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ON THE CAUSAL RELATIONSHIPS BETWEEN MONETARY, FINANCIAL AND REAL MACROECONOMIC VARIABLES: EVIDENCE FROM CENTRAL AND EASTERN EUROPE

Abstract. The paper investigates the dynamic links between macroeconomic variables in countries from Central and Eastern Europe over January 1998 to September 2007. The research employs cointegration, Granger causality tests and innovation accounting techniques in order to capture the relationship between stock prices and gross domestic product, consumer price index, money supply, interest rates and real exchange rates. The signs of variables in the cointegrating vectors are consistent with economic reasoning: the consumer price index is positively related to stock prices, while the real exchange rate exhibits an opposite behaviour, except for Romania. Real interest rates in Czech Republic, Poland and Romania are positively correlated with stock prices, which may be cautiously interpreted as a lack of liquidity in financial markets. The impulse response analysis points towards a number of similarities among these countries: shocks in macroeconomic variables generate innovations in stock prices over the short-run; the responses of stock prices to shocks in themselves are negative over the short-run and positive, except for Romania, over the long-run; shocks in GDP determine positive responses of stock prices in all countries.

Keywords: Central and Eastern Europe, stock prices, macroeconomic variables, cointegration, Granger causality, innovation accounting techniques
JEL Classification: F30, G10

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DEVELOPING A PRACTICAL MODEL FOR CALCULATING THE ECONOMIC VALUE ADDED

Abstract. The Economic Value Added (EVA) concept is a registered trademark (1990) of the US firm Stern Stewart & Co. and it is viewed as a measure of financial performance and also as potential main part of an integrated financial management system, leading to decentralized decision making and to maximize the shareholders' wealth. Our paper provides a synoptic survey of the use of EVA indicator and also gives the opinions of two main groups of EVA researchers: proponents of EVA and opponents to EVA. Furthermore, we develop a practical model for EVA calculation and try to make a parallel between Net Income as a measure of accounting profit and EVA as a measure of real economic profit. We also present a relevant example regarding the EVA calculation and give a special attention of the way of calculation of the three main components of EVA: net operating profit after taxes, weighted average cost of capital and economic asset (or invested capital). Also our articles emphasis some of the most important adjustments against accounting rules involved in the way of EVA

calculation, in order to improve the correctitude of real economic profit calculation as a measure of value creation.

Key words: economic value added, net operating profit after tax, weighted average cost of capital, invested capital, financial performance.

JEL Classification*: D21, G32, M42*

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NEURAL IMPLEMENTATION OF A CLASS OF PCA LEARNING ALGORITHMS

Abstract. *Principal component analysis allows the identification of a linear transformation such that the axes of the resulted coordinate system correspond to the largest variability of the investigated signal. The advantages of using principal components reside from the fact that bands are uncorrelated and no information contained in one band can be predicted by the knowledge of the other bands, therefore the information contained by each band is maximum for the whole set of bits. The paper reports a series of conclusions concerning the performance and efficiency of some of the most frequently used PCA algorithms implemented on neural architectures.*

Keywords*: image processing, principal component analysis, neural network, learning algorithms, image compression/decompression.*

JEL Classification : C45, C46, C63, CO2.

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A MULTILEVEL CYBERNETIC SYSTEM TO CONTROL THE RISK OF ENVIRONMENTAL POLLUTION

Abstract. *The authors present a cybernetic system to control the risk of environmental pollution at several levels, namely: at the level of each polluting economic unit, at the level of the region where these economic units act, and at the level of the whole country. A systemic approach is used in order to analyze all the systems implicated in environmental pollution, and to control all of these processes and prevent them. A data warehouse is used to obtain information about the environment pollution in a timely fashion, with the identification of place, of time, and of the factors which are responsible for these phenomena, using OLAP technology. The authors propose to assign a degree of pollution risk to each polluting economic unit, such that each of them can control its own optimal production, taking account also the degree of risk assigned to it. The decision-makers implicated at various hierarchical levels can better control their policies and the punishment measures applied to polluting economic units by also taking into account the degree of risk assigned to each polluting economic unit.*

Keywords: *Data warehouse, multidimensional model, cybernetic multilevel control system, measure of risk, benefit function:*

JEL Classification: D23

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DO BETTER HEALTH AND EDUCATION ENHANCE ECONOMIC DEVELOPMENT?

Abstract. The major objective of this study is to show the importance of interdependencies between health, education and poverty in the context of South Mediterranean Countries (SMC) compared to the economies of the European Union (EU). Empirical assessments of interdependencies are pursued after reviewing the previous theories and applications. The results attained have revealed the existence of important links between different sources of wealth which are health, knowledge, monetary assets and social capital. Furthermore, the importance of non monetary assets appeared to be at least as important as the traditional economic and financial wealth. Given the extent and magnitude of education, health and socio-economic deficits in the SMC, the identification of the interdependencies generates new avenues for more integrated economic and social policies.

