

Fakulta hospodárskej informatiky Ekonomickej Univerzity v Bratislave  
Faculty of Economic Informatics University of Economics Bratislava



## **Participácia doktorandov na vedeckovýskumnej činnosti**

**IV. medzinárodný vedecký seminár doktorandov**

ZBORNÍK

## **Participation of doctoral students in science and research**

**4<sup>th</sup> International scientific seminar of doctoral students**

PROCEEDINGS

21. máj 2004

May 21<sup>st</sup> 2004

Bratislava

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Zborník neprešiel jazykovou úpravou. Za odbornú stránku príspevkov zodpovedajú autori.

1. sekcia

1<sup>st</sup> section

Aplikovaná informatika (25-11-9)

Applied informatics (25-11-9)

## **Service orientovaná aplikačná architektúra a Business Logic**

Merge of Service Oriented Architecture with Business Logic within of .NET Framework Platform by creating Business IS makes a base for quality Business IS and competitive ability to meet the dynamicly changing Requirements of Companies to their Information Systems. There are still not enough specialists on the market, which are able to create simmilar Solutions of IS for Companies.

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## **Využitie UML pri modelovaní XML aplikácie**

This article try to help in integrate UML and XML in current design projects and it explain, what this means to achieving e-business objectives. Steps and criteria are introduced in text to use in visual analysis and design of XML application, specially XML vocabularies. Text is filled in with realistic examples to base building application on.

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## **Možnosti využitií ASP v elektronickém obchodování**

One of the most important part of IS/IT outsourcing is the application service providers (ASPs), which deliver software functionality over the Internet. Using Application Service Providers (ASPs) can save money, expedite the deployment of new enterprise applications, and enable the re-allocation of scarce resources to strategic business opportunities. Typical services delivered via the ASP mode include e-learning, e-market places, CRM and email. It is known, that E-Commerce represents a new sales opportunity for business, another channel to sell products and services. Some companies turns to ASPs e-commerce model for its rapid implementation, which gives them important advatage.

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### **Elektronická výmena dokumentov a jej využitie v praxi**

EDI is a critical part of Electronic Commerce because it enables computers and systems to exchange data electronically, which is much faster, cheaper, and more accurate than paper-based systems. Knowing the standards and having an EDI translator is not enough. EDI cannot be done efficiently without being integrated with other components – software, hardware, communication and standards. There are many software solutions in this area, but most of them solve only partial problems. WebMethods create one integrated platform which enable you to build more efficiency and costless system. You can easily setup all kind of communication links with your partner, use many different document types and create and manage your business processes.

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### **Princípy budovania informačného systému firmy pri viacerých kritériách efektívnosti**

In the article ruminates author to principles of building information system of firm when the economic subject is deciding according to several criterions of efficiency. It is pointed out on methods that are used to building decision support systems so as to software support of these methods.

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## **Metodika budovania bezpečnosti v LMS.**

This paper reports on security problems in e-learning: security policies e-learning systems, categorize of areas in security. The paper is focused on methodics building security in LMS. Discusses about the problems with registrations, authentications and access control in LMS.

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## **Tvorba vzorového e-learningového kurzu pre výuku predmetov programovania.**

Using of e-learning templates helps lecturers in the creation of e-learning course. Each branch for the creation of e-learning course is specific and it's necessary to focus to problem domains. Good e-learning course for programming hasn't contain only definition of syntax and basic examples. It has to explain problem of algorithms and tests for students.

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## **Detailný návrh obrazoviek v štruktúrovanom a objektovo orientovanom prístupe**

Nowadays, it is very asked to build information systems based on quick and corresponding reactions to the user. Detailed screen design as one project part when using event driven programming technologies is the core of this article. The solution of combination structured and object-oriented modeling tools seems to be applicable. This article contains a short comparison of these tools so as to define their negatives and positives by using in the detailed design of the screens.

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### **Niektoré problémy pri tvorbe rozvrhu v praxi**

The article contains description of main problems during schedule making process. There are discussed chosen problems the person responsible for schedules has to deal with in order how the requirements for this process are prepared through database preparation to schedule making process. In some cases possible solutions of given problems are described.

