Book of Abstracts

First International Conference Quantitative Methods in Economics

Book of Abstracts: First International Conference Quantitative Methods in Economics

Disclaimer

<u>Technical Edition</u>

Krzysztof Kompa

Roman Pielaszek

<u>Cover</u>

Krzysztof Kompa

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Welcome to Lodz - Promised Land

First International Conference Quantitative Methods in Economics QME 2009 is organized by the Department of Econometrics and Statistics, Faculty of Applied Informatics and Mathematics, Warsaw University of Life Sciences, Poland. The conference QME 2009 is the 10th one organized by the Department but this is the first conference that is organized on an international scale with distinguished members of the Program Committee from worldwide academic communities. Professor Lawrence R. Klein, Nobel Laureate, agreed to be Honorary Chair of the Program Committee of QME2009 and to present a lecture *Long Term Shifts in the Center of Economic Gravity*.

Conference is under auspices of:

• Prof. Barbara Kudrycka the Minister of Science and Higher Education,
• Lodz Voivodship Authority,
• Rector of Warsaw University of Life Sciences,
• Rector of University of Szczecin,
• Polish Financial Supervision Authority KNF,

and with support of

• Bank PKO Bank Polski SA,
• The Warsaw Stock Exchange,
• The Polish Information Processing Society,
• Philippe le Hodey Foundation.

The aim of the conference is to explore issues and discuss problems of application:

• statistical methods including hypotheses testing, multidimensional analysis, dynamic methods and spatial methodology;
• econometric methods i.e. single and multi-equation models, dynamic and financialeconometrics, nonlinear models and time-series analysis;
• artificial intelligence methods;
• optimization methods, also multi-criteria models and dynamic optimization;
• mathematical and data mining methods

to solve problems consisting of:

• analyzing, describing and modeling systems and phenomena,
• verifying hypotheses and theories,
• classification and recognizing objects and cases,
• forecasting and simulations,
• decision making and risk management

in economics and finance considering micro, mezzo and macro scales. Special emphasis is placed on problems connected with investments, financial engineering, capital markets, emerging economies and globalization. The distinguished guests discuss present questions of worldwide economic crises:

1. Prof. Barbara Liberda, Warsaw University, *How Statistics Shows the Crisis*.
2. Prof. Yochanan Shachmorove, The City College of the City University of New York, and Pennsylvania University (USA), *The Financial Crisis and a Forecast on the US Economy*.
3. Dr. Andrzej Raczko, Polish Financial Supervision Authority, *The Global Financial Crises – Lessons for Central Europe*.

Conference participants come from: Belgium, Czech Republic, Germany, Great Britain, Greece, Italy, Poland, Spain, Taiwan and USA.

All sessions take place in Hotel Andel's, localized in XIX'th Century Manufaktura Center in Lodz (Poland), in former "Poznanski's cotton empire" i.e. *Promised Land* - the city's nickname since in XIX century Lodz, the small town, changed into a modern industrial centre. The immigrants came to the *Promised Land* from all over Europe to start a new life and to fulfilled dreams.

Through all the roads (...), that came from the every corner of the world to that "promised land", all the paths (...) were filled with people, hundreds wagons made noise, moving with lighting speed, thousands whistles sounded over travelers heads and thousands of eyes glancing at the darkness with the desire to find that promised land"...

Wladyslaw Reymont, Nobel Laureate in Literature, *"Promised Land"*

We do hope that impression of our city makes you to come back here either on business or as a tourist.

Dorota Witkowska

Krzysztof Kompa

Łódź, JUNE 18, 2009

Organisers

- Dorota Witkowska, Professor - the Chair
- Krzysztof Kompa, PhD - Scientific Secretary

Members

- Bolesław Borkowski, Professor
- Zbigniew Binderman, Professor
- Aleksandra Matuszewska-Janica, PhD
- Mariola Chrzanowska, PhD
- Kesra Nermend, PhD

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Registration and Information - www.science24.com/event/qme2009

Honorary Chair of QME'2009

Prof Lawrence R. Klein, Nobel Laureate

University of Pennsylvania (USA)

Program Committee

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  Warsaw University of Life Science (Poland)
- Prof. Bolesław Borkowski, Warsaw University of Life Science (Poland)
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- Prof. Małgorzata Doman, Poznan University of Economics (Poland)
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- Prof. Yochanan Shachmurove, The City College of The City University of New York, and The University of Pennsylvania (USA)
- Prof. Józef Stawicki, Nicolas Copernicus University in Torun (Poland)
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Programme

Thursday 18.04.2009

13:00 – 20:00 registration in Hotel Andel's Manufaktura
16:00 – 16:30 Conference opening - Chair: Prof. Dorota Witkowska
16:30 – 16:40 technical break

16:40 –18:20 Plenary Session
Chair: Prof. Aleksander Welfe
Corresponding Member of the Polish Academy of Sciences

1. Prof. Lawrence R. Klein Nobel Laureate: *Long Term Shifts in the Center of Economic Gravity*.
2. Prof. Władysław Welfe, Corresponding Member of the Polish Academy of Sciences
   Long-Term Macroeconometric Model for the Polish Economy

18:20 – 19:00 Poster Session A

19:30 Dinner (for registered conference participants)

Friday 19.04.2009

8:00 – 20:00 registration in Hotel Andel's Manufaktura

9:00 – 10:50 Concurrent Sessions

Methodological Questions
Chair: Prof. Aleksander Starsburger

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2. Wojciech Zieliński, *A Nonparametric Confidence Interval for At-Risk-of-Poverty-Rate: an Example of Application*
3. Leszek J. Gadomski, Vasile Glavan, *On the Expected Shortfall and the Harrell-Davis Estimator of the Tail Loss*
4. Marcin Dudziński, Konrad Furmańczyk, *An Application of Copulas in the Value-at-Risk Estimation*

Warsaw Stock Exchange Indexes Analysis
Chair: Prof. Marek Gruszczyński

1. Carmen García Centeno, Román Mínguez Salido, José Mondéjar Jiménez, *Estimation of an Asymmetric Stochastic Volatility Model for the EURO STOXX50 Index Returns and Different Polish Index Returns*

2. Tadeusz Waściński, Ludwik Sobczak, Grzegorz Przekota, A Long- and Short-Term Relationship between Sectoral Indexes and the WIG (Warsaw Stock Exchange Index)
3. Tomasz Wiśniewski, *WIG20short and WIG20lev:new* Warsaw *Stock Exchange Indexes*
4. Krzysztof Kompa, *Causality of Fear Analysis: VIX vs. VWIG20.*

Problems of European Integration
Chair: Prof. Wacława Starzyńska

1. Bolesław Borkowski, Hanna Dudek, Wiesław Szczesny, Food Consumption Convergence within Europe: a Panel Data Analysis
2. Mariusz M. Borawski, *The Analysis of Unemployment Variation Measures in the EU Member States*
3. Krzysztof Karpio, Piotr Łukasiewicz, Arkadiusz J. Orłowski, *Patterns of Food Consumption in European Countries*
4. Jennifer Foo, Dorota Witkowska, *Application of Multidimensional Analysis to Banking Development Evaluation.*

10:50 – 11:30 Plenary Discussion: "Principia Humanistica"
In Memory of Krzysztof de Werszowec Rey and Teresa Marszałkowicz
Moderator: Marguerite Rey

11:30 – 12:00 Coffee break (for registered conference participants)

12:00 – 13:30 Plenary session and panel discussion
Economic Crisis: Present Situation and " a Day After"
Moderator: Patrice le Hodey

1. Prof. Barbara Liberda, Warsaw University, *How Statistics Shows the Crisis.*
2. Prof. Yochanan Shachmorove, The City College of the City University of New York, and Pennsylvania University (USA), *The Financial Crisis and a Forecast on the US Economy.*

