

- **ABSTRACTS 1-2/2006**

**Academician GHEORGHE PAUN  
RADU A. PAUN, PhD**

**MEMBRANE COMPUTING MODELS FOR ECONOMICS. AN INVITATION-  
SURVEY**

Membrane computing is a branch of natural computing which abstracts computability models from the structure and functioning of living cells and from the way cells cooperate in tissues, organs etc. The models obtained, called P systems, are cell-like (recently, also neural-like) distributed and parallel devices, processing multisets of objects in compartments defined by membranes. The model is both computationally powerful and efficient, and useful in rather diverse applications, especially in biology, computer science, linguistics.

Membrane computing was considered in a series of papers also as a framework for devising models for economics. After a short introduction of basic elements of membrane computing, we briefly present the known attempts to use P systems as models of economic processes, with some details about the so-called numerical P systems and about Nishida's membrane algorithm. Several research topics are pointed out. In general, the paper should be seen as an invitation to the economist reader to consider membrane computing as a (bio-inspired) framework which offers attractive techniques for modelling and simulating economic processes.

Key words: membrane computing, P systems, economic process, modelling, simulation.

**Prof. Vergil VOINEAGU, PhD  
Prof. Emilia ȚIȚAN, PhD  
Aura ALEXANDRESCU, PhD**

**THE ANALYSES OF THE CURRENT STATUS OF THE  
DEMOGRAPHIC SITUATION OF ROMANIA**

Placed under the influence of a whole set of economic, social and demographic factors, the size of Romania's population and its socio-demographic structure point to the important changes having occurred over the last decades: low pace of population growth (actually in decline over the recent years), low fertility level, demographic ageing, high level of external migration (particularly after 1990) and also of the general and infant mortality.

**Key words:** demographic situation, socio-demographic structure.

**CONSTANTIN MITRUT, DANIELA SERBAN, ELENA CRISTACHE**

## **STOCHASTIC METHODS TO EVALUATE TENDENCIES OF YOUNGSTERS PROFESSIONAL GUIDANCE IN ROMANIA**

The Romanian education system still does not encourage youngsters to discover their skills in time, so that they could be more oriented towards profession than towards faculty. Most students tend to apply to the Academy of Economic Studies, the Institute of Polytechnics or the University of Bucharest, forgetting or not knowing that other options are available. In addition, most students who opt for the Academy of Economic Studies, often do this as a result of indecision and do not distinguish between the different faculties inside it.

This project is meant firstly to analyze the extent to which higher-school students are informed and decided upon their professional options. Subsequently, this project will establish the need for more information when making the choice for the future profession

**Key words:** education system, professional orientation, parameter stochastic method, data collection, campaign design.

Prof. univ. dr. Pavel NASTASE

Lect. univ. dr. Robert ȘOVA

## **LA MODELISATION DES CONNAISSANCES UTILISANT LA METHODOLOGIE COMMONKADS: LE CAS DE LA DIAGNOSTIQUE FINANCIER DE L'ENTREPRISE**

A partir des hypothèses concernant les caractéristiques des connaissances et de la demande des connaissances de la production, la société est conceptualisée en tant qu'établissement pour intégrer les connaissances. Les technologies d'aide à la décision et les systèmes experts ont été mentionnées comme des outils importants pour augmenter la performance des managers en les aidant à gagner plus de connaissance, d'expérience et d'expertise et d'augmenter par conséquent la qualité de la prise de décision. En cet article on propose un modèle des connaissances pour l'analyse du diagnostique financier.

**Mots clés:** Management des connaissances, CommonKads, Systèmes experts, Systèmes d'aide à la décision, Diagnostique financier.

**Professor Dumitru MARIN, PhD**

**Professor Gheorghe RUXANDA, PhD**

## **SELECTIONS MODELING UNDER CONDITIONS OF RISK AND UNCERTAINTY**

The paper presents a series of logic and geometric interpretations of the selections problem under conditions of risk and uncertainty. One purposes and interprets a scalar numerical measure for evaluating the prospects, represented by optimal cert equivalent, useful measure for the selecting process under conditions of risk and uncertainty.

**Key words:** risk and uncertainty, cert equivalent ,izo-equivalence curves, optimal cert equivalent.

**Ion PURCARU, PhD**

**Oana Gabriela PURCARU, PhD**

## **CONSIDÉRATIONS SUR UN PROBLÈME D'ASSURANCE CRÉDIT**

On donne des formules de calcul de primes dans le cas d'un crédit bancaire assuré contre le risque du décès du débiteur pendant le remboursement du crédit.