Keywords: Interdependencies, Health, Education, Poverty, South Mediterranean Countries.
JEL Classification D31-I1-I2-I3

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POSSIBILITIES TO INCREASE IRRIGATION EFFICIENCY THROUGH THE OPTIMIZATION OF CROP STRUCTURE

Abstract. In present conditions, induced by worldwide difficulties regarding energy, raw materials, food and ecological balance, agriculture has a more and more important role in the dynamic of human-machine relation. Agriculture, along with forestry, represents a branch of economy with net energy production and with a significant contribution to environmental protection. Irrigation has a significant contribution for the safety and productivity of crops, although it also could contribute to important deterioration of soil quality if the water is not used efficiently. Model optimization of crop structure, by including specific restrictions represents an efficient way to progress toward the current goals of crop production. In this paper, we aim to present a model that finds an optimal distribution of crops for three types of surfaces (effectively irrigated, arranged for irrigation, and unarranged for irrigation) within specific restrictions.

Key words: agriculture, irrigation, Giurgiu county, crop structure, optimization, efficiency.
JEL Classification: O13

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A NEW METHODOLOGY OF PROJECTING THE INFORMATICS SYSTEMS FOR ENTERPRISES

Abstract: If the Value Engineering is currently applied mainly for the projection/reprojection of the products, the researches made in the last twenty years allowed to elaborate new methodologies in order to extend the application area of the method to the technological processes of fabrication and to the investment objectives. This article is meant to present a new methodology elaborated by us, able to be applied in the projection/reprojection of the enterprises' informatics systems.

The use of the Value Engineering instruments whose purpose is to project the informatics systems, which represent an essential part of the informational system, help to reconsider the managerial system's mode of action with all its subsystems, so as to bring increased benefits to the enterprise.

The projection methodology of the informatics systems, by using the Value Engineering concepts, completed with the two FAST diagrams that we propose in this article, might constitute the basis for the elaboration of a European ISO standard expected to ensure the generalization of the Value Engineering application in the European Union area.

Key words*: informational system, informatics system, informatics applications, use value, function, cost function.*

JEL Classification: C88, M13, B41

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CONFIDENCE INTERVALS FOR THE GUESSTIMATION ALGORITHM: A BOOTSTRAP APPROACH

Abstract. *Economists attempting to estimate linear models are frequently restricted due to data scarcity in terms of short time series of data and also of parameter non constancy. In this case, a realistic alternative is often to guess rather than to estimate parameters of such models. An algorithm of repetitive guessing (drawing) parameters from iteratively changing distributions, with the objective of minimizing the squares of ex-post prediction errors, weighted by penalty weights and subject to a learning process, has been recently introduced and sufficient conditions for convergence were theoretically described. In this paper, Repetitive Stochastic Guesstimation (RSG) and Simulated Annealing (SA) are compared for the problem of a linear regression coefficients' estimation, when only small and undersized samples are available. A robust alternative - based on bootstrap confidence intervals - to the RSG is built: Repetitive Stochastic Bootstrapped Guesstimation (RSGBOOT). A Monte Carlo experiment is designed to compare performances of RSG, RSGBOOT and SA. In the second part, confidence intervals for the RSG point estimators are built in a Bayesian framework. Again, a Monte Carlo analysis is conducted in the case of a linear regression equation.*

Keywords: *Repetitive Stochastic Guesstimation, Simulated Annealing, Bootstrapped likelihood, Bayesian inference.*

JEL Classification: C13, C15, C63

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REVIEW PERIOD REORDER POINT PROBABILISTIC INVENTORY SYSTEM FOR DETERIORATING ITEMS WITH THE MIXTURE OF BACKORDERS AND LOST SALES

Abstract. *This paper is developed to describe a review period reorder point inventory system in which units are subject to deterioration at a constant rate and shortages are allowed but only partially backlogged, i.e. rest goes as lost sales. Also the demand during prescribed scheduling period is a random variable following suitable probability distribution. The objective is to find the optimum reorder point which gives the minimum cost during the review period.*

Key words : *Review period, probabilistic inventory model, deterioration, partial backlogging, lost sales.*

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INFLATION PERSISTENCE AND DSGE MODELS. AN APPLICATION ON ROMANIAN ECONOMY

Abstract. *In this paper I study the inflation persistence in Romanian economy using the DSGE approach. I estimate two monetary DSGE models, a standard CIA model and CIA model with endogenous money. The results show that the standard CIA model outperforms the augmented model in terms of predictions on inflation persistence. At the same time, while the standard model can reproduce inflation inertia for short periods of time, its performance is poor for higher lags. This suggests that a more complex model might better predict the inflation persistence phenomenon in Romanian economy.*