13:30 – 14:30 Lunch (for registered conference participants)

15:00 – 16:30 Concurrent Sessions

Various Applications of Quantitative Methods
Chair: Prof. Mirosława Gazińska

1. Waclawa Starzyńska, Justyna Wiktorowicz, *Application of Statistical Methods in Assessment of e-Procurement Development in Poland*
2. Joanna M. Landmesser, *The Evaluation of the Proportional Hazards Model Adequacy Using Residual Diagnostics.*
3. Sylwia D. Grudkowska, Natalia Nehrebecka*, Application of epsilon method to modeling expectations in constructio*
4. Tomasz M. Kolanowski, *Predictive Marketing Mix Modelling in FMCG Packaged Food Category Including Price and Advertising Impact*

Application of Quantitative Methods in Agriculture
Chair: prof. Zbigniew Binderman

1. Karol Kukuła, Jadwiga Bożek, Danuta Bogocz, *Taxonomic Analysis of Areal Structure of Farms in Poland within 2000 - 2007*
2. Lucyna Błażejczyk-Majka, Radosław Kala, *Economic Efficiency of Crop Production in France by DEA, 1989-2006*
3. Stanisław W. Jaworski, *Stochastic Structure of Beef Market Mean Prices in Poland since 2005 to 2008*
4. Stanisław K. Jabłonowski, Andrzej Kluza, *The Multinomial Logit Models' Usefulness to Examine the Relationship between Agricultural Enterprises' Ownership Form and their Economic Results*

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Chair: Prof. Małgorzata Doman

1. Marek Gruszczyński, *Quantitative methods in accounting research*
2. Andrzej Karpio, Dorota Żebrowska-Suchodolska, *The Investigation of Short Term Persistence in the Relative Performance of Equity Mutual Funds Operating on Polish Capital Market.*
3. Mariola Chrzanowska, Dorota Witkowska, Esteban Alfaro, *A Study on the Stability of Ensemble Trees: Example of the Polish Credit Scoring Application.*
4. Bolesław Borkowski, Monika S. Krawiec, *Possibilities of Investing on European Wheat Market with the Use of Chooser Options..*

17:00 – 19:00 City Tour (for registered conference participants)
20:00   Dinner (for registered conference participants)

Saturday 20.04.2009

8:00 – 12:00 registration in Hotel Andel's Manufaktura.

9:00 – 10:50 Current Sessions

Methodological Questions
Chair: Prof. Wojciech Zieliński

1. Elżbieta M. Soszyńska, *Human Capital, Quality of Institutions and Economic Growth - an Econometric Analysis*
2. Jacek Nowak, *Is Multiple Linear Regression The Proper Tool of Modelling a Behavior of Real Systems ?*
3. Zbigniew Binderman, *On Elasticity Operators and their Economical Applications*
4. Aleksander S. Strasburger, Andrzej Zembrzuski, *On Application of Newton's Method for Solving Optimization Problems in the Consumers and Production Theory*

Various Applications of Quantitative Methods
Chair: Prof. Paolo Gajo

1. Leszek Kuchar, *The Weather Generator as a Tool for Modelling Economical Impact of Crop Production on Future Climate*
2. Alina Jędrzejczak, Jan Kubacki, *Application of EBLUP Estimation to the Analysis of Small Areas on the Basis of Polish Household Budget Survey*
3. Joanna M. Landmesser, *Modeling the Dependence between the Duration of Time a Woman Remains Childless and the Duration of Employment using Bivariate Copula Models*
4. Kesra Nermend, *Normalization of Variables with Outliers*

Capital Market Analysis
Chair: Prof. Vagis Samathrakis

1. Tadeusz Waściński, Grzegorz Przekota, Ludwik Sobczak, *Impact of Global Oil Prices on the PKN Orlen Stock Price*
2. Urszula A. Picewicz, Ewa Tatarczak, *The Efficiency of Warsaw Stock Exchange Based on the WIG Indexes*
3. Grzegorz Koszela, Piotr Łukasiewicz, *Problems of Opportunity Set in Multi-Element Portfolio*
4. Dorota Żebrowska-Suchodolska, Dorota Witkowska, *Momentum and Winner-Loser Strategies: Evidence for the Warsaw Stock Exchange*

10:50 – 11:30 Poster Session B
11:30 – 12:00 Coffee break (for registered conference participants)

12:00 – 13:30 Plenary Session
Chair: Waldemar Tarczyński

1. Prof. Jose-María Montero Lorenzo, Castila La Mancha Univeristy (Hiszpania), *How to Include Environmental Quality Kriged Indexes in Hedonic Housing Price Models.*
2. Prof. Yochanan Shachmurove, The City College of the City University of New York, and Pennsylvania University (USA), *Who Benefits From the Opening of a Free Trade Zone*?
3. Dr. Andrzej Raczko, Polish Financial Supervision Authority, *The Global Financial Crises – Lessons for Central Europe*.

13:30 – 13:40 conference closing - Chair: Prof. Bolesław Borkowski
13.45 – Lunch (for registered conference participants)

Frame programme

Thursday, 18 June

REGISTRATION

13:00 - 20:00
Thursday afternoon, 18 June, 13:00
QME'2009 Conference Desk - Hotel Andel's Manufaktura

CONFERENCE OPENING
Thursday afternoon, 18 June, 16:00
BALLROOM
Chair: Prof. Dorota Witkowska

TECHNICAL BREAK
Thursday afternoon, 18 June, 16:30

PLENARY SESSION
Thursday afternoon, 18 June, 16:40
BALLROOM
Chair: Prof. Aleksander Welfe, Corresp. Member of Polish Academy of Sciences

POSTER SESSION A
Thursday evening, 18 June, 18:20
CONFERENCE FOIE

DINNER

for registrated participants only
Thursday evening, 18 June, 19:30

Friday, 19 June

REGISTRATION

8:00 - 20:00
Friday morning, 19 June, 8:00
QME'2009 Conference Desk - Hotel Andel's Manufaktura

CONCURRENT SESSIONS
Friday morning, 19 June, 9:00

PLENARY DISCUSSION
Friday morning, 19 June, 10:50
Chair: Marguerite Rey

COFFEE BREAK
for registrated participants only
Friday morning, 19 June, 11:30

PLENARY SESSION and PANEL DISCUSSION
Friday afternoon, 19 June, 12:00
Chair: Patrice le Hodey

LUNCH
for registrated participants only
Friday afternoon, 19 June, 13:30

CONCURRENT SESSIONS
Friday afternoon, 19 June, 15:00

CITY TOUR - for registrated participants only
Friday afternoon, 19 June, 17:00

DINNER
ANATEWKA Restaurant - for registrated participants only
Friday evening, 19 June, 20:00

Saturday, 20 June

REGISTRATION
8:00 - 12:00
Saturday morning, 20 June, 8:00
QME'2009 Conference Desk - Hotel Andel's Manufaktura

CONCURRENT SESSIONS
Saturday morning, 20 June, 9:00

POSTER SESSION B
Saturday morning, 20 June, 10:50

COFFEE BREAK

for registrated participants only
Saturday morning, 20 June, 11:30

PLENARY SESSION
Saturday afternoon, 20 June, 12:00
Chair: Prof. Waldemar Tarczyński

CONFERENCE CLOSING
Saturday afternoon, 20 June, 13:30
Chair: Prof. Bolesław Borkowski

LUNCH

for registrated participants only
Saturday afternoon, 20 June, 13:40

Symposia

Plenary session

Programme

Thursday, 18 June

REGISTRATION
Thursday afternoon, 18 June, 13:00
QME'2009 Conference Desk - Hotel Andel's Manufaktura