**Key words:** crédit, risque, assurance, prime.

**Professor EMIL SCARLAT, PhD**

**Professor VIRGINIA MARACINE, PhD**

## **FEEDBACK MONETARY TRANSMISSION MECHANISM**

One of the main components of the monetary economic system, the monetary supply affects the aggregate demand and offer of goods and services into the real economy. The bond between the monetary economic system and the real economy, or more exactly between the money supply and the demand for economic goods and services, is mainly realized through the Monetary Transmission Mechanism (MTM). This mechanism contains all the channels through which the money (under its different forms) affects the transactions on the real economy's markets, but also the inverse ties that assures the information transmission from the real economy to the monetary economy, information that underlie the necessary quantity of money for all the real transaction with economic goods and services.

The MTM that includes the inverse informational flows (loops) will be referred into this article as the Feedback Monetary Transmission Mechanism (FMTM). That because, first of all, in the real economic system, monetary flows occurs also without the monetary authority (Central Bank) intervention – this being actually a basic condition for the real economic system's functioning. And secondly, because it will be an error to ignore in this analyze the inverse flows influences. So, both monetary mechanisms (with and without feedback) are analyzed in this paper, starting with their structure and functions, and finishing with their role in designing and applying the monetary policy. The last part of the paper includes few conclusions and further research directions.

**Key words:** money supply, aggregate demand and supply of economic goods, monetary channel, Monetary Transmission Mechanism, Feedback Monetary Transmission Mechanism, monetary policy.

**Professor Marin ANDREICA, PhD**

## **SIMULATION OF CERTAIN INTERNATIONAL TRANSACTIONS**

Most international trading transactions having as an aim the commodity flow, involve the financial flows that close the money-commodity/money cycle.

In other words, the manufacturer who spends money in order to manufacture and turn to good account certain products, cashes their equivalent value as profit. The flow of commodity can be directly transferred from manufacturer to end user or from manufacturer to a series of economic agents and finally to consumer. The existence of more chain links within the flow of commodity, from manufacturer to consumer, causes delivery delays and price growth (each economic agent adds a profit).

The financial management of this flow supposes to resorting to special financing forms of transactions or to using certain payment instruments as: risk, minimum time and cost. One of the specific forms of financing the international transactions is factoring.

**Key words:** factoring, overdraft factoring, revolving factoring.

**Mihai Daniel ROMAN, PhD,  
Monica Mihaela ROMAN, PhD**

## **ROMANIA'S ECONOMIC BUSINESS CYCLES**

In real economic life we find a cyclical evolution of macroeconomic indexes. In this paper we present some cybernetic models to analyze business cycles. The purpose is to identify the most important relationships between macroeconomic aggregates and also to find the control variables at macroeconomic level. Business cycles models was developed especially in twenty century, by economists such are Nordhaus (1975), Mullineux (1984), Lucas (1975), Goodwin, Solow, Sargent, Wallace or Barro. The second part of our paper analyzes the Romanian business cycles during 1990-2005. Using business cycles models for Romanian's economy we conclude that we found two typical business cycles on short and medium run. Starting on this point we build some evolution scenarios for next periods. In the optimistic scenarios the Romanian economy will continue the growth process, but in pessimistic scenarios Romanian economy goes to recession and economic crisis.

**Key words:** business cycle, political cycle, macroeconomic indexes, GDP, unemployment, money, budget deficit.

**Professor Carmen HARTULARI, PhD  
Professor Crisan ALBU, PhD  
Professor Angela GALUPA, PhD**

## **STRUCTURAL-INTERNAL AND STRUCTURAL-BEHAVIORAL PROPERTIES IN THE PROCESS OF ANALYZING, MODELING AND DESIGNING ECONOMIC SYSTEMS**

In this paper, the authors approach the mode in which other properties of systems theory, namely the functional-internal and structural-behavioral ones can be used in project management, with a view to increasing the efficiency of this project. Some of these properties will be analyzed, namely: accessibility, observability, stability, adaptability, self-controlling and how they can be used in the process of modeling and designing.

**Key words:** system, accessibility, controllability, observability, stability, adaptability, self-controlling.

**Professor Stelian STANCU, PhD**

## **CREDIT METRICS MODEL – NEW APPROACHES**

Credit risk analysis became the most important change in risk management.

The present paper shows new aspects that can be used from CreditMetrics methodology, as long with the advantages and limits of this methodology..

Based on examples, we approach the problem of credits exposure on the case of residential mortgage, of small size sales as well as different types of exposures for small size sales.

**Key words:** risk, credit, management, capital adjustment risk measurement, capital requirement.

**Professor Ion LUNGU, PhD**

**Pre-Assistant Vlad DIACONIȚA, PhD Candidate**

## **DEVELOPING DECISION SUPPORT SYSTEMS**

### **A MODERN APPROACH**

In today's economy access to quality information is a top requirement in any competitive organization. Managers want real-time information, in a desired format and at a convenient price. Lately, as a result of the new informational technologies (hardware and software) that are enabling the building of cheaper and faster informational systems, more companies are investing in the development of business intelligence systems that can integrate and enhance or even replace the existing infrastructure. In a business intelligence platform the accent is put on the different aspects of data (multidimensional data analysis, OLAP, data mining, data warehousing and so on) and on it's visualization (a single architecture for viewing, querying, analyzing, and authoring for collaborative contributions to any report including dashboards, personalized reports to multiple locations and in multiple formats, multilingual capabilities automatically deliver reports in user's desired language).

