

## **SECTION: APPLIED STATISTICS IN ANALYSIS AND FORECASTING**

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### **OVER-REACTION AND UNDER-REACTION ON ATHENS STOCK EXCHANGE**

#### **Abstract**

*An extensive empirical research in finance evidenced the presence of under-reaction and over-reaction on capital markets. The majority of the emerging capital markets is characterized by higher volatility, abnormal returns and market inefficiency, representing a good example for how prices evolution are affected by investors' reaction on bad and good news released by the issuers. This paper evidence over-reaction and under-reaction for a significant number of shares listed on Athens Stock Exchange. The methodology pursued involves event study approach, while testing the existence or not of the semi-strong form of market efficiency.*

**Keywords:** Capital market, market efficiency, event study, abnormal return, over-reaction, under-reaction

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**STATISTICAL INDICATORS SYSTEM FOR MEASURING THE SUSTAINABLE DEVELOPMENT AT NATIONAL AND REGIONAL LEVEL IN ROMANIA**

***Abstract:** Economic growth represents an important condition of economic development; it includes accumulation and quantitative economic changes (in terms of output, incomes, investments). Economic growth as a part of modern economic growth represents a qualitative changes process, which implies economic structure changes (technological changes, behavior changes, organization and institutional system changes).*

*Economic development, unlike economic growth, includes the improvement of life-conditions, an equitable income distribution, and the existence of a healthy environment.*

*Some statistical indicators can be used for measuring the production and consumption level, employment rate, unemployment rate.*

*United Nation Division for Sustainable Development defined the preliminary indicators for monitorising the implementation of the E.U. Sustainable Development Strategy, grouped by 10 major themes: economic development, poverty and social exclusion, ageing society, public health, climate change and energy, production and consumption patterns, management of natural resources, transport, good governance, global partnerships. In Romania were defined, according to the Millennium Development Statement, the following objectives, each of them being monitories through statistical indicators system: reducing the severe poverty, growing the graduation rate of educational system, promoting the equality between men and women, reducing the infantile mortality, improving the maternal health, struggling against tuberculosis and AIDS, assuring the environment stability, communication and information society development.*

**Keywords:** sustainable development, statistical indicators, economic growth

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## **LOCAL GOVERNANCE AND CORRUPTION OF A COUNTRY IN THE PROCESS OF JOINING THE EUROPEAN UNION**

**Abstract:** *The following study case is designed to analyze some of the causes of corruption from the local public administration of a country which is in the process of joining the European Union structures. The analysis is directly connected with the ongoing process of decentralization and the continuance of the democratization process. The starting point of the elaborated logistical model is the mayors' perception over the influence of corruption in the reform process from the local public administration, as well as the identification of the major causes of corruption.*

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

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## **CORRUPTION CHARACTERISTICS OF LOCAL PUBLIC ADMINISTRATION**

### **Abstract**

*The methodology aims to determine certain corruption characteristics of the local and central public administration, as well as the measurement of its effects on certain social and economic variables. This methodology is defined by followings: the basis tool for gathering information used for measuring the corruption characteristics and its effects; strategy for defining the statistic sample as basis for gathering the statistic data; processing and usage algorithm of the obtained results.*

**Keywords:** corruption, strategy, algorithm

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## **THE INERTIAL MECHANISMS OF MONETARY POLICY ADJUSTMENT. A STATISTICAL APPROACH**

### **Abstract**

*In the classical theory, monetary aggregates were often used to model monetary policy, but now, the most common representation of monetary policy uses a short-term interest rate as a viable and efficient instrument.*

*After the introduction of Taylor rule, many researchers have examined monetary policy rules or reaction functions that relate the policy interest rate to a small set of observables. There has been voluminous research on the optimal theoretical design of monetary policy rules and on the empirical estimation of policy rule. A variety of important issues regarding the normative and positive forms of these rules have been considered, the choice of the relevant argument variables in the rules and the nature of the dynamic adjustment embodied in them. This paper will examine the latter issue and characterize the amount of monetary policy inertia or partial adjustment contained in empirical and optimal interest rate rules.*