CONFERENCE OPENING
Thursday afternoon, 18 June, 16:00
BALLROOM
Chair: Prof. Dorota Witkowska

Technical break
Thursday afternoon, 18 June, 16:30

PLENARY SESSION

Nobel Laureate Video-conference
Thursday afternoon, 18 June, 16:40
BALLROOM
Chair: Prof. Aleksander Welfe, Corresp. Member of Polish Academy of Sciences

16:40	Invited oral

Long Term Shifts in the Center of Economic Gravity

Lawrence R. Klein

University of Pennsylvania (PENN), 3231 Walnut St., Philadelphia 19104, United States

e-mail: lrk@econ.upenn.edu

17:45	Invited oral

Long-Term macroeconometric model for the Polish Economy

Władysław Welfe

Uniwersytet Łódzki, Wydział Ekonomiczno-Socjologiczny, P.O.W. 3/5, Łódź 90-255, Poland

e-mail: emfiws@uni.lodz.pl

Development of market economies towards the economies based on knowledge implies the con-

struction of new long-term macroeconometric models. The structure and use of the long-term W8D model for Poland was shown. This is a complete model that explains not only production and the factors its growth but also final demand allowing for studies of potential disequilibria. It is closed by system of equations explaining prices, wages and financial flows. The simulation version is of medium-size including 235 equations, of which 111 are stochastic. They are mostly non-linear, dynamic and compose a simultaneous system.

The investment function estimates are shown. The notion of extended production function and total factor productivity and their explanation are discussed in detail showing the impacts of knowledge capital, including R&D and human capital.

The ex-ante multiplier analysis is used to study the economic mechanisms, especially the role of investment in creating final demand and potential output. Its results are used in construction of long-term growth scenarios of the Polish economy up to the year 2030, based on model simulations.

JEL C51, C52, E17, E22, 011, 040,047

DINNER

for registered participants only
Thursday evening, 18 June, 19:30

Friday, 19 June

REGISTRATION
Friday morning, 19 June, 8:00
QME'2009 Conference Desk - Hotel Andel's Manufaktura

Principia Humanistica

In memory of Krzysztof de Werszowec Rey and Teresa Marszałkowicz
Friday morning, 19 June, 10:50
SATIN 2
Chair: Marguerite le Hodey Rey

COFFEE

for registered participants only
Friday morning, 19 June, 11:30

PLENARY SESSION and PANEL DISCUSSION

Economic Crisis: Present Situation and " a Day After"
Friday afternoon, 19 June, 12:00
SATIN 2
Chair: Mr. Patrice le Hodey

12:00	Invited oral

How Statistics Shows the Crisis

Zofia Barbara Liberda

Warsaw University, Faculty of Economics (UW), Dluga St. 44/50, Warsaw 00-241, Poland

e-mail: barbara.liberda@uw.edu.pl

12:20	Invited oral

The Financial Crisis and a Forecast on the US Economy

Yochanan Shachmurove

The City College of The City University of new York (CCNY), 160 Convent Avenue New York, NY 10031, New York, NY 10031, United States

e-mail: yochanan@econ.upenn.edu

LUNCH

for registered participants only
Friday afternoon, 19 June, 13:30

CONCURRENT SESSIONS
Friday afternoon, 19 June, 15:00

City Tour - for registered participants only
Friday afternoon, 19 June, 17:00

Saturday, 20 June

REGISTRATION
Saturday morning, 20 June, 8:00
QME'2009 Conference Desk - Hotel Andel's Manufaktura

CONCURRENT SESSIONS
Saturday morning, 20 June, 9:00

COFFEE

for registered participants only
Saturday morning, 20 June, 11:30

PLENARY SESSION
Saturday afternoon, 20 June, 12:00
SATIN 2
Chair: Prof. Waldemar Tarczyński

12:00	Invited oral

How to include environmental quality kriged indexes in hedonic housing price models

Jose-María Montero Lorenzo, Gema Fernández-Avilés Calderón

University of Castilla-La Mancha, Cobertizo de S. Pedro Martir, S/N, Toledo 45071, Spain

e-mail: jose.mlorenzo@uclm.es

Hedonic house price models that incorporate environmental variables are becoming more and more popular, because a substantial body of research empirically confirms that consumers are willing to pay for environmental goods. The problem that arises when environmental information is included in such kind of models is that there is a mismatch between the spatial 'support' for the environmental measured variables and the property prices. In the literature, the usual solution to this problem is the elaboration of an environmental quality index (EQI), and then interpolating it (preferably kriging) in the locations where house prices are available and pollutants have not been measured. But in this paper it is proposed the inverse procedure, i.e. to interpolate (preferably cokriging) the environmental variables and, subsequently, elaborate an EQI, because the estimation variance is lesser. As far as we know, there is no research following this proposal. Both options are empirically compared in Madrid City (Spain).

12:30	Invited oral

Who Benefits From the Opening of a Free Trade Zone

Yochanan Shachmurove

The City College of The City University of new York (CCNY), 160 Convent Avenue New York, NY 10031, New York, NY 10031, United States

e-mail: yochanan@econ.upenn.edu

13:00	Invited oral

The Global Financial Crises - Lessons for Central Europe

Andrzej Raczko

Polish Financial Supervision Authority (KNF), Pl. Powstańców Warszawy 1, Warszawa 00-950, Poland

e-mail: krzysztof.kompa@gmail.com

CONFERENCE CLOSING
Saturday afternoon, 20 June, 13:30
SATIN2
Chair: Prof. Bolesław Borkowski

LUNCH

for registered participants only
Saturday afternoon, 20 June, 13:45

Sessions A

Programme

Friday, 19 June

9:00	Oral

Forecasting the end-of-the-day realized variance

Małgorzata Doman[1], Ryszard Doman[2]

1. *Poznań University of Economics (PUE), Al. Niepodległości 10, Poznań 61-875, Poland*
2. *Adam Mickiewicz University, Faculty of Mathematics and Computer Science, Umultowska 87, Poznań 61-614, Poland*

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A large package of information is being reflected in stock prices during a short period after opening. Moreover, the start-of-the-day (morning) volatility has a strong impact on the price variability during all the day. In this connection, the question is whether the morning realized variance calculated as the sum of morning intraday returns can be useful in forecasting the daily realized variance (end-of-the-day volatility).

In the paper, we apply three different methods of forecasting the daily realized variance for stocks quoted on the Warsaw Stock Exchange, including the one based on calculation of the forecast as a linear function of the morning realized variance with time varying coefficients estimated by using the diagonal BEKK model. Our findings show that the morning realized variance provides valuable information that can be used in forecasting the daily realized variance.

9:30	Oral

A Nonparametric Confidence Interval for At-Risk-of-Poverty-Rate: an Example of Application

Wojciech Zieliński

Warsaw University of Life Sciences (SGGW), Nowoursynowska 159, Warszawa 02-787, Poland
e-mail: wojtek.zielinski@statystyka.info

In the European Commision Eurostat document Doc. IPSE/65/04/EN page 11, the "*at-*

risk-of-poverty rate" (*ARPR*) is defined as a percent of population with income smaller than 60% of population median. Zieliński (2008, *A nonparametric confidence interval for At-Risk-of-Poverty-Rate*) proposed a distribution-free confidence interval for *ARPR*. In the paper, an example of application of the constructed confidence interval is shown.

10:00	Oral

On the Expected Shortfall and the Harrell-Davis Estimator of the Tail Loss

Leszek J. Gadomski[1], Vasile Glavan[1,2]

1. *The College of Finance and Management (WSFIZ), Sokołowska, 172, Siedlce 08-110, Poland*
2. *Departament of Mathematics, University of Podlasie (AP), 3-ego Maja, 54, Siedlce 08-110, Poland*

e-mail: vglavan@ap.siedlce.pl

Most investment banks calculate daily 95% or 99% confidence interval VaR figures. To do this they look at a discrete distribution of simulated revenues. Some methods to estimate VaR relay on a single historic observation date and therefore can exhibit high variability. This both reduces its efficiency and provides little information about the distribution of losses around the tail.