**Keywords:** Business Intelligence, Decision Support Systems, Development Methodology, Data Mining, OLAP, CASE tools.

**Professor Liliana SPIRCU, PhD**  
**Professor Tiberiu SPIRCU, PhD**  
**Professor Crişan ALBU, PhD**  
**Professor Radu ŞERBAN, PhD**  
**Georgeta IVAN**

## **UNI AND MULTIVARIATE ANALYSES CONCERNING RISK FACTORS IN CONSUMER CREDIT DECISIONS (I)**

The identification of main risk factors in consumer credits decision processes of a Romanian bank is approached. On the basis of a sample, the most important predictor variables that determine the separation of the consumer credit applicants into two classes are identified. Factorial discriminant analysis methods are used and a scoring model is proposed.

**Keywords:** risk factor, consumer credits decision, discriminant analysis, scoring model.

**Associate Professor Cătălina COCIANU, PhD**  
**Professor Luminiţa STATE, PhD**  
**Associate Professor Viorica STEFANESCU, PhD**

## **MULTIRESOLUTION BASED APPROACHES FOR NOISE REMOVAL PURPOSES**

The multiresolution representation is used to develop a class of algorithms for noise removal in case of normal and respectively Poisson models. Generally speaking, the multiresolution algorithms perform the restoration tasks by combining, at each resolution level, according to a certain rule, the pixels of a binary support image. The values of the support image pixels are either 1 or 0 depending on their significance degree. At each resolution level, the contiguous areas of the support image corresponding to 1-value pixels are taken as possible objects of the image. The paper reports two multiresolution algorithms allowing good restoration in case of normally distributed noise. The general framework of our approach is briefly presented in the introductory part. Next, the strategy to determine the significance level of the wavelet coefficients and the filtering technique using the significant wavelet coefficients in case of white noise are exposed. A new restoration algorithm in case of general normal distribution is reported in the fifth section. The final part contains concluding remarks and experimental results in using the proposed approach.

**Keywords** multiresolution support, wavelet transform, filtering techniques, statistically significant wavelet coefficients.

**Iuliana CETINA, PhD**  
**Gheorghe ORZAN, PhD**

## **POSSIBILITIES OF IMPLEMENTING A SERVICE QUALITY INFORMATION SYSTEM**

Quality is defined by the customer. Conformance to company specification is not quality; conformance to the customers' specifications is quality. Spending wisely to improve service comes from continuous learning about the expectations and perceptions of customers and non-customers. Customer research reveals the strengths and weaknesses of a company's service from the perspective of those who have experienced it.

Companies need to establish a service quality research process that provides relevant trend data that managers become accustomed to using in decision making: companies need to build a service quality information system, not just do a study.

**Key words:** information system, customers, non-customers, quality research process, service quality information system.

**Simona GHITA, PhD**

## **USING STATISTICAL METHODS FOR COMPARATIVE REGIONAL ANALYSIS OF THE ELECTRONIC-COMMERCE ACTIVITY**

According to the OECD standards, the e-commerce represents the trading of goods and services developed through a computer network; paying and/or delivering these goods can be realized or not through the computer network. The main difference between the traditional commerce and the electronic commerce consists of the way the information is interchanged and processed: not through personal contact, but through a digital network or other electronic channel.

In European member countries the e-commerce activity is characterized through a set of context - statistical indicators, which reflect the economic development level of those countries, in general, and the development level of IT sector – in particular. For analyzing the regional differences between the e-commerce activity, we used unifactorial analysis of variance ANOVA.

**Keywords:** e-commerce, Electronic Data Interchange, Internet transaction, electronic transaction, percentage of enterprises' total turnover from E-commerce.

**Virginia ATANASIU, PhD**

## **UNIQUE OPTIMAL FUNCTION**

This paper is an original approach of the semi-linear credibility theory, from the perspective of the functions of the observable random variables.

In order to obtain better semi-linear credibility results, it is used a unique optimal approximating functions:  $f_1, f_2, \dots, f_n$ .

These performances include the case  $f_p = f$  for all  $p$  in the class of the best semi-linear credibility estimators with usefulness in practice.

**Key words:** semi-linear credibility model, approximating functions, the structure parameters.

**Victor DRAGOTĂ, PhD**  
**Mihaela DRAGOTĂ, PhD**

## **CONSIDERATIONS ON PASSIVE PORTFOLIO MANAGEMENT**

Passive portfolio management approach is based on replication of financial markets structure. In order to build a passive portfolio management, it has to be taken into account the market liquidity, the degree of its efficiency and every investor's awareness concerning the financial markets concept.