Keywords: *inflation persistence, DSGE models, monetary models, Bayesian techniques, Romania.*

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CHALLENGES GENERATED BY THE IMPLEMENTATION OF THE IT STANDARDS COBIT 4.1, ITIL V3 AND ISO/IEC 27002 IN ENTERPRISES

Abstract. *The main purpose of this paper is to emphasize the importance of the implementation of IT best practices in enterprises and to identify the key challenges managers are facing when creating a standardized IT control framework in order to achieve alignment of best practices to business requirements. First, the authors present the increasing necessity of implementing IT standards in organizations acting in IT environments with focus on the standards COBIT, ITIL and ISO/IEC 27002. Second, the paper develops the analysis of the three standards which is a guidance for organizations wishing to adopt IT best practices on how to integrate the leading global frameworks and other practices and standards in inter-organizational relationships. The last part concentrates on the best methods of implementing in an efficient way the IT standards, which include*

identifying the use of standards and IT best practices, prioritizing processes according to an action plan and planning the steps of the implementation approach.
Key words: IT standards, IT best practices, COBIT, ITIL, ISO/IEC 27002.
JEL Classification: L84, M15, M42

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MODELS AND INDICATORS FOR RISK VALUATION OF DIRECT INVESTMENTS

Abstract. *Classical techniques for the valuation of direct investments projects take risk into account only incidentally. In these models, the risk is taken into account by the discount rate: higher is the risk, higher is the discount rate. As long as the discount rate is right estimated, indicators – Net Present Value (NPV), payback period, profitability index, etc. – will be relevant. Modern techniques eliminate some of the inconveniences. The purpose of this study is to make a comparative analysis between the results obtained based on classical techniques and modern techniques of valuation.*
Keywords: *Direct Investments, Net Present Value, Traditional techniques, Monte Carlo Technique, NPV frequency distribution*.

JEL Classification: G31

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DECISIONAL SIMULATION WITHIN SOCIO-PRODUCTIVE SYSTEMS WITH ENTROPY

Abstract: *The entire decisional simulation cycle of socio-productive systems obeys the three research levels: analysis, designing and management of the simulation activity. The analysis represents the research process of the system's component with the purpose of highlighting the following issues: the role of the system within the economic enterprise system; their horizontal and vertical interaction within the organisational structure; the status and decision variables – controllable or uncontrollable, which determines the running of the system; the identification of atypical behaviours and factors which influence the good running of the system and which cannot be included in the category of disruptive factors. The management of the simulation activity represents the whole set of planned procedures in view of grouping structures, phenomena and processes analysed and/or designed. By dint of this management a concise and clear formulation results for: the object of the simulation; the purposes pursued; ways of achieving the simulation; preserving, maintaining and updating the essential information achieved as a result of the simulation.*
Key words: *simulation, socio-productive system, the storage of the system, status variable, status entropy.*
JEL Classification: C93, D20

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APPLICATIONS OF THE HIERARCHICAL STRUCTURE WITH TWO AND THREE LEVELS

Abstract. It is an original paper, which contains a hierarchical model with three levels, for determining the linearized non-homogeneous and homogeneous credibility premiums at company level, at sector level and at contract level, founded on the relevant covariance relations between the risk premium, the observations and the weighted averages. We give a rather explicit description of the input data for the multi- level hierarchical model used, only to show that in practical situations, there will always be enough data to apply credibility theory to a real insurance portfolio.

Key words: hierarchical structure with three levels, observable variables with associated weights, the credibility results.

AMS Subject Classification: 62PO5

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HOW WE CAN DIAGNOSE THE FIRMS' DISEASES USING GREY SYSTEMS THEORY

Abstract. The core of our paperwork consists in determine a "matrix of symptoms", based on grey systems theory. The symptoms of a firm can be represented by economic-financial ratios, usually used by analysts to make predictions and give recommendations. The ability to create such a matrix of symptoms implies that given level of symptom's intensity we can determinate if the analyzed firm presents some "diseases". In this article, by diseases we understand the causes which generate anomalies in the company's activity. By using such a matrix of symptoms, the activity of the analyst can be really improved, the quality of his or her recommendations rising significantly.

First part of our article describes the evolutions of the methods used for diagnosing the companies' diseases. The second part focuses on the methods of diagnosis belonging to the Grey Systems Theory, while the third one illustrates their applications in firm's activity analysis, including also a numerical example. We conclude our paper with some remarks over the role and the utility of the grey systems theory in diagnosing the firms' diseases.

Key words: *Grey systems theory, Firm's diseases, GM models, Incidence matrix, Firm's diagnosis, Symptoms matrix.*

JEL Classification: C 02