The process of risk management requires not only estimating the VaR but also examining the sensitivity of its positions comprising the portfolio. Taking a single order statistic may be inadequate for this purpose. Computing a weighted average of the dates in the tail will produce more robust risk analysis.

We discuss the use of the Expected Shortfall under certain distribution assumptions and the Harrell-Davis estimator as alternative approaches to estimating VaR and examine their reliability for risk management purposes.

10:25	Oral

An application of copulas in the Value-at-Risk estimation

Marcin Dudziński, Konrad Furmańczyk

Warsaw Agricultural University (SGGW), Nowoursynowska 166, Warszawa 02-787, Poland

e-mail: marcin_dudzinski@sggw.pl

Value-at-Risk (VaR) is one of the most widely used risk measures in the field of risk management. It defines a change in value of a portfolio of financial assets as the minimum amount of money that one could expect to lose with a given probability over a specific time horizon. VaR of a portfolio is determined by the multivariate distribution of risk factors increments. This distribution may be modeled by copulas. In our paper, we show some ideas of the estimation of VaR by using of the copula approach. We apply these ideas to calculate VaR for a portfolio composed of the stock prices of Boeing Co. and General Motors Corp., available from the Dow Jones Industrial Average (DJIA).

TECHNICAL BREAK
Friday morning, 19 June, 10:50

COFFEE

SATIN2

Friday morning, 19 June, 11:30

Application of Quantitative Methods in Agriculture

Friday afternoon, 19 June, 15:00

SATIN2

Chair: Prof. Zbigniew Binderman

15:00	Oral

Taxonomic Analysis of Areal Structure of Farms in Poland within 2000 - 2007

Karol Kukuła, Jadwiga Bożek, Danuta Bogocz

Agricultural University (AR), al. Mickiewicza 21, Kraków 31103, Poland

e-mail: rzsm@ar.krakow.pl

WSTĘP

Prezentowana praca jest kontynuacją wcześniejszych badań autorów dotyczących struktury obszarowej gospodarstw rolnych w Polsce, a w szczególności jej przestrzennego zróżnicowania (1), (2), (3), (4), (5), (8). W pracy przedstawiono wyniki grupowania województw o podobnej strukturze obszarowej gospodarstw rolnych dla danych z roku 2000 i 2007. Przyjęto strukturę zgodną z klasyfikacją gospodarstw w UE: bardzo małe – do 5 ha, małe – 5-10 ha, średnie – małe – 10-20 ha, średnie duże – 20-30 ha, duże 30-50 ha i bardzo duże – powyżej 50 ha. Otrzymane wyniki dają obraz zróżnicowania regionalnego struktury obszarowej rolnictwa w Polsce w okresie 2000-2007, ukazują przemiany w układzie przestrzennym tej struktury a także umożliwiają określenie dynamiki i kierunków przemian. Są również podstawą do oceny, czy różnice regionalne w strukturze agrarnej zwiększają się, czy zmniejszają.

METODYKA BADAŃ

Do grupowania województw zastosowano metodę eliminacji wektorów (6) i metodę najlepszego wyboru (10). Jako miarę zróżnicowania struktur przyjęto miarę zaproponowaną przez Kukułę (7).

WYNIKI BADAŃ

W Polsce w 2007 roku można wyróżnić 4 grupy województw charakteryzujących się podobieństwem struktury obszarowej gospodarstw rolnych:

Grupa I: łódzkie, mazowieckie, wielkopolskie, kujawsko-pomorskie, lubuskie, dolnośląskie, opolskie, pomorskie;

Grupa II: małopolskie, podkarpackie, śląskie, świętokrzyskie;

Grupa III: podlaskie, zachodniopomorskie, warmińsko-mazurskie;

Grupa IV: lubelskie.

Strukturę obszarową gospodarstw w wyodrębnionych grupach przedstawia tabela 1.

Tabela 1. Struktura obszarowa gospodarstw w wyodrębnionych grupach województw w roku 2007.

Grupy województw	Gospodarstwa o powierzchni UR w ha					
	1-5	5-10	10-20	20-30	30-50	Powyżej 50
I	47,6	23,9	17,8	5	3,3	2,3
II	78,5	15,8	4,3	0,8	0,4	0,3
III	34,5	19,8	24,7	10	6,6	4,3
IV	55,6	27,7	12,4	2,5	1,3	0,5

Źródło: obliczenia własne.

Taki podział utrzymuje się od roku 2000 (z wyjątkiem jednego woj. zachodniopomorskiego, które w badanym okresie na skutek istotnych zmian w strukturze zmieniło przynależność grupową).

Wyniki grupowania obiektów zależą od konstrukcji struktury, co widać przy porównaniu wyników delimitacji struktury obszarowej gospodarstw rolnych w Polsce według klasyfikacji UE oraz GUS.

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15:30	Oral

Economic efficiency of crop production in France by DEA, 1989-2006

Lucyna Błażejczyk-Majka, Radosław Kala

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In this paper the economical efficiency of crop production in French agriculture is analyzed. The investigations were conducted using data envelopment analysis oriented on inputs saving. It is based on panel data covering the years 1989-2006 and concerns average farms on the regional level. As a result some dependence of economical efficiency on the proportions of major directions of crop production was observed and the effects of successive CAP reforms on efficiency changes are indicated.

15:50	Oral

The multinomial logit models' usefulness to examine the relationship between agricultural enterprises' ownership form and their economic results

Stanisław K. Jabłonowski, Andrzej Kluza

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Beginning from the ranking of 1994, the magazine "Nowe Życie Gospodarcze" has been published "lists of 300". These lists are the economical data of the best 300 agricultural enterprises selected from the groups of these enterprises which have decided to attend in the rankings. The makers of these lists have taken into account enterprises which have come into being from Exchequer's property in nineties of XX century, after political system transformation in Poland. Successive years are considered separately. The enterprises have several form of ownership. In the paper a problem of taking advantage of the multinomial logit models to study the relation between agricultural enterprises' ownership form and some economic characteristics, describing economic effectiveness, has been taken up.

16:10	Oral

Stochastic structure of beef market mean prices in Poland since 2005 to 2008

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The stochastic structure of market prices in Poland is investigated in the work. It is shown that the prices can be modeled by common trends and common cycles. The equations for common trends and cycles are given. Strong outliers are detected.

Saturday, 20 June

METHODOLOGICAL QUESTIONS
Saturday morning, 20 June, 9:00
SATIN2
Chair: Prof. Wojciech Zieliński

9:00	Oral

Human capital, quality of institutions and economic growth - an econometric analysis

Elżbieta M. Soszyńska

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While theories suggested a strong causal link from education to growth on the macroeconomic level, the empirical evidence has not been conclusive. This paper especially focuses on two explanatory factors, which author thinks as the most important between others. First, the distribution of education as a complex issue, which interacts with educational assets. Second, the impact of education on growth is greatly affected by quality of institutions. The main hypothesis of this paper is: controlling for education distribution leads to positive and significant effects of average education on the growth rate of real GDP per capita, while failure to do so leads to insignificant and even negative effects of average education. The same is true, when we control for quality of institutions and try not to distort market mechanism.

Using cross-country data from 1990 to 2004 and panel data from 1970 to 2004 the paper investigates the relationship between education, quality of institutions, some characteristics of market functioning and economic growth and contains the discussion of applied econometric methods.