Keywords: financial markets, portfolio management, passive portfolio management  
JEL Code: D81: Criteria for Decision-Making under Risk and Uncertainty

**Dan ARMEANU, Candidate for Doctor's Degree**

## **MARKOWITZ MODEL FOR DIVERSIFYING THE PORTFOLIO**

The present article has the object to highlight the modality the Markowitz model can be applied in the Romanian capital market and the identification of the efficient combination of titles which should satisfy the utility function of the individuals with aversion against risk.

**Key words:** profitability, risk, efficient frontier, optimum portfolio, capital market, investment.

Radu LUPU, PhD

## **USING BDS TEST TO CHECK THE FORECASTING POWER OF THE STOCHASTIC VOLATILITY MODEL**

This paper runs the BDS test for the model of stochastic volatility with the specification of Hsieh (1991) for the weekly returns of the Euro/USD exchange rate. The stochastic factor is estimated from the daily returns. This model will be used as a filter so that the residuals will be tested with the BDS test for independence. We can conclude that the model is capable of capturing the most part of the deterministic component in the exchange rates leaving the residuals to account only for the random variability of the data.

**Poliana STEFANESCU PhD.**  
**Stefan STEFANESCU PhD.**

## **ESTIMATING THE PARAMETER OF A HOMOGRAPHIC DISTRIBUTION**

In the paper [4] there are presented the difficulties which arise when we try to estimate the unknown parameter  $\theta$ ,  $\theta > 0$ , considering a homographic type distribution  $HG(\theta)$  with the c.d.f.  $F(x; \theta) = x / (x + \theta)$ ,  $x \geq 0$ .

The present article proposes two distinct estimations for the parameter  $\theta$  based on the median indicator, respectively by applying the maximum likelihood principle.

Using a Monte Carlo simulation procedure we determined the accuracy for each suggested estimation.

**Key words** : homographic distribution, median value, maximum likelihood estimation, Newton method, Monte Carlo technique.

**ISSUES 3-4/2006**

### **ABSTRACTS**

**Professor Ion Gh. ROȘCA, PhD**  
**Giani GRĂDINARU, PhD**  
**Dana COLIBABĂ, PhD**

## **THE ANALYSIS OF THE TEACHING PROCESS QUALITY IN AN UNIVERSITY. CASE STUDY: THE ACADEMY OF ECONOMIC STUDIES FROM BUCHAREST**

Universities have the obligation to report themselves to the international standards, by adopting teaching plans and curricula, consistent with the most prestigious Universities in the world. The demand is not an easy thing, it is requested for the need to ensure, on one hand, the mobility of students who have the freedom of choosing the best place for instruction and, on the other hand, the consistent of diplomas and of other study certificates, regarding their practice anywhere in the world.

**Keywords:** quality, university, Academy of Economic Studies in Bucharest.

**Professor Constantin MITRUȚ, PhD**  
**Professor Liviu-Stelian BEGU, PhD**  
**Andreea Cristina MITRUT**

## **A COMPARED STUDY OF STATISTICAL METHODS OF MICROECONOMICS FORECASTING**

Forecasting represents an important statistical technique, involving extending past experiences into the future. The assumption is that the conditions that generate the historical data are indistinguishable from the conditions of the future, except for those variables explicitly recognized by the forecasting model. To the extent that this assumption is not met, a forecast will be inaccurate unless it is modified by the judgement of the forecaster. A common approach is organizing a criterion for selecting and comparing forecasting methods is to prioritize criteria according to their order of importance in practice, and accuracy is given top priority.

The **pattern of the data** is important in selecting a forecasting method because different methods can cope with only certain kinds of data patterns. The patterns may represent characteristics that repeat themselves with time or they may represent turning points that are not periodic in nature. A data series can be described as consisting of two elements – the underlying pattern and randomness. We have identified a set of models used to predict accurately.

**Key words:** forecasting, data pattern, randomness, model, accuracy

**Prof. univ. dr. Pavel NASTASE**  
**Lect. univ. dr. Robert ȘOVA**  
**Prof. univ. dr. Floarea NASTASE**  
**Prep. univ. drd. Anamaria ȘOVA**

## **LES DETERMINANTS DE LA DECISION DE L'INTEGRATION EUROPEENNE; LE MODELE POUR LA ROUMANIE**

Le développement des expériences de l'intégration de l'économie régionale pendant les années 1990 a donné un impulse à la recherche des déterminants des décisions concernant les accords de l'intégration régionale et leurs effets. Les effets statiques des accords régionaux sont complétés au cadre d'une approche multidimensionnelle par les effets dynamiques. Les effets dynamiques en termes d'économies d'échelle, de localisation industrielle, de croissance, de gains non économiques ont ainsi fourni de nouvelles justifications à l'intégration régionale. Après une évaluation théorique de l'importance économique et non économique des accords internationaux nous allons focaliser l'attention sur une estimation empirique des déterminants qui ont justifié la décision de conclusion de l'accord européen d'association au cas de la Roumanie.