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### **Content Marking Macro Language v nástroji typu CASE.**

Presentation of the principle of the new concept called Sectioning in the Human Readable Format aimed for storing software project data called Content Marking Macro Language (CMML). Definition of CMML is a part of a research project called RASED (Rapid Application & Software Engineering Development) conducted by Mr. Milan Marušinec.

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### **Řízení komunikační infrastruktury IS/IT: Metakonfigurace počítačové sítě**

The scope of this paper is to cover the metaconfiguration topic. The aim of metaconfiguration is to facilitate the computer network management by creating general description of the configuration of the computer network as a whole. Present configuration management

approaches covers single routers (active devices) in the network, thus ignoring the common attributes and creating redundancies. Main idea behind the topic is: Data redundancy removal (single entity definition valid for whole network), Common point of view of whole network, Separation of relations between entities from actual values

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## **Komunikácia človek – počítač (Human Computer Interaction)**

### **Charakteristika vedného odboru**

The aim of the paper is to provide knowledge about rather young scientific discipline Human – Computer Interaction (HCI). The author of this article tries for the presentation and for the underlining the main goals of the HCI and for the description of the historical development and also of the current situation in the HCI field.

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### **Dlouhá cesta od dat ke znalostem**

Everyday use of terms: data, information and knowledge in common language leads to the confusion and misunderstanding and the original meaning is lost. The paper tries to summarise current views on the topic and highlight the important role which human consciousness (human brain, mind) plays in the process of the knowledge creation and use.

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## **Dva prístupy využitia metód umelej inteligencie vo verejnej správe**

Information management in public sector is very important for local administration in each country. There is area in well-built public information system also for using latest IT built on principles of artificial intelligence: knowledge representation, inference machine, Soft Computing, etc. So this item informs us with the basic principles of mentioned IT and describes two points of view (decision systems and systems for information acquisition) how to use these technologies in public sector.

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## **Riadenie projektov IS – problémy a riešenia**

Project management is one of the most important management activities which takes irreplaceable part in the software development process. It is necessary for successful multiple software implementation and development of huge software solutions. Helps in creating software applications effectively, fast, with low costs, but still reflecting all the customer needs. Takes very important role in keeping the control over the project development and documentation in all phases of the software life cycle – analysis, design, implementation, testing.

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## **Využívanie IKT na Slovensku v styku malých a stredných podnikov s finančnými inštitúciami**

Main aim of this document is to summarize situation in using of Information and Commucation Technologies (ICT) among small and middle enterprises (SME) and financial

institutions. Also we present some ideas on trends and plans of development of informatization and new services provided by financial institutions.

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## **Orientácia na procesy v kontroverznej diskusii**

Business process orientation is one of the most discussed topics in the business informatics field. Discussions widely held on this BPM core are full of controversy. Many authors hale this innovative concept and present it as “new ideology” but lots of the others say it is nothing but “new wine in old barrels” and just a “mode hit” that will pass away after while. This article has purpose to compare these two extreme views on this concept and put the discussion further.

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2. sekcia

2<sup>nd</sup> section

Účtovníctvo (62-09-9)

Accounting (62-09-9)

## **Teoretické základy oceňovania**

Every facility in enterprise has its value. Value of facility represents degree satisfaction of needs in reproduction press. Value of references to the cost expressed in money. It is extremely difficult to measure the cost of facility – item. For the purposes of measurement, the entity applies generally accepted accounting principles. Some of the relevant statutes applied in this process are embedded in law and, as such, are considered to be obligatory.

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### **Účetní vykazování v oblasti sportu (úvod do problematiky)**

Article focus on financial reporting of a professional sports franchise. Entry into stock exchange by football clubs in Europe in recent years has increased investor's requirements on financial statements. Share of intangible assets (player contacts, league franchise, financial lease of player contracts) by sports franchise is very significant. Player contracts fulfil the accounting criteria to be classified as intangible assets of the sports franchise. Player contracts do not have physical substance but are identifiable and are controlled by the entity through legal rights. Players are acquired to help generate future economic benefits for the sports franchise. Lease of player contracts is an alternative to purchase them.

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## **DLHODOBÝ HMOTNÝ MAJETOK**

### **Metódy odpisovania dlhodobého hmotného majetku**

Speciality of the longterm tangible property is its multilaunching application in its original form. The longterm property is wearing by the using in bussiness activities. Depreciation features that part of the longterm tangible property, showed in money form, which is

equivalent to its depreciation. The effort for depreciation level optimization is related with specifying of the optimal lifetime and this problem is showed in depreciation methods.