9:30	Oral

On elasticity operators and their economical applications

Zbigniew Binderman

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In present paper, a new definition of elasticity operators in algebras with right invertible operators is proposed. The definition uses logarithmic and antilogarithmic mappings of algebraic analysis **[1].** A general solution of an equation and a unique solution of an initial boundary values problem

with an elasticity operator are established. Moreover, the results can be applied to economics in order to find a function if elasticity of this function is given.

9:50	Oral

On application of Newton's method for solving optimization problems in the consumers and production theory

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The aim of the paper is to test possibility of an application of the Newton's approximation method to obtain solutions of classical problems in mathematical economics - determination of the demand function in the consumers theory and the demand function for production factors in the theory of the firm. As is well known, in most cases these functions are given implicitely as solutions of an optimization problem. The resulting implict relations only seldom can be resolved to yield a closed explicit form of solutions, what necessitates in use of approximation procedures to obtain a deeper insight into the nature of the solutions. We present here some results on computing these functions by means of the (multi-dimensional) Newton's method as well as discuss the questions concerning the speed of convergence of the approximating sequence.

10:20	Oral

Is Multiple Linear Regression The Proper Tool of Modelling a Behaviour of Real Systems ?

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Methodological assumption that multiple linear regression is an adequate tool of modelling the behaviour of real systems is checked. To do this the experiment is organised on the basis of simple "real" system repre-sented as finite discrete automaton. Main result is that in situation of "black box" modelling the quality of approximation of output variables with linear regressions (from several samples and under different conditions) does not fulfil any of criterions of feasible approximation of systems behaviour.

SESSION SUMMARY
Saturday morning, 20 June, 10:40

Sessions B

Programme

Friday, 19 June

Warsaw Stock Exchange Indexes Analysis
Friday morning, 19 June, 9:00
COTTON1
Chair: Prof. Marek Gruszczyński

9:00	Oral

Estimation of an Asymmetric Stochastic Volatility Model for the EURO STOXX50 index returns and different Polish index returns.

Carmen García Centeno, Román Mínguez Salido, José Mondéjar Jiménez

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All the financial time series analyzed in this paper show the same stilyzed facts. The threshold asymmetric stochastic volatility (TA-ARSV) model is able to reproduce these stilyzed facts, such as, the daily returns are not correlated but the autocorrelation function of the squared returns presents a slow decreasing. The volatility behaviour is very important in the Stock Market and the TA-ARSV model is able to explain the dynamic and asymmetric answer of the volatility when there are shocks of different sign (leverage effect). The objective of this paper is to detect the leverage effect in the different stock index returns: the EURO STOXX50 and four polish indexes.

9:30	Oral

Impact of global oil prices on the PKN Orlen stock price /*

Tadeusz Waściński, Grzegorz Przekota, Ludwik Sobczak

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The main problem facing investors working with fundamental analysis is a relationship between raw material (fuel) prices and stock prices of companies using a given material. Quite popular hypothesis states that stock prices of fuel companies are to a large extent related to raw materials prices . and that increases of raw materials prices on global stock markets are conducive to an upward trend of fuel companies stock listings while a drop in these prices contributes to decline of such listings . Here, we make an attempt to verify this hypothesis basing on the example of the PKNOrlen stock price and crude oil prices in the ARA market.

10:00	Oral

WIG20short and WIG20lev:new Warsaw Stock Exchange Indexes

Tomasz Wiśniewski

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Zmiana koniunktury zachodząca na rynku kapitałowym w ostatnich latach prowadzi do powstawania wskaźników rynku kapitałowego, a zarazem wskaźników opisu nowych instrumentów finansowych bazujących na tych wskaźnikach, zwiększających możliwości inwestycyjne. Do grupy tej należy zaliczyć obliczane przez największe giełdy na świecie tzw. indeksy strategii (*strategy indices*).

Indeksy strategii, to wskaźniki giełdowe pozwalające na budowę portfeli inwestycyjnych na ściśle określonych założeniach. Wśród nich należy wyróżnić indeksy typu short i leverage. Giełda Papierów Wartościowych w Warszawie w maja 2009 roku rozpoczęła publikację dwóch nowych indeksów WIG20short i WIG20lev. Indeks WIG20short stanowi odwrotność indeksu WIG20 i pozwala na wycenę inwestycji w przypadku krótkiej sprzedaży tj. wzrost indeksu WIG20 o 10 punktów powoduje spadek indeksu WIG20short także o 10 punktów. Indeks WIG20lev prezentuje wartości WIG20 o zwiększonej amplitudzie i jest podstawą do oceny dźwigni finansowej tj. wzrost WIG20 o 10 punktów powoduje wzrost indeksu WIG20lev o 20 punktów.

Monografia prezentuje metodykę obliczania nowych indeksów strategii Giełdy Papierów Wartościowych, ich praktyczne wykorzystanie oraz analizę zależności z indeksem bazowym WIG20.

10:25	Oral

Causality of fear analysis: VIX vs. VWIG20

Krzysztof Kompa

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Problems of volatility of financial markets has been always considered. Launched in 1989 volatility indexes are getting more and more popular investment supporting instruments in last few years. Volatility indexes can be used as a market volatility and risk measures. Volatility indexes are useful as market trend measures also.

Volatility has become especially important since July 2007 when the essential decrease of stock prices and increase of volatility were observed at stock exchanges all over the world. Volatility indexes are often called "fear indexes" since they inform about the cost of the portfolio value protection.

The attempt to evaluate the hypothetical volatility index for the Warsaw Stock Exchange (WSE) –

VIW20 is made by [Ślepaczuk, Zakrzewski, 2007], applying modified methodology of VIX calculation [VIX White Paper, 2003]. They used tick data for VIW20 calculation but, since WSE is not liquid market, the algorithm requires calibration. In our research, employing VIW20 methodology completed by [VIX White Paper, 2009], we calculate volatility index "VWIG20" [Kompa, Wiśniewski, 2009] on the bases of daily quotations [Kompa, Kawęcka, 2009] .

The aim of the research is causality analysis of the investors, acting on the different markets, behavior. Therefore the investigation covers time series of VIX evaluated on the basis of S&P500 and VWIG20 – the theoretical index of the golden companies quoted at the Warsaw Stock Exchange – WIG20. The research regards daily quotation in 2007-2009 and it is conducted for daily rates of return.

Zagadnienia związane z badaniem zmienności rynków finansowych są w centrum uwagi od zawsze. Nabrały jednak szczególnego znaczenia po lipcu 2007, od chwili gdy giełdy światowe notują istotne spadki wartości aktywów i zasadniczy wzrost ich zmienności. Indeksy zmienności, zwane często „indeksami strachu", oznaczają koszt zabezpieczenia portfeli wykorzystujących kompozycje indeksowe na opcjach na te indeksy i dobrze oddają zachowania inwestorów.

Indeksy zmienności są kwotowane na większości płynnych rynków światowych stanowiąc dobrą bazę do zarządzania ryzykiem portfeli indeksowych. Giełda Papirów Wartościowych w Warszawie nie publikuje indeksu zmienności dla swoich indeksów rynkowych, co jest konsekwencją zarówno skali rynku opcji w Warszawie, jak i małej aktywności tego rynku. Gdyby jednak takim indeksem dysponować, to możnaby zbadać relacje przyczynowe – przyczynowość w sensie Grangera – między zachowaniami inwestorów na różnych rynkach finansowych.

Próbę obliczania hipotetycznego indeksu zmienności dla GPW (VIW20) podjęto w pracy [Ślepaczuk, Zakrzewski, 2007] wykorzystując zmodyfikowaną metodologię obliczeń indeksu VIX [VIX White Paper, 2003]. Przedstawiony tam algorytm obliczeń bazuje na tikowych danych transakcyjnych i wymaga istotnych kalibracji w trakcie notowań ze względu na małe obroty rynku w Warszawie.