**Mots clés:** Accords régionaux, Intégration européenne, Modélisation économétrique, Logit, Probit

**Professor Gabriela Cecilia STANCIULESCU, PhD**

**Professor Emilia TITAN, PhD**

**Professor Vergil VOINEAGU, PhD**

**Simona GHITA, PhD**

**Daniela TODOSE, PhD Candidate**

## **THE ANALYSIS OF THE TOURISM DEVELOPMENT IN EUROPEAN COUNTRIES**

Almost every aspect of the life of a host community has bearing on internal and incoming tourism and potentially affected by it. Tourists are temporary members of the community. A large body of law making at every tier - national, regional and local - has implication for this activity.

Some legislation had a clear, direct relevance to tourism, which provided a framework within which an identifiable core of government departments and agencies formulated and implemented policies for leisure, recreation and tourism. The core, however, could still be very large, as confirmed by chart drawn up in 1979 by Travis. The chart identified seven UK Ministries whose policy advice to Ministers and programs could affect tourism. They were the Departments of Trade, of Transport and of the Environment, the Ministry of agriculture, Home office and the Department of Education and science, the responsible for one or more relevant specialized agencies, ranging from four National Tourist Organization (under Trade) through the Directorate of Ancient Monuments and Historic Buildings and Countryside Commission (under Environment) to the Forestry Commission (under Agriculture). The complete list extended to 16 major national agencies.

Key words: **tourism development, objectives, investments, productivity**

**Professor Radu SERBAN, PhD**

**Lecturer Iulian MIRCEA, PhD**

## **EVALUATING THE RUIN PROBABILITY OF INSURANCES**

In this paper, the authors focus on presenting and discussing some methods of evaluating the ruin probabilities of the insurance risk process, when the individual claims follow a distribution with finite and infinite moments.

**Key words:** ruin probability, risk process, adjustment coefficient, martingale, sub-exponential distribution.

**Professor Gheorghe RUXANDA, PhD**

## **MEASURING THE STOCHASTIC DEPENDENCE RELATIONSHIPS STRENGTH**

In this paper, the stochastic dependence relationships, according to the possibilities of measuring their strength, are analyzed. In this context, it is pointed out the fact that, as a rule, to measure the strength of the stochastic dependence relationships can not be performed by means of the Pearson correlation coefficient, as this is not a

correct measure, excepting the case of linear relationships. Another measure of the stochastic relationships strength used for the non-linear case too, is that represented by the determination coefficient, which is derived and interpreted on the basis of the result related to the variance decomposition theorem.

**Key words:** statistical conditioning, conditioned expected value, conditioned variance, regression, prediction, variance decomposition, determination coefficient, homoscedascity.

**Professor Ion PURCARU, PhD**

## **CONSIDÉRATIONS SUR LA MESURE DE LA DIVERSITÉ DE GUIAȘU**

Some considerations on the Guiașu diversity measure in statistical inference are presented.

**Key words:** weighted measures of diversity, optimal distributions.

**Professor Ion IVAN, PhD**  
**Eugen DUMITRAȘCU**  
**University of Craiova,**  
**Marius POPA**

## **EVALUATING THE EFFECTS OF THE OPTIMIZATION ON THE QUALITY OF DISTRIBUTED APPLICATIONS**

In this article, we present the characteristic features of distributed applications. We also enumerate the modalities of optimizing them and the factors that influence the quality of distributed applications, as well as the way they are affected by the optimization processes. Moreover, we enumerate the quality characteristics of distributed applications and a series of evaluation's indicators of quality for varied structures of distributed applications.

**Professor Marin DINU, PhD**  
**Cristian SOCOL, PhD**

## **THE STABILITY AND GROWTH PACT (PSC) – FROM THEORY TO PRACTICE**

After the adhesion of Romania to the European Union, the main challenge for our economy would be the introduction of the Euro currency and the adhesion to the Euro area. Thus, Romania will have to participate to the process of substantiation and coordination of the economic policies within the Euro area. Briefly, Romania will be bound to observe the provisions of the Stability and Growth Pact.

In this article we undertake to answer a number of questions relating to the reasons behind the requirements which the states members of the Euro area must observe. Are the convergence criteria set up in the frame of the Maastricht Treaty arbitrary? Is the public finance sustainable within the European Union? How are the symmetrical and asymmetrical shocks which the states

members of the European Union have to face, absorbed? Is it necessary to consider a reform of the Stability and Growth Pact?