**Keywords:** monetary policy, Taylor rule, interest rate

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**AN ANALYSIS OF THE REAL EXPECTED VALUE PREMIUM OF THE  
FINANCIAL INVESTMENT COMPANIES LISTED ON BUCHAREST STOCK  
EXCHANGE**

**Abstract**

*Fama and French (2002) estimate the equity premium using dividend growth rates to measure the expected rates of capital gain. We use similar methods to estimate ex-ante measures of the value premium from cash flow fundamentals. The application on Financial Investment Companies (SIFs) is representative for Bucharest Stock Exchange because these are the most viable investment vehicles in the Romanian capital market. The recent performance of SIFs and the outlook for some of the sectors in which SIFs have underlying assets make them attractive investment vehicles in an emergent market expected to grow in the future.*

*This analysis contributes to a better understanding of the driving forces behind the value premium. There are three competing explanations in the modern literature: the value premium results from rational variations of expected returns (Fama, French, 1996), the investor sentiment which causes the high premium for value stocks (Lakonishok, Shleifer, and Vishny 1994), the value premium results spuriously from sample-selection bias and data-snooping bias (Schwert 2003).*

*We report that the value premium is reliably positive ex-ante. The expected value premium is countercyclical- a positive, one-standard-deviation shock to real consumption growth rate lowers the expected return. Unlike the equity premium, there is only weak evidence suggesting that the value premium has declined over time. These findings are robust to a variety of perturbations in test design such as including stock repurchases into the calculations of cash flows, using alternative instrumental variables to estimate expected growth rates and expected dividend-to-price ratios, and using alternative portfolio constructions.*

**Keywords:** premium, investment, cash flow, stock

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## **DECISION MAKING USING FUZZY SETS**

### **Abstract**

*Decision making in a fuzzy environment represents a process in which the objectives and constraints but not necessary the whole system are of fuzzy nature.*

*In this paper we try to implement a new perspective on the mode in which decisions are taken using fuzzy linguistic concepts in order to determine new objective sequences over the alternatives.*

*In the first section we relive the theoretical concepts at the basis of this paper for the sole purpose of establishing the conceptual model.*

*We then establish the hypothesis in which the model can exist and then we introduce the means for the fuzzyfication process to be applied to the standard functions that are existent in real life by transposing these functions into fuzzy linguistic with nonlinear graphical projections.*

*The conceptual model that we prior established will be transposed into a practical example which implies a real group decision situation over a certain portfolio.*

*The paper argues that in real situations the fuzzy mathematical approaches are necessary when the information contained by the decision maker is not sufficient in establishing a correct decision. Fuzzy linguistic allows the decision maker to introduce in his model a certain degree of interpretations like opinions over the set of alternatives and constraints, and degrees of assurance over his evaluations and over a specific set of selected alternatives.*

**Key words:** fuzzy sets, social choice, nonlinear optimization, fuzzy linguistic.

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**THE ESTIMATION OF THE DEPENDENT VARIABLE TO BE REACHED IN  
RESPECT TO THE VARIABILITY CONNECTION WITH THE INPUT VALUES**

**Abstract**

*The obtaining of the estimated output depends upon the inputs and the processing – transforming model used but no matter what model we choose, the target value is the same. The estimated values are the same if estimated in fixed or mobile base. The estimation of the output values of the system, in time, can be done by using different models. The reaction degree is a value that interferes in determining the estimated value but also in calculating, expressing the effect generated by the behavior of the dependent variable (output of the system). Also, the generated effect is at the root of dimensioning the dependent value through estimation. On the basis of the generated or estimated effect, one can estimate de dependent value.*

**Key words:** estimation, model, variation, target value, reaction's degree



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## STATISTIC METHODS OF INVESTIGATING THE FIRM'S DECISIONAL SYSTEM. NETWORK SAMPLING (“SNOWBALL” SAMPLING)