W niniejszej pracy, korzystając z proponowanej metodologii obliczeń VIW20, uzupełnionej o najnowszy protokół [VIX White Paper, 2009] obliczamy VWIG20 [Kompa, Wiśniewski, 2009] na danych dziennych, rezygnując z minutowego pomiaru czasu. Tak obliczone szeregi czasowe hipotetycznego indeksu zmienności przetwarzamy (ze względu na niestacjonarność) do postaci stóp zwrotu, na których prowadzimy badania przyczynowości [Kompa, Kawęcka, 2009] .

Badaniami objęto szeregi notowań indeksu VIX, obliczanego na podstawie indeksu S&P500 oraz VWIG20, hipotetycznego indeksu GPW, obliczanego na podstawie indeksu największych spółek WIG20 za lata 2007-2009 roku.

BREAK
Friday morning, 19 June, 10:50

Financial Market Analysis
Friday afternoon, 19 June, 15:00
COTTON1
Chair: Prof. Małgorzata Doman

15:00	Oral

Quantitative methods in accounting research

Marek Gruszczyński

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Quantitative methods are in frequent use in modern accounting research. The evidence may be found e.g. in the journals like "Journal of Accounting Research", "European Accounting Review", "Review of Quantitative Finance and Accounting" or in the *Accounting Research Network* in SS-RN base. Paper presents a brief survey of research areas and statistical-econometric approaches in accounting research. Particular reference goes to research on corporate disclosure. Methodological component of the paper includes remarks on the use of binary response models with choice-based and matched samples as well as comments on the sample selection approaches.

15:30	Oral

The investigation of short term persistence in the relative performance of equity mutual funds operating on polish capital market

Andrzej Karpio[1], Dorota Żebrowska-Suchodolska[1,2]

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The authors investigate the performance of equity mutual funds from 2003 to 2008. The whole interval is divided into 3-month non overlapping periods. In each of them alpha coefficients of mutual fund characteristic lines have been found. Alphas are basis of the three methods describing relation between past and future performance of mutual funds. The first of them uses regression but the second and third are based on correlation, namely Spearman rank correlation coefficient and contingency table. Presented methods of investigation the persistence in the relative performance of equity mutual funds allows the authors to answer the question about effectiveness of portfolio's managing and the skill of managers. The conclusions refer to whole market of equity mutual funds but not to individual mutual fund.

15:50	Oral

A Study on the Stability of Ensemble Trees: Example of the Polish Credit Scoring Application

Mariola Chrzanowska[1], Dorota Witkowska[1], Esteban Alfaro[2]

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Most studies in credit scoring use balanced samples which contain the same proportion of

credible and non credible applicants. However, this is not a true distribution in the population, because the proportion of credible clients is quite higher than the proportion of non credible ones.

The aim of the paper is to study the effect of the sample structure on the performance of ensemble classification trees in discriminating of the individual borrowers into the groups of creditworthy or non-creditworthy clients.

Aggregated classification trees are constructed employing two ensemble methods: Adaboost and Bagging. The research is conducted employing actual data regarding the individual borrowers that got a mortgage credit in one of the commercial banks that operate in Poland.

16:10	Oral

Possibilities of investing on European wheat market with the use of chooser options

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The paper here presents the econometric analysis of interrelationships of wheat prices in Poland and other important EU producers from 2004 through 2008. The first stage of research examined integration of considered markets by the use of ADF and KPSS tests. To study the cointegration we used the Johansen's method. Then for cointegrated time series we estimated model with Error Correction Mechanism – ECM. We also considered possibilities of applying derivatives, used within the EU, to reduce risk on the Polish wheat market. We decided to test the chooser options as they may be useful for inexperienced investors who are uncertain about the direction of the market and do not know if they should buy a call or a put option. We focused on Poland, Germany and France, because econometric analysis presented in the paper revealed cointegration of wheat prices in these countries. The research results proved that even though the choosers options were more expensive than analogous vanilla options, it was possible to gain profits from their application on the wheat markets in considered European countries.

SESSION SUMMARY
Friday afternoon, 19 June, 16:30

Saturday, 20 June

Capital Market Analysis
Saturday morning, 20 June, 9:00
COTTON1
Chair: Prof. Vagis Samathrakis

9:00	Oral

A Long- and short-term relationship between sectoral indexes and the WIG (Warsaw Stock Exchange Index)

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Important bilateral interdependencies do exist between an overall economic situation and that prevailing in stock markets. Impulses from stock exchange are being transmitted to real economy as effects of relative changes in the price of capital and income effects [1]. Relative changes in the price of capital may result directly from a change in the price of funds acquisition in the stock market and indirectly from the change in credit worthiness of listed companies, while income effects are connected to the stock market impact on consumption level [2]. Of equal strength are impulses from the real economy into the stock and securities market transmitted as responses of stock market players to publications of financial results of listed companies, macroeconomic characteristics [3] such as inflation rate, GDP, interest rates, exchange rate, budgetary deficit, public sector debt or unemployment rate etc. on the ongoing economic, fiscal, monetary, budgetary or industrial policy [4]. In this respect investors expectations regarding companies' results, macroeconomic situation or directions of economic policy pursued by the central government are of importance. These expectations are already being discounted much earlier in stock prices and thus stock indices should be ahead of macroeconomic changes. Changes of the stock exchange indices being in the view of the above an effect of an inflow/outflow of stock market investments turn into a signal for the increase /decrease of real investment [5].

[1] J. Fundowicz, B. Wyżnikiewicz: Fluktuacje koniunktury gospodarczej i giełdowej – perspektywa makroekonomiczna [w:] Mocek M. (edit): Diagnozowanie i prognozowanie koniunktury gospodarczej w Polsce. Akademia Ekonomiczna w Poznaniu, Katedra Badań Marketingowych, Poznań 2006

[2] Ibidem

[3] Ibidem

[4] K. Jajuga: Podstawy inwestowania na giełdzie papierów wartościowych. Oficjalnie Wydawnictwo Giełdy papierów Wartościowych w Warszawie S. A., Warszawa 2006, pp. 102 – 121, 124

[5] J. Fundowicz: Koniunktura giełdowa a koniunktura makroekonomiczna [w:] Piech K., Pangsy–Kania S. (edit.): Diagnozowanie koniunktury gospodarczej w Polsce, Dom Wydawniczy Elipsa, Warszawa 2003, p. 144.

9:30	Oral

The efficiency of Warsaw Stock Exchange based on the WIG Indexes

Urszula A. Picewicz[1], Ewa Tatarczak[2]

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An efficient capital market is one in which security prices adjust rapidly to the arrival of new information and, therefore, the current prices of securities reflect all information about the security. The question of whether capital markets are efficient is one of the most controversial issues in investment research. The overall evidence on capital market efficiency is best described as mixed; some studies support the hypothesis, and others do not. Study presented in this article tries to answer the question whether Polish Capital Market supports the weak form of efficient market hypothesis. The analysis is based on daily observations of WIG indexes values
in the 2003–2008 period.

10:00	Oral

Problems of opportunity set in multi-element portfolio.

Grzegorz Koszela, Piotr Łukasiewicz

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Identification of the curve of interdependence between risk and return in two elements portfolio as hyperbole with vertex in point corresponding to minimal risk of this portfolio creates a question about positioning of this point for the multi-elements portfolio (commence from triple elements portfolio). When describing the multi-elements portfolio, as its geometrical illustration – a drawing is presented which contains of form of definite shape which is so called opportunity set, suggesting that this area consist of all possible risk combination and return of such portfolio. In meantime it appears that those areas may possibly adopt different shapes, as well as the point which is beyond geometric interpretation for multi-elements portfolio with minimal risk could possible be positioned beyond this area. Such a situation can cause unfortunate naming opportunity set as forms formed by hyperboles in system of coordinates risk - return.