**Key words:** Maastricht criteria, nominal convergence, Stability and Growth Pact, financial soundness.

**Professor Liliana SPIRCU, PhD**

**Professor Tiberiu SPIRCU, PhD**

**Professor Crişan ALBU, PhD**

**Professor Radu ŞERBAN, PhD**

**Georgeta IVAN**

## **UNI AND MULTIVARIATE ANALYSES CONCERNING RISK FACTORS IN CONSUMER CREDIT DECISIONS (II)**

The identification of main risk factors in consumer credits decision processes of a Romanian bank is approached. On the basis of a sample, the most important predictor variables that determine the separation of the consumer credit applicants into two classes are identified. Factorial discriminant analysis methods are used and a scoring model is proposed.

**Keywords:** risk factor, consumer credits decision, discriminant analysis, scoring model.

**Professor Camelia RATIU-SUCIU, PhD**

## **KNOWLEDGE TRANSFERABILITY AND HUMAN PERFORMANCES EVALUATION**

In the first part of the paper, the main characteristics of economy, company and knowledge – based management are briefly presented.

The second part presents the mode of using the implicit and explicit knowledge in communication and the difference between the two classes of fuzzy sets knowledge is evaluated.

Finally, the possibilities of evaluating long-run human performances are presented, when the two classes of knowledge are complementarily approached and provide company competitiveness.

**Key words:** knowledge transferability, implicit and explicit knowledge, fuzzy sets.

„L’entreprise est le lieu où  
s’organisent les savoirs et intelligences individuelles en intelligence collective  
créatrice capable d’entreprendre”

Jaques Morin

**Professor Tudorel ANDREI, PhD**  
**Marius PROFIROIU, PhD**  
**Mihai TURTUREAN, PhD**

## **LOCAL GOVERNANCE AND CORRUPTION-QUANTITATIVE ANALYSIS**

This paper aims to examine, starting from Romania case, some aspects determined by the decentralization process and improvement of local governance and which could contribute to the reduction of the corruption on short and medium term. Through the approach and methodology used, the paper follows the international trends that aim to analyze the impact of corruption on economical and social processes at the local level.

**Key words:** Corruption, decentralization process, local governance, logistical model

**Professor Ion LUNGU, PhD**  
**Adela BĂRA, PhD Candidate**  
**Ramona BOLOGA, PhD**

## **BUSINESS INTELLIGENCE PORTALS – EFFICIENT TOOLS FOR INTEGRATING AND ANALYZING DATA**

Business Intelligence Systems are design to improve the quality of different level of management in organization through a new type of technology and several techniques for extracting, transforming, processing, integrating and presenting data in such a way that the organizational knowledge filters can easily associate with this data and turn it into information for the organization. These technologies are known as Business Intelligence Tools.

This paper presents the a web technology called Portal that is used to build and integrate all kind of contents and sources of information.

**Keywords:** Business Intelligence (BI), Business Intelligence Portal, Dash Board, Oracle Discoverer, Portlets.

**Professor Daniela-Luminita CONSTANTIN, PhD**

## **SYSTEMS OF INDICATORS FOR TERRITORIAL COMPETITION AND COMPETITIVENESS APPROACH: CURRENT RESEARCH FOCI**

This paper addresses the question of territorial competitiveness – at national and regional level – from the perspective of the most important research undertaken in the international arena in order to build-up systems of competitiveness indicators able to reveal the complexity and dynamics of this phenomenon in the contemporary society. A special emphasis is put on studies developed by prestigious organisations and research centres such as World Economic Forum, International Institute for Management Development, Cambridge Econometrics, ECORYS-NEI and so on. Comparisons between the results obtained by the first two mentioned organisations are provided, highlighting Romania's position in the world competitiveness hierarchy.

**Key words:** empirical research, world hierarchy, Romaia's position, factors of regional competitiveness, typological groups of regions.

**Professor Manole VELICANU, PhD**

### **ABOUT THE INTEGRATION OF INFORMATICS TECHNOLOGIES**

A characteristic of the actual informatics' context is the interference of the technologies, which assumes that for creating an informatics product, is necessary to use integrate many technologies. This thing is also used for database systems which had integrated, in the past few years, almost everything is new in informatics technology. The idea is that when using a DBMS the user can benefit all the necessary interfaces and instruments for developing an application with databases from the very beginning to the end, no matter the type of application and the work environment. The concept of the interference of informatics technologies has many advantages, which all contribute to increasing the efficiency of the activities that develop and maintain complex databases applications.

**Key words:** database systems - DBS, human-machine interface, database management systems - DBMS, programming, Java Platform, Grid Computing.