### **Abstract**

*The economic-social statistical methods provide the necessary information for achieving the link between economic reality asserting in any business environment and the firm's management system, supplying data to it, in order to make effective and strategic decisions. Within a firm, one of the firm's management and marketing functions is the **decision function and decisional hierarchy, the number of hierarchical levels** in a firm, tacitly.*

*Information, decisional system (and especially the manner of use and the purpose of use) is still a major source of power nationally and internationally. By means of information and decisions, organizations – regardless their size and purpose of work – have the chance of putting into practice their own vision of attaining these goals efficiently. **Selection of the target market, definition of competitive advantage, selection of a certain version of strategies are based on decisions.***

*A significant way of investigating a firm's internal and external information system, based on statistical tools is the statistical sampling. The poll typology provides a model of gathering information and analysis concerning the decisional system within a firm or the investigations of buying decisions a consumer, and this paper describes thorough information related to **network sampling, “snowball” sampling** respectively. This type of sampling enables the survey of the forms of occurrence concerning the decision power within an organisation and of the interpersonal relation network governing a certain collectivity, a certain consumer panel. The network poll may be successfully applied for surveying the main sides of communication within a firm, institution or consumer.*

**Key words:** statistical sampling, network sampling, decision, decisional hierarchy, perception, “snow-ball” sampling, hierarchical levels

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## **MODELING THE IMPACT OF THE FAMILY VALUES ON COMPANIES' VALUE LISTED AT BSE**

### **Abstract**

*The present paper sets out to verify for Romania's case the main findings of the current agent problem theories of how family ownership creates value only when the founder serves as the CEO of the family firm or as its Chairman with a hired CEO, namely: the classic owner-manager conflict in non-family firms is more costly than the conflict between family and non-family shareholders in founder-CEO firms, however the conflict between family and non-family shareholders in descendant-CEO firms is more costly than the owner-manager conflict in non-family firms, using proxy data on 60 listed Romanian firms.*

**Keywords:** family firm, owner-manager conflict

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## **ESTABLISHING A REPRESENTATIVE SAMPLE FOR THE EVALUATION OF THE STUDENTS' DEGREE OF SATISFACTION WITH THE EDUCATIONAL PROCESS**

### **Abstract**

*In this article are presented various techniques used to establish the size of the representative sample for a questionnaire submitted to 4<sup>th</sup> year students from the Academy of Economic Studies. The questionnaire was conceived in order to ascertain the motivation of the students' specialization choice and their satisfaction with the educational process.*

*The questionnaire comprises questions which will offer answers to issues such as: the reason for the specialization's choice, will knowledge acquired in the faculty will be helpful in the student's job?, which discipline contributes most to the specialist's formation, practical competences acquired during higher education and other.*

*The mean of the students' annual grades is the characteristic upon which the size of the sample is founded, as it characterizes best the student population. The mean and the dispersion of this characteristic for the sampled faculties have a decisive role in the sample's size determination.*

*The 4<sup>th</sup> year student population is divided into a number of strata equal to the number of faculties of the university. Having to regard the fact that the individuals included in the sample are students and attend the same faculty, we can assert that every stratum is homogeneous, and that there is no need for a new stratification. Thusly, we can consider applying an unrepeated stratified sample, with homogeneous strata.*

**Keywords:** representative sample, statistics population, homogeneous stratum, student satisfaction

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## **THE IMPLEMENTATION OF VALUE AT RISK METHODOLOGY IN MEASURING MARKET RISK**

### **Abstract**

*This paper implements the Value at Risk methodology in evaluating the market risk in portfolios. It provides a practical example on measuring a portfolio's future value depending on the horizon over which the portfolio's change in value is measured and the degree of confidence. In this purpose is used the Monte Carlo method to simulate the portfolio's evolution.*

**Keywords:** value-at-risk, portfolio, Monte Carlo Method

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## **AN ANALYSIS OF THE MECHANISMS THAT CHARACTERIZE EQUITY PRICE VOLATILITY**