10:25	Invited oral

Momentum and winner-loser strategies: Evidence for the Warsaw Stock Exchange

Dorota Żebrowska-Suchodolska[2], Dorota Witkowska[1]

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The aim of the paper is verifying the appearance of the momentum effect and winner-loser effect for the separate sectors of economy. The research are provided for the sector subindexes from the WIG index, calculated by the WSE, and sector subindexes belonging to WIG20 and MIDWIG indexes calculated for the investigation. The research covers the period from 3.10.1994 10.10.2008, that is divided into subperiods where the break points are crucial for the Warsaw Stock Exchange events. In this way 22 subsamples are distinguished. The efficiency of momentum strategy was checked for portfolios with one subperiod duration. In case of the index, for which momentum strategy at considered subperiods didn't occur, efficiency was verified also for 3, 6, 9 and 12

months. The winner-loser strategy was tested for returns based on 2 and 3 subperiods and holding for next 2 and 3 subperiods.

SESSION SUMMARY
Saturday morning, 20 June, 11:30

Sessions C

Programme

Friday, 19 June

9:00	Oral

Food consumption convergence within Europe: a panel data analysis

Bolesław Borkowski, Hanna Dudek, Wiesław Szczesny

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The research referred to changes in structures and profiles of consumption in enlarged European Union. Data relating to annual main food products between 1961–2003 was collected and analyzed. Great divergence in the structures of consumption was found, yet the profiles remained constant. In this article it is also investigated the convergence of food consumption per capita in EU during the 1961–2003 period by applying beta-convergence methodology.

9:30	Oral

The Analysis of Unemployment Variation Measures in the EU Member States

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The issue of unemployment may be examined from many aspects. It is not only unemployment rate itself, but also the distribution of unemployment in a given country that are of major importance. To conduct such research, it is necessary to analyze measures of unemployment variation. The article presents unemployment variation measures together with their unique character.

10:00	Oral

Patterns of food consumption in European countries

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Based on the FAO data for 1993 and 2003 changes of food consumption in Europe have been studied. One observed directed changes in the level of consumption which was related to the existence of consumption patterns. Method of evaluating the consumption patterns for group of products has been proposed.

10:25	Oral

Application of Multidimensional Analysis to Banking Development Evaluation

Dorota Witkowska, Jennifer P. Foo

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Abstract: Banking systems in transition countries in Europe have undergone almost two decades of market transformation. This paper analyzes the development and performance of the banking systems after two decades of transition. Conclusions from early studies may no longer be valid due to the unprecedented progress made by transition countries today. Using data from 1995-2006, we use multidimensional statistical analysis to investigate the current banking performance in ten EU transition countries. In particular, to what degree has banking sectors developed and performance improved for the new EU members since implementing reforms.

BREAK
Friday morning, 19 June, 10:50

Various Applications of Quantitative Methods
Friday afternoon, 19 June, 15:00
COTTON2
Chair: Prof. Mirosława Gazińska

15:00	Oral

Application of statistical methods in assessment of e-procurement development in Poland

Wacława Starzyńska[1], Justyna Wiktorowicz[2]

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Modernization and further opening of the public procurement market could be the key factor in strengthening European Union competitiveness and creating new possibilities for enterprises, especially for SMEs. Greater competition and efficiency on the public procurement market, created among others by development of e-procurement, could influence the whole economy and play a significant role to achieve the Lisbon Strategy goals.

The aim of this paper is multivariate analysis of the e-procurement development and its determinants based on the data coming from survey carried out among awarding entities. The application of statistical methods was made in order to measure, classify and model the development of electronic public procurement.

15:30	Oral

The evaluation of the proportional hazards model adequacy using residual diagnostics

Joanna M. Landmesser

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In the paper, we demonstrate how residuals can be calculated and used in assessing the adequacy of the proportional hazards model. We focus on different, particularly useful diagnostics: martingale residuals, deviance residuals, Cox-Snell residuals, Schoenfeld residuals and score residuals. The goal of the paper is to explain the role of these diagnostics in examining some aspects of the fit of the hazard model. A numerical example, which is based on the data from the Labour Force Survey in Poland (BAEL), will show how to use these residual statistics efficiently.

15:50	Oral

Application of epsilon method to modeling expectations in construction

Sylwia D. Grudkowska, Natalia Nehrebecka

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The epsilon method has been applied to examine the strength of relations among selected objective and subjective factors connected with a manager's predictions of their companies' development.

The aim of this research was to study which variable has the strongest impact on business expectations in construction.The results offer compelling evidence that respondents rely both on their current opinion on enterprise as well as on general economic situation. The survey was carried out based on Polish data from 2000:1 to 2008:10.

16:10	Oral

Predictive Marketing Mix Modelling in FMCG Packaged Food Category Including Price and Advertising Impact

Tomasz M. Kolanowski

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Case study describing estimation of Marketing Mix econometric sales modelling on packaged food fast moving consumer goods product on UK market. Model bases on two step modelling approach, using ordinary least squares method. Adstock data transformation has been used to evaluate advertising impact with time distributed lag. Paper presents non-linear relations between market distribution, consumer price levels and advertising. Final step is 52 weeks forward sales forecast and its accuracy evaluation.

SESSION SUMMARY
Friday afternoon, 19 June, 16:30

Saturday, 20 June

Various Applications of Quantitative Methods
Saturday morning, 20 June, 9:00
COTTO2
Chair: Prof. Paolo Gajo

9:00	Oral

The weather generator as a tool for modelling economical impact of crop production on future climate

Leszek Kuchar

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The future agriculture and the impact of climate change on crop production is one of the key problems in the present economy. The basic component which models the weather-crop relation is a the weather generator – a tool producing future climate data – required as an input to crop models, and other economical models and decision support systems used to evaluate crop production. WGENK, the weather generator which produces synthetic daily data, is presented in this pa-

per. The WGENK model was studied by comparing the statistics of generated data with the weather observation data from five meteorological stations of the Institute of Meteorology and Water Resources located in the Southwest of Poland.

9:30	Oral

Application of EBLUP estimation to the analysis of small areas on the basis of Polish household budget survey

Alina Jędrzejczak[1,2], Jan Kubacki[2]

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For many years users of statistical data were satisfied with national estimates and estimates for major subpopulations. One of the main objectives of modern statistics is to provide estimates not only for large areas but also for small domains, what can be helpful in making policy decisions. Small domains are defined mainly in terms of some combinations of such socio- economic factors as age, sex or poverty status.

In the article the results for small area estimation using empirical best linear unbiased predictor (EBLUP) for data from Polish Household Budget Survey are presented. These results are obtained using some models of household income obtained for regions. Estimation of sample errors was conducted by balanced repeated replication technique. EBLUP estimates and MSE estimates were carried out using variance components techniques. Two methods of MSE estimation were used: maximum likelihood (ML) and restricted maximum likelihood (REML). The computation was made using SAE package designed for R-project environment.

10:00	Oral

Modeling the dependence between the duration of time a woman remains childless and the duration of employment using bivariate copula models

Joanna M. Landmesser

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In the paper the dependence structure among durations will be modeled based on copula approach. The advantage of copula models is the possibility to build a variety of dependence structures, based on existing models of the marginal distributions. The purpose is to use this idea in the context of joint duration distributions for the modeling of bivariate survival functions. The paper demonstrates practical implementation of the copula approach. A numerical example is considered, which is based on the data from the German Socio-Economic Panel Study GSOEP. We model the dependence between the duration of time a woman remains childless and the duration of employment among German married women.