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## **Harmonizace účetnictví**

Being in EU in 2004 will bring to our coded companies in the European stock exchange the duty to process financial records according to the IAS/IFRS from 2005. International accounting standards will influence the activities of Czech firms. At the end of the last year we made a research concerned on how the small and medium firm in Czech Republik are informed about the international accounting standards. We have analysed the results of the research.

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## **Rozhodovanie firmy o kalkulačnom systéme**

Although cost system is conceptually simple, decision about it encompasses analysing various factors. These factors include manufacturing process, market environment, size, product cycle, competitive strategy, cost structure and information system. Further managers challenge to develop a cost system that is reasonable for the circumstances. By recognizing the relationship between a cost system nad its setting, it is possible to design or improve a company's cost system significantly.

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## **Aplikácia didaktických zásad v predmete účtovníctvo na OA**

Didactics of accountancy helps to improve the educational process in the subject of accountancy. If a teacher wants to make it more effective, he should be aware of the principles that this specific area of pedagogical sciences has accumulated during its existence. Good knowledge of didactic principles helps him to choose the best educational methods, means and forms in each particular situation. In this article we have tried to outline several examples of the possible use of this knowledge when teaching accountancy at high schools.

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## **Vplyv intrakunitárnych transakcií na dokumentačnú povinnosť účtovnej jednotky po 1.máji 2004**

From May 1. when the Slovak Republic is becoming a new member of the Europe Union, all companies have the new documentary duties related to VAT and statistical survey of sale in the EU space. The deliveries of goods sold to other EU countries where VAT is paid are recorded in a "SALING LIST". The INTRASTAT document is the statistics of the international trade in the EU space.

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## **Súčasti účtovnej závierky podľa národnej a nadnárodnej úpravy účtovníctva**

The aim of this article is a definition of financial statements according to the national and international law. The main point, we want to show that there are problems about presentation of components of financial statements – specifically: balance sheet, profit and loss statement and notes (within statement of cash flow and statement of changes in equity).

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## **Vykazování opcí prismaticem mezinárodních účetních standardů IAS/IFRS**

This text deals with the accounting aspects of the financial options. Options are one of the main financial instruments; there are a part of the financial derivatives. The International Accounting Standards deal dilemma of the financial options in IAS 32 and IAS 39. The hedging using financial options is mentioned in this study too. This text also deals with the impact of IFRS 1 on the reporting of the financial options.

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## **Charakteristika odložených daní z pohľadu Medzinárodných účtovných štandardov**

Deferred taxes represent an important tool for the correct and objective declaration of the economic result and taxes in accounting and financial statements of the enterpreneuring subjects. The problem of deferred taxes is completely dealt with in the International Accounting Standard IAS 12 – Income Taxes. The aim of IAS 12 – Income Taxes is to define the accounting procedure for the income tax. This standard refers to all income taxes calculated of the tax assessment base paid at home and abroad and to deduction taxes from dividends.

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## **Trendy vykazovania podnikových kombinácií obsiahnuté v projektoch Rady pre medzinárodné účtovné štandardy**

The aim of this contribution is to inform about progress in improving the quality of, and seek international convergence on, the accounting for business combinations and the subsequent accounting for goodwill and intangible assets acquired in business combinations. This effort resulted in publishing new IFRS 3 – Business combinations to replace current IAS 22. The contribution compares the content of IFRS3 with the legislation in Slovak Republic.

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## **Prezentácia účtovnej závierky podľa medzinárodných účtovných štandardov pre verejný sektor**

This International Public Sector Accounting Standard is drawn primarily from International Accounting Standard (IAS) 1 “Presentation of Financial Statements” published by the International Accounting Standards Committee (IASC). This standard sets out the objectives and explains the scope and authority of the International Public Sector Accounting Standards (IPSASs). The objective of this Standard is to prescribe the manner in which general purpose financial statements should be presented in order to ensure comparability both with the entity’s own financial statements of previous periods and with the financial statements of other entities.