### **Abstract**

*We find an empirical regularity that stronger creditor protection reduces the volatility of stock market prices. We analyze two distinct mechanisms that characterize equity price volatility: government guarantees and creditor protection. As a theoretical rationale behind the empirical link between institutional features and asset price volatility, we analyze two distinct mechanisms:*

*-government guarantees that lead to moral hazard, which may increase stock price volatility.*

*-the correlations between creditor protection, equity price volatility and the institutional weakness*

*Using a Tobin  $q$  model, we demonstrate that weak creditor protection that gives rise to government guarantees and tightens credit constraints, increases stock price volatility. Empirically, accounting for the probability of financial crises, we find that government guarantees and weak institutions that tighten credit constraints increase aggregated stock price volatility.*

*This paper may have an interesting implication for the literature on the equity premium risk. To the extent that institutional weaknesses raise the variance on stock returns, it may also contribute to the spread between the mean return and the safe return analysis. By using elements of risk aversion to the models on credit guarantees and credit constraints is possible to explain the equity risk puzzle and its variations across economies of different institutional characteristics.*

**Keywords:** market price, volatility,  $q$ \_Tobin Model

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## **USING THE ANOVA METHODS IN THE DISPERSION ANALYSIS FOR A CONFECTIONS TEXTILE INDUSTRY SOCIETY**

### **Abstract**

*The sole dimension model ANOVA - This model can be used in the analysis of the qualification of variable labor work. The variable analysis is structured on six levels, independent one from another. It proves that the level of qualification influences the structure of the number of employees. The model may follow also if certain attributes of the presented products in certain cities have a motivation to be bought.*

*The double dimension model ANOVA - It analyzes the oldness and the labor qualification, but it can follow if the attributes of the delivered products in various cities have influence upon the buying motivation and if other societies are interested in similar products made by the same society. The three dimension ANOVA - This model uses in the analysis, with the qualification, the labor oldness and the influence of the fabrication technologies at the level of one labor formation from each production section. Finally, we establish the signification of the three factors at the reduction of the labor time. The four dimension model ANOVA - Comparing to the three dimension model ANOVA, the four dimension model ANOVA refers to all the labor formations within all the labor sections.*

*Like the three dimension model ANOVA, we admit the  $H_0$  hypothesis only for the case of the interactive influence of the factors used in the labor analysis.*

**Keywords:** ANOVA, textile industry

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## **POSSIBILITIES FOR THE USE OF THE STATISTICAL METHODS IN ORDER TO IMPROVE THE GEOLOGIC SURVEY EFFICIENCY STUDIES**

Abstract

*This paper presents the opportunity of using the variability of the geological characteristics for modeling the oil reservoirs and it is a part of the researches written by the author for the doctoral project. It presents the second part of this kind analysis, the analysis of the graphic representation of the data that may be useful for creating a general image of the variable values' general distribution in the researched area.*

**Keywords:** geologic characteristics' variability, global variability, spatial variability, punctual map, continuity diagram, variability diagram

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**SPECIFIC ASPECTS OF PUBLIC MARKETING ASSOCIATED WITH A PROJECT  
CONCERNING THE ENVORINMENT QUALITY IMPROVEMENT**

**Abstract**

*This paper aims to present a series of particular aspects that concern the analysis of the social and the demographic segmentation variables and the acceptance of a project, which has as purpose the modernization of the Ploiesti Downtown in order to solve the ecology problems and to improve the quality of the environment.*

**Keywords:** estimation indicators, social and demographic variables, associating relations,  $\chi^2$  Test and F test.



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## **RANKING FACULTIES' ACTIVITIES USING UNIVARIATE AND MULTIVARIATE STATISTICAL TECHNIQUES**

### **Abstract**

*In this paper the authors analyze some categorial variables obtained as the answers from a questionnaire given to ASE faculties, on a representative sample of students.*

*The authors take into account two items described as categorial variables associated with multilevel (5) answers. These questions (items) underline aspects regarding students' satisfaction relative to educational process (offer) in the last four years undergraduate studies.*

*There are proposed descriptive univariate techniques for measuring data characteristics and multilevel techniques for decomposing total dispersion (within and between classes).*