10:25	Oral

Normalization of Variables with Outliers

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W wielu badaniach problem stanowią obiekty nietypowe, opisane bardzo dużymi wartościami. Mogą one zakłócać w sposób bardzo znaczący wyniki badań poprzez zmniejszanie zakresu zmiennych obiektów typowych podczas normowania. W konsekwencji prowadzi to do zmniejszania ważności zmiennych podczas obliczania miary syntetycznej. Niekorzystny wpływ wartości nietypowych można zminimalizować poprzez wykorzystanie specjalnych metod normowania. W artykule zostały przedstawione dwie tego typu metody: standaryzacja z ważonym odchyleniem standardowym oraz unitaryzacja z wartościami progowymi z dwiema metodami wyznaczania progów. Normowaniu poddano wartości emisji zanieczyszczeń pyłowych powietrza z zakładów szczególnie uciążliwych. Jednostkami poddanymi badaniu było 379 powiatów. Dane zaczerpnięto z GUS-u, dotyczą one 2005 roku. Wskaźnik ten wybrano ze względu na dużą rozbieżność w emisji zanieczyszczeń w zależności od charakteru zakładów znajdujących się na terenie poszczególnych powiatów. Istnieje bardzo wiele powiatów o niewielkiej emisji zanieczyszczeń zbliżonej praktycznie do zera. Są to powiaty z obszarów nieuprzemysłowionych. Istnieje również wiele powiatów znajdujących się w rejonach mocno uprzemysłowionych gdzie emisja zanieczyszczeń jest znaczna. Ponadto istnieje bardzo niewielka liczba powiatów na terenie, których znajdują się bardzo duże zakłady przemysłowe, jak na przykład elektrownie. Zakłady te emitują kilkaset razy więcej zanieczyszczeń niż typowe zakłady. Stanowią one obiekty nietypowe zakłócające wartości miar syntetycznych.

SESSION SUMMARY
Saturday morning, 20 June, 10:50

Poster session

Programme

Thursday, 18 June

POSTER
Thursday evening, 18 June, 18:20
Conference Foie/SATIN 2

Saturday, 20 June

POSTER
Saturday morning, 20 June, 10:50
Conference Foie/SATIN 2

Posters

Thursday, 18 June

POSTER
Thursday evening, 18 June, 18:20
Conference Foie/SATIN 2

18:20	Poster	1

Comparison of the deterministic and stochastic approaches for estimating technical efficiency on the example of non-parametric DEA and parametric SFA methods

Agnieszka Bezat

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The author considers in the article estimation of the technical efficiency, which measures the ability of an enterprise to obtain the maximum output from given input or to use the minimum input to achieve given outputs. The comparison of two approaches: deterministic (on the example of DEA - Data Envelopment Analysis) and stochastic (on the example of SFA - Stochastic Frontier Approach) has been carried out, further the advantages and disadvantages of both were described. These methods were chosen because they have become popular in polish research. They are used since a couple of years by many economists, agro-economists and financiers to estimate efficiency of enterprises. In the article the possible limitations and problems, which may infuence results of

studies conducted by using these methods, were considered.

18:20	Poster	2

Application of the wavelet transform to the stock exchange shares analysis

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The paper presents the wavelet transform method to the analysis of the stock exchange price values patterns. The technical analysis covers the set of the methods implemented to find the regularities in the waveform, searching for the typical formations. The characteristics of the patterns generated by the stock exchange are presented. The wavelet transform is then explained and its application for denoising of the waveform described. The method is applied for the trend detection in the exemplary pattern of the shares price values time series. Finally, conclusions and future prospects are presented.

18:20	Poster	3

Sustainable investing

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Sustainable investing as an investment strategy relies on the selection of stocks of the companies, which goods and services meet the criteria of ethical business practices and which avoid certain areas of business activity deemed as damaging environment or unethical. Such strategies are known also as socially responsible investments (SRI) or environmentally friendly investments. This paper reviews the literature on sustainable investing and "green stocks" as a class of financial instruments. We discuss the opportunities and present some implications for investors on the Polish capital market who can apply such selection criteria and use those stocks in their strategies.. Since the SRI are the new type of investment activity in Poland, there are no mutual or investment funds or stock market indices yet, that would precisely define which stocks are considered to belong to such category of assets. Hence we had to make our own selection based on the information provided by the companies and collected in the Notoria database.

We analyze risk and returns of companies, which in the Polish market meet the criteria of sustainable investing. In particular we provide evidence about the estimates of beta coefficient for selected SRI stocks and attempt to answer the question about the profitability of investment in the these stocks in the Polish capital market. We estimated beta coefficient using ARCH methodology or ordinary least squares (OLS) method in case of no heteroscedascity and no ARCH effects.

The results of our research demonstrate some important findings. First, most of the obtained beta estimates are below 1, which indicates that SRI stocks exhibit low sensitivity to the movement of the market index. Second, the beta estimates increases for longer intervals.. Third, the number of ARCH effects increases as the interval is lengthened.   Fourth, in the analyzed period

(31.03.2008-11.05.2009) the portfolios of SRI stocks (both equally weighted and capitalization weighted) have beaten the WIG and sWIG80 indices as far as returns and risk adjusted profitability measures are concerned. The general problem discussed in the literature is that SRI portfolios are usually poorly diversified due to the nature of the underlying selection process and additionally, the small stock bias may explain relatively high returns comparing to other, broad market indices. However in our sample, the SRI portfolios have beaten also the sWIG80 index of small stocks.

| 18:20 | Poster | 4 |

How many observations should be taken to obtain appropriate VaR measure using a family Sign RCA models?

Joanna Górka

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Accurate modeling of risk is important in finance. A family Sign RCA models could be used to obtain Value-at-Risk (VaR) measure. In alternative approach to obtain VaR measure, different sizes of sample for rolling estimation of models parameters have been used. In the case when one of the Sign RCA models is used, one does not know what size of sample should be taken to obtain appropriate VaR forecasts. In this paper, to choose the size of sample, a Monte Carlo experiment was used. The properties of the time series generated by one of the Sign RCA models were analyzed. The results obtained from Monte Carlo experiment and empirical examples were compared.

| 18:20 | Poster | 5 |

Non-standard method of discretization on the example of Goodwin's Growth Cycle Model

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In theory of economics most models describing economic growth use differential equations. The Solow's and Haavelmo's models should be mentioned.
However, in the moment of trial of their use by econometricians many questions arise. First, economic data are presented in discrete form what forces using of difference equations. Second, transition from continuous form to the discrete in order to estimate its parameters is still discussive. It has been observed for some times that standard (classical) discretization methods of differential equations often produce difference equations that do not share their dynamics (for example produce chaotic behavior).
The essence of mentioned problems and proposal of their solution will be presented on the example of the Goodwin's Growth Cycle model.

| 18:20 | Poster | 6 |

Analysis of banking performance in Polish commercial banks. Symptoms of threats

Witold Luciński

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The tendency to decrease interest rates is a major threat to the banks in the long term. In the future, the traditional way of conducting banking activities will have to be modified. The starting point for creating new strategies for Polish banks should be to depart from interest income as the core model of generating banking income and embrace the prompt development of broadly understood non-interest activities.

| 18:20 | Poster | 7 |

The resultant and individual effectiveness of open pension funds

Jacek Białek[2], Adam Depta[3], Edyta Marcinkiewicz[1], Filip F. Chybalski[1]

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Abstract. In this paper we consider the problem of calculating the resultant and individual effectiveness of Open Pension Funds. In the Polish law there exists a definition of the average rate of return of a group of pension funds which, as it was proved by Gajek and Kałuszka (2000), does not satisfy some economic postulates. These authors proposed another definition of the average rate of return. In this paper we discuss new definitions presented in the