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## **Vykazování nehmotných aktiv dle US GAAP (výzkumný projekt)**

In the first days of April 27th Annual Congress of European Accounting Association was held in Prague at University of Economics. For the purpose of presentation at this congress a paper



called “Creative Intangible Assets Accounting by Companies Reporting under US GAAP (excluding goodwill)” was prepared. This paper summarized process and results of a research project that had an aim to detect what kind of accounting policies are applied by companies while recognizing and measuring intangible assets, and whether they use practices taking the form of creative accounting. For the examination, a sample of 60 randomly selected companies that present their financial statements for the period ended at 31 December 2002 or in the first half of 2003 under US GAAP was chosen.

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### **Lízing z účtovného a daňového hľadiska podľa Slovenskej právnej úpravy**

An ability to make a right decision is very important in world of business. To be successful involves to know how supply necessary property. Sometimes is advantage to use own capital. Sometimes would be more effectively to use another way of financing business enterprises – for example leasing. Leasing is dynamic area of business also in condition Slovak republic. A new law of accounting leasing is in force since January 2004.

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### **Harmonizace v oblasti rezerv**

In my paper I show regulation of provisions under IAS/IFRS. Then I compare this regulation with regulation in the Czech Republic. There is an interesting difference in measurement of provisions under IAS/IFRS and in the Czech Republic. IAS 37 requires to create provisions in present value. Very interesting thing is that the probably most used provision in the Czech Republic (provision for maintenance of PP&E) cannot be accepted under IAS/IFRS.

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**Snížení hodnoty aktiv držených za účelem používání v kontextu úpravy  
US GAAP – vyhláška SFAS 144 a srovnání s IAS/IFRS a českou právní  
úpravou**

Impairment is the condition that exists when the carrying amount of a long-lived asset/asset group exceeds its fair value. An impairment loss shall be recognized only if the carrying amount of a long-lived asset/asset group is not recoverable (if it exceeds the sum of the undiscounted cash flows expected to result from the use and eventual disposition of the asset/asset group) and exceeds its fair value. Restoration of a previously recognized impairment loss is prohibited.

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3. sekcia

3<sup>rd</sup> section

Štatistika (62-11-9)

Statistics (62-11-9)

## **To the Possibilities of Integrating the Qualitative Anticipations to the Short-Term Predictions of Gross Domestic Production the Czech Republic**

In this paper we present recent experiences with models for predicting GDP using different types of time series as explanatory variables. This approach is connected to our research work, which should verify a possibility of integrating qualitative anticipations to the short-term quantitative statistics. Four alternative models with different length of series are discussed. The effect is reached when shorter series are used. A partial conclusion of suitability of inclusion of collateral quantitative variables will be verified in further work.

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## **Možnosti analýzy a porovnávania HDP na obyvateľa v krajinách V4**

In this paper we present one of the most important indicators for evaluation of the level of national economy, and for its international comparison – gross domestic product per capita ( $GDP_{PC}$ ). For international comparison is used this indicator expressed in its equivalent in USD and EUR currency. We suggest  $GDP_{PC}$  – relative indicator of gross domestic product (GDP) and population (P) as an integrating output indicator, which we construct as product of capital effectivity, employees capital arrangement, rate of employment, rate of economic activity and relative weights of employees, resp. population. We tried to apply this model on concrete values gained from statistical yearbook of the Slovak Republic and the Czech Republic and from national accounts of OECD.

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## Creation of Decision Trees

Decision trees, or tree classifiers, are a popular form of classification method as they are recognized for their capability to breakdown complex decision making processes into a collection of simpler decisions. As such they produce easily interpretable solutions. There exist various algorithms to induce decision trees from a given set of data. However, different algorithms induce trees with different performances. This article contrasts stochastic methods of induction against the traditional deterministic method and illustrates how trees derived by the former method have superior predictive properties.

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## Použitie taxonomických metód pri lineárnom usporiadaní objektov

There are present known three fundamental different methods of construction of taxonomical measure of development of multi-feature objects. The basic of given analysis of them constitutes a set of eight diagnostic features, which describes a social and economic situation in the CC EU.