*The results obtained by applying these techniques reveal scores associated to faculties and, consequently, a way to rank them. Moreover, these scores will be compared to efficiency scores obtained from a parametric SFA or non-parametric DEA model to the same faculties.*

**Keywords:** univariate techniques, multilevel models, ranks, ANOVA, efficiency scores.

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## DEFINING INPUTS AND OUTPUTS IN THE EDUCATIONAL ENVIRONMENT

**Abstract**

*Educational institutions worldwide are increasingly the subject of analyses aimed at defining, measuring and improving efficiency. Despite the importance of efficiency measurement in education, it is only recently that more advanced econometric and mathematical programming frontier techniques have been applied to primary and secondary schools, university departments and universities as a whole. In the last few years, a great number of analyses that use advanced econometric techniques and mathematical programming have been made to emphasize the need to improve the efficiency also in the educational environment. These studies have in common the fact that they straighten their attention on educational institutions that “produce” the highest level of education, given their inputs; they actually focus on institutions that are on the efficiency frontier. Education is considered as a complete process, complex and very difficult to analyze. Taking into consideration the complexity of this process the authors focus on defining specific inputs that are transformed into specific outputs. Therefore the educational process diagram contains the inputs, being the resources used in the educational process (like professors, books, other materials that universities provide), the process itself required to transform the inputs in outputs (as for instance individual study materials, small study groups, conferences), the outputs which are the direct and immediate effects of the process (as for instance the students results, the attitude, the knowledge acquired during the educational processes) and the effects, being the long run impact of the educational process.*

**Keywords:** educational process, measuring efficiency in education, education inputs and outputs

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## **ROMANIAN ELDERLY PEOPLE PARTICIPATION ON ECONOMIC ACTIVITY**

### **Abstract**

*The changes that took place in the number and structure of Romanian population are very important especially after the changing of the political regime. The number of population severely decrease and the age structure is significant modify.*

*The paper considers the marginal rate of activity among the elderly people and analyses the differences between the activity rates in urban and rural area and gender. The activity rates among older people follow an interesting pattern and are increasing during the observed period (1990-2000), so that in the beginning of the new millenium, almost half from the elder people are economically active. We put this aspect in connection with some political measures (such is the land law (1992)) and with the poverty and the poor quality of life. These push the older people to work in order to ensure the minimum for living, for themselves and for there relatives.*

*Does the society effort to support this increasingly number of elder people? In order to answer this question, we applied the demographic projection method and estimate the share and the activity rates for people older then 60, for the period 2001/ 2010.*

**Keywords:** elderly, economic activity, participation rate, demographic projection

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**POSITIVE FEEDBACK & NETWORK EXTERNALITIES IN NEW ECONOMICS  
AND KNOWLEDGE-BASED SOCIETY**

**Abstract**

*In industrial age success was in proportion to efforts. Small efforts, small gains. Large efforts, large effects. In the network age success can easily compound into an exponential growth. Technology has become our culture, our culture technology. Because network technology behave more like an organism than like a machine, biological metaphors are far more useful to understand the new economy.*

*In a knowledge-based society positive feed-back and increasing returns to scale may result in many types of market failures and externalities specific to network economy, called network externalities.*

**Keywords:** increasing returns, network externalities, positive feed-back, new economics, knowledge-based society

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## **TESTING THE WORKABILITY OF MARKETS -CONTROL LOOP MECHANISM FOR THE DETECTION OF CARTELS**

### **Abstract**

*Coordination Failure Diagnostics (CFD) is a model that analyses real market processes with the help of time pattern analysis and investigates whether they operate efficiently (See <http://mice.uni-muenster.de/cfd/en/index.htm>). The CFD cartel-audit should enable the detection of cartels via characteristic market process patterns. This is based on the assumption that existing cartels cause failures in the observed process patterns. The CFD cartel-audit attempts to draw conclusions from these process patterns in order to find hidden cartels and to engage antitrust agencies into additional more detailed audits.*

**Keywords:** cartel detection, cement, collusive marker, market screening, price fixing