**Daniela SERBAN, PhD**

### **THE INITIATION, DEVELOPMENT AND STOCHASTIC EVALUATION OF AN INFORMATION CAMPAIGN**

This project includes a sociologic experiment made at the "Grigore Moisil" high-school in Bucharest, namely a career information campaign, whose main objectives are showing students that there are more options to take into consideration than the three "standard" universities and also offering extensive and reliable information upon some traditional and other new professions in our country. Also the paper is evaluating the campaign efficiency and effectiveness using stochastic measures.

**Key words:** education system, parameter, stochastic method, data collection, campaign design and evaluation

**Erika TUŞA, PhD**

**Alexandra HOROBET, PhD**

**Radu LUPU, PhD**

### **USING BDS TEST TO CHECK THE FORECASTING POWER OF THE JUMP-DIFFUSION MODEL**

This paper continues a previous study and uses Markov Chain Monte Carlo to estimate the parameters of the jumps model of Maheu and McCurdy (2003) for the weekly returns of the Euro/USD exchange rate. The model will be used as filter for the residuals to be tested with the BDS test for independence. We can conclude that the model is capable of capturing the most part of the deterministic component in the exchange rates leaving the residuals to account only for the random variability of the data.

**Key words:** jump-diffusion, Markov chain, Monte Carlo, chaos test, Gibbs sampling, data augmentation, Metropolis Hastings.

**Silvia-Elena CRISTACHE, PhD**  
**Constantin ANGHELACHE, PhD**

## **STOCHASTIC METHODS USED TO EVALUATE THE SME'S EFFICIENCY**

The main objective of the paper is to identify and adapt new quantitative methods like factorial analysis of the financial information for the trade services companies. Within the market economy Romania witness important business structural changes.

Our attention is focused on the Romanian trade companies' changes over a period between 2004-2005 in Braila county. The results of the study showed that after the start of the privatization the efficiency trend of the sample is non-linear with seasonal variations.

**Key words:** small and medium enterprises, survey indicators, vertical analysis, gross profit, net profit, trade efficiency, profit analysis, factorial analysis, asymmetry coefficient, variation coefficient

**Luiza BĂDIN, PhD**  
**Roxana CIUMARA, PhD**

## **STOCHASTIC FRONTIER ESTIMATION USING SIMULATED ANNEALING**

In this paper we perform Monte-Carlo simulations for evaluating the performances of the Simulated Annealing (SA) algorithm in a problem of estimating a stochastic frontier, assuming normally distributed statistical noise and typical distributions for the inefficiency term: half-normal, truncated normal and exponential. We note that, for the exponential case, SA performs satisfactory even for small samples. For the half-normal and truncated normal cases, we apply both SA and Davidon-Fletcher-Powell (DFP) iterative method and provide comparative results.

**Keywords:** simulated annealing, stochastic frontier, maximum likelihood estimation, technical efficiency.

**Poliana STEFANESCU, PhD.**  
**Stefan STEFANESCU , PhD.**

## **THE POLARIZATION INDEX FOR BOUNDED EXPONENTIAL DISTRIBUTIONS**

We'll compute the concrete value  $\Delta(f)$  of a proposed polarization index taking into consideration a random variable  $X$  which have a bounded exponential probability density function  $f(x;\theta,a,b)$ . In this case the value of  $\Delta(f)$  depends only on a single parameter  $\lambda$  where  $\lambda = (b-a)\theta$ .

**Key words** : polarization index, measuring the inequality, exponential distribution, mean value, bounded support.

**Dan ARMEANU, Candidate for Doctor's Degree**  
**Department of Finance**

## **MARKOWITZ MODEL FOR DIVERSIFYING THE PORTFOLIO**

*The present article has as object to highlight the modality the Markowitz model can be applied in the Romanian capital market and the identification of the efficient combination of titles which should satisfy the utility function of the individuals with aversion against risk.*

**Key words:** *profitability, risk, efficient frontier, optimum portfolio, capital market, investment.*

**Anamaria CIOBANU, PhD**  
**Ofelia BOȚOACĂ, financial analyst**

## **MAKING THE RIGHT INVESTMENT ON BSE**

We have conducted a research for information that is relevant for the investors on the Romanian capital market by identifying the financial indicators which could have an impact on the market return of companies listed on BSE. In our examination, we included micro and macroeconomic indicators playing a significant role in taking the investment decision and available to the large mass of investors. The results of our study indicated the existence of correlation between stock price and financial indicators such as: Asset Turnover, Current Account Balance, Reference Interest Rate, Sales growth rate, Return on Assets, Equity Ratio, Gross Domestic Product,, Industrial Production and Net profit margin. However, the relevant indicators were not the same for each of the companies we studied. Also, for some indicators, the regression coefficients indicated a relation with the stock price with no economic meaning.

**Key words:** value relevance, informational efficiency, investment decision.

**Cristina BOBOC, PhD**

## **THE DETERMINANTS OF SKILLED LABOUR MIGRATION: DIFFERENCES BETWEEN THE DEVELOPED AND DEVELOPING COUNTRIES**

During the last 20 years, the issue of skilled labor migration has generated increasing interests among scientists and policymakers.