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## Analýza maloobchodného obratu SR v rokoch 1997 – 2003

The aim of this paper is the analysis of retail trade revenues in Slovak Republic from January 1997 till December 2003 in current prices and finding the most suitable model forecasting their future trend. Searching the optimal model were used several methods. Each model was compared following the characteristics in estimation and validation period. According to this, the Brown's model of linear exponential smoothing, that passed the most of criteria was selected. The actual value of retail trade revenues in January 2004 was 26 370 mill. SKK, the

Brown's model forecast was 25 954 mill. SKK. We can suppose, that the forecast ability of this model will be also convenient for the next months of the year 2004.

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### **$\chi^2$ test dobrej zhody kvantilového pravdepodobnostného modelu**

A new approach to statistical modeling with inverse distribution functions, known as quantile functions, provides further opportunities for describing the probability distributions. It requires new techniques in all phases of statistical modeling. None of the known statistical software contains program for the testing of the goodness of fit of the estimated theoretical distribution defined by its quantile function. This article describes new steps for  $\chi^2$ -goodness-of-fit test of the quantile probability model. There are many aspects of validation of the chosen quantile probability model, but the goodness of fit is the most important for its further uses.

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### **Využitie indexov úmrtnosti v životnom poistení**

This article is about particularly topical problem which relate with insurance. There are many factors that determine high of the insurance premium. The high of interest rates, changing inflation, costs belong among the most important factors. Very important factor is mortality. This article informs us in detail about using of mortality indexes in life insurance.

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## **Využitie zhlukovej a faktorovej analýzy pri porovnávaní vybraných krajín Európy**

By using methods of cluster analysis and factor analysis, this paper presents results of international comparison of economical and social situation in 27 chosen european countries, by 12 indicators from year 2001. The results are also presented in graphical form, using STATGRAPHICS Plus for Windows software.

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## **Stanovení nejistot měření a jejich využití při zpracování spektroskopických dat**

Problems of errors and their applications to the measured data are not a trivial case. Errors appear in the all of sciences branches. During the determination of errors we have to go to details of measuring methods and have to have in mind all of aspects which have an influence to the experimental data. The same situation is in the spectroscopy. Scientists should diffuse in germane branches and apply their knowledge to optical spectra. The article describes sources of errors during the measuring, their determination and combinations. It is concerned with their usage in the spectroscopy and pointed out that only systematically analysis is just one way to the right interpretation of measured data.

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## **Výber vzorky auditu**

It is usually impractical or impossible to review all items or files when examining an area of bank operations, especially if the volume of information is large. Examiners use sampling and

evaluation of the sample results to make their job easier. This document provides on which sampling methods are best for specific areas of examination interest. By sampling examiners can test the effectiveness of processes, policies, controls, management information systems, or risk management practices.

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### **Analysis of expectations data from business surveys**

The paper deals with analysis of expectations data from business survey and their comparison with actual development of businesses. The expected development of revenues (coded “expecting an increase”, “expecting no change”, “expecting a decrease”) is compared with actual development of revenues. The shares of businesses with an increase in revenues and with a decrease in revenues and their pattern over time are studied for the whole sample and for the three sub-samples for different stated expectations. The different pattern of expectations and actual development data in reflecting short-term changes is described.

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4. sekcia

4<sup>th</sup> section

Ekonometria a operačný výskum (62-49-9)

Econometrics and operation research (62-49-9)

## **Viakriteriálne hodnotenie otvorených podielových fondov v SR**

Paper presents an multiple criteria approach to outranking opened mutual funds in Slovak republic according to several selected criteria. Application the method PROMETHEE II was used to compare 7 opened mutual funds.

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### **Sweezyho model „lomeného“ dopytu**

Notable characteristic of oligopolistic industries is the relative infrequency of price changes. This price rigidity attempted to explain Paul Sweezy by suggesting that oligopolists face a „kinked“ demand curve. By this model each firm believes rivals will match price reductions, but will not match price increases. Because of the „kink“ of demand curve at output level  $Q^*$ , the marginal revenue curve is discontinuous and marginal cost can fluctuate from  $MC_1$  to  $MC_3$  without a corresponding change in the profit-maximizing price or output level. The importance of this result is that the adoption of more efficient production technologies, which results in lower marginal cost, may not result in significant reductions in the market price of the product. Conversely, an increase in marginal costs may not be immediately passed along to the consumer.

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### **Jednofaktorové modely oceňovania kapitálových aktíva model CAPM**

One of the aims of modern theory of portfolio is providing an instruction, by which the investor could specify his own optimal portfolio in case there are infinite opportunities. Among the processes generating profitability of shares required for setting up the optimal portfolio also belong factor models, which are examining the dependence of shares

profitability on fluctuation of different factors. When we study influence of only one important factor (e.g. GDP) we use one-factor models.

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### **Nominálny verzus reálny výmenný kurz SKK/EUR**

This paper deals with the comparison of quarterly values of nominal and real exchange rate SKK/EUR for the period 1. quarter 1993 – 3. quarter 2003 and tries to point out the influence of the difference between them on the trade balance. From graph 1 it is clear that SKK was in relation to EUR almost during the whole analysed period in the reality overvalued, but only from this point of view it is really hard explicitly to specify if it was good or bad for the trade balance.

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### **Econometrics and Statistics in E-service Quality Management**

Managing customer loyalty and service quality in electronic environments has become a discussed topic. The research is asking the questions what e-service quality is, how one can measure and control e-service loyalty, whether there exist comprehensive methodologies of e-service management. The article outlines some issues of customer perception of an e-service, the factors influencing customer loyalty, the logic of modelling e-service loyalty and QFD as an e-service quality implementation tool.

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## **Metóda bootstrapping v ekonometrii**

Kennedy's [5] definition of bootstrapping says everything: "Bootstrapping is a variant of Monte Carlo in which the error distribution from which the computer draws errors is an artificial distribution with equal probability on all of the residuals from the initial estimation of the model under investigation". This method simply improves the econometric modeling in case of an unknown distribution of random errors.

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## **Model všeobecnej ekonomickej rovnováhy ekonomiky SR**

The paper presents an application of computable general equilibrium model on Slovak economy. In the first part the social accounting matrix (SAM) and its components are described. This matrix is a database for construction of CGE model. Initial equilibrium solution computed by Excel Solver can be used to simulation of changes in parameters and exogenous variables.

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## **Využití hodnotové analýzy při posuzování dceřiných společností**

One of the main issues is evaluating and juxtaposition subsidiary companies in the holding company. Possible solution as I suggest in this article is using value analysis method as one of specific methods of multi criteria decision. It is eventual evaluate more companies on the base of the financial analysis.

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### **Optimalizácia činnosti výrobnéj linky podniku**

Operations research provides many tools for analysis of the firm. In my article I present applicability basic knowledge for solving one of problem typical for the line machine. Using regression analysis I created model which is possible employ for all of the line machine type. I demonstrated efficiency of using optimization methods.

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### **Využití simulačních technik při INPUT-OUTPUT analýze ekonomiky ČR**

Structural input-output analysis is one of the most suitable instruments for analysis of interindustry relationships in economics. In this paper the issues of these models are described in a simple manner. Our finding implies that the results of our simulations can be thought as an illustrative example. We should work with more branches, more detailed data and so on.

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### **K zachycení role sítí v regionálním rozvoji**

The article deals with increasingly important role of the networks in regional development. It is argued that networks and their characteristics can be described with the help of graph theory, which provides us with useful, though not complex instrument for more detailed interpretation and explanation of regional development.

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### **Analýza ekonomickej sily občana**

In this paper I present simple linear models of an indicator called ESO (economic power of citizen) in a closed economy, which offers a view on economic power of ordinary citizen. And finally it seems to be quite interesting to mention that the development of a Slovak economy is directly influenced by the development of inhabitants life level.

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### **Modelovanie príspevkov do fondu dôchodkového zabezpečenia**

The paper presents econometric analysis and forecasting of amounts of payers and revenues to social contribution funds. The model consists of two blocks. First one is macroeconometric and its results are used in second one, that generates four scenarios of future amounts of payers and revenues.

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## **Min-max calibration method for interest rate models and its application to Central European financial markets**

We would like to introduce a two-phase min-max optimization method for calibration of the well known Cox-Ingersoll-Ross interest rate model (CIR). In the first optimization step we determine four CIR parameters by minimizing sum of squares of differences of theoretical CIR yield curve and real market yield curve data. It turns out that the minimum is attained on a one dimensional curve in the four dimensional CIR parameter space. Next we find global maximum of the maximum likelihood function computed over this curve. We compare results of calibration for stable Western Europe markets to those of emerging economies like e.g. Slovakia, Hungary, Czech Republic and Poland.

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