales activities later on the issue of securities. The system has the potential to directly from the decision maker human and the actual results obtained from the decisions, learn. In addition, such a system could even leave the company by a human expert to continue to serve, and thus gained valuable experience and expertise is immortal.

### Financial Markets and Investment Professionals

Financial markets, informal and organized market in which the transmission funds from individuals and units that are faced with surplus funds to individuals and entities seeking funds (resources) are place. Obviously the majority of lenders in the market and the majority of applicants for funds to households and firms the state forms. Financial markets needed to transfer the savings of natural and legal persons and other persons the opportunity to have productive investment and financial resources are required to provide. Artificial intelligence applications in the critical areas of financial activity that has the task of transferring funds directly, in other sectors are described. As one can see in the table, often artificial intelligence tools in the management portfolio of securities, transaction projections and estimates and advice to help employees come to this area. Professional investors the set of arbitrage opportunities, technical analysis, fundamental analysis, evaluation of investment projects and so the tool are strong artificial intelligence. Various financial areas in which expert systems are used, because of the importance of the area described separately are given.

**Insurance:** Certain applications in the industry is concerned, include

**Purchase Commitment:** expert systems can be used to more coherent institutional standards for assessing the degree of possibility of different hazards (fire, flood, theft, etc.) has increased. Knowledge base purchase obligations include specific information about the systems of industrial safety equipment and measures taken to reduce the level of risk and risk assessment techniques. Perhaps the best time to design computer systems in the field, the renewal of insurance policies, because at that time very much in a machine-understandable there.

**Savings Of:** of how much the current earnings should be possible to claim compensation for the near future had an important question. Expert systems in this case can be considered as a tool for allocation comprehensive and coherent response to demands from unknown sources used.

**Audit:** internal audit resources are limited, so insurance companies will need to use these resources use. To limit the scope of the business firms are geographically dispersed and diverse terms of activity, exercise adequate control. The

audit involved a very small elements and solutions supplied by traditional systems of the problems it can do.

### **Banking**

Banks are also various consumer loans, mortgages, and credit limit to offer their customers. To the addition, transfers and funds transfer services, the purchase and sale of foreign exchange and other banking transactions can be systems certified used. Systems consulting foreign currency that can be qualitatively different market conditions, different strategies and methods to hedge the foreign currency option other assessments and recommend solutions. Such systems are often complex analytical tools that currency arbitrage operations can be evaluated and alternative trading strategies under different conditions of the market.

### **Residents Deals**

To rely on expert system technology, systems trading Tuesday my assistants, bonds, derivative securities and exchange is established. Unfortunately, little information is available on the system, which is why designers or owners because they do not speak of them talking advantage of this system is weakened their competitive.

### **Analysis of Financial Statements Multinationals**

Multinational companies have unique problems of reporting and compliance with the law. Currently, these companies should approach the problem of instability such as different forms of reporting, legal requirements and forms of their accounts buckle. Expert systems have greatly reduced the problem. They have the same approach to help institutions to adopt a standard financial statement analysis. The expert system configuration information such as accounts, balance sheets and profit and loss statements using the basic analysis that has been done on domestic enterprises, analyzes. This standard makes the differences between the financial reporting in different countries will be removed.

## **CONCLUSIONS**

Presented in each of the basins of financial management and investment, with the help of various technologies, artificial intelligence, great deal of research has been done. Result of the application of artificial intelligence systems can be no doubt that the industry financial services, has made great development and the trend will continue. Expert systems are used in cases where there is a huge amount of data, whereas neural networks artificial intelligence and fuzzy logic in such a complex, ambiguous and incomplete various aspects of the subject, there is a lack confidence in the face area, are more efficient. Genetic algorithms, with the help of their unique benefits considerable optimization problems and classify and integrate it with other tools is always of interest to researchers. Finally, we can say that the combination of artificial intelligence tools always gives better results.

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