This paper focuses on the determinants of the migration on developing and developed economies. The first section of this article is an analysis of the differences between the level of education of active persons and the level of qualified jobs on the labour market, using a Principal Component Analysis and a  $\chi^2$  measure. The current tendency of globalization has opened new opportunities for human capital to move where it has the best gain from the point of view of different factors as: economical and social factors, freedom, knowledge opportunities, personal development etc. This article will analyze the impact of these factors, by using some complex measures as GDP Index, Knowledge Economic Freedom, Human Development Index, Economic Freedom Index and Corruption Perception Index, on the level of skilled migration.

**Key words:** skilled migration, labour market, globalization.

**A.L. BADESCU, PhD**

**D.A. STANFORD, PhD**

## **A GENERALIZATION OF THE DE VYLDER APPROXIMATION FOR THE PROBABILITY OF RUIN**

The model presented here generalizes the de Vylder approximation for the probability of ultimate ruin in the classical risk model with a Poisson claim process and generally-distributed individual claim sizes. De Vylder's approach, surprisingly accurate despite its simplicity, replaces the original risk process by one with exponentially distributed claims, such that the first three moments of these processes are the same. The present work generalizes this approach, to achieve even greater accuracy, by replacing the exponential with a Coxian distribution of order two. The Coxian itself belongs to the phase type class, for which the probability of ruin is well known. Using matrix operations, it is straightforward to find the probability of ruin for the approximating risk process for fits of such small order. Our approximation is always at least as good as De Vylder's original approximation, which is itself always one solution to our methodology. Through numerical examples, we show that our approximation provides more than adequate results for the ruin probability using this simple method.

**Key words:** classical risk model, phase-type distribution, De Vylder approximation, surplus process.

**Nita H. SHAH. PhD**

### **EOQ MODEL FOR DETERIORATING ITEMS : A BUYER'S PERSPECTIVE**

This paper presents an alternative EOQ model for deteriorating items. The model assumes that buyer carry goods for the complete time period and buy units in batches. Thus, inventory holding cost consists of; physical holding cost which takes care of the cost for storing goods in inventory and the investment holding cost which is investment tied - up by purchasing those goods in inventory. A comparison between existing deteriorating items models and effect of various parameters on the total cost of an inventory system has been studied by a numerical example.

**S. S. CHADHA, Veena CHADHA, and S. M. SPANTON**

### **AIRLINE OVERBOOKING PROBLEM**

A model for determining airline overbooking policies is considered. Due to customer cancellations and customer "no shows" fully booked airline flights frequently depart with significant numbers of unoccupied seats. In order for an airline to compensate for such losses a policy of overbooking is often introduced. This work addresses the airline overbooking problem for a single-leg flight with a single-fare class. A mathematical model is developed and a solution to the model and simple optimal decision rules for overbooking are derived. A discussion of the reconstruction of the decision rules resultant from the model as a binomial probability distribution is also presented.

**Key words:** Airline; No shows; Overbooking.

**Vitalie SPINU**

### **RECIPROCITY BETWEEN HYPOTHESIS TESTING AND INTERVAL ESTIMATION.**

There is a tight relationship between estimation of distribution parameter and confidence set for these parameters. This paper tries to formalize this connection. We define helper concepts  $\alpha$ -*acceptance set* and  $\alpha$ -*confidence set* (the generalization of acceptance interval" and confidence interval"). Further we develop a unified approach for generating confidence intervals and emphasize the link between acceptance sets and confidence sets.

**Key words:** hypothesis, testing, interval, estimation,  $\alpha$  - support  $\alpha$  - confidence set.

**HISHAM MOHAMMED AL SMADI, PhD**

**METHODS AND TECHNIQUES FOR DETERMINING THE INDICATORS  
USED IN PLANNING EDUCATION IN JORDAN**

In national education planning, it is used a **system** of indicators, correlated with other numeric representations of economic and social development.

**The indicators system of education planning** is conditioned by the specific of the used projection methodology. In any case, in these branches, both **direct calculations** and **simulations** (aggregated and analytical) are present, with specific behaviors, generated by the multitude of direct and opposite connections. Furthermore, this problem approach allows its solving **on different levels of social life**: at a national level, on sectors and economic branches, on territorial units (regions and localities), on sexes, on urban and rural environment, etc.

Consequently, closed or open models are shown, including level equations, rhythm and auxiliary equations. The simulation using models supposes some simplifications (consideration as data, as already known elements, of some components of the educational system), elimination of detailed calculations, at least at the national level, increased flexibility of decisions on each organization and functional level, acceptance of risk, as well as of non-fixed values (known also as fuzzy), i.e. on intervals of minimal and maximal dimensions.

**Key words:** indicators system, simulations, different levels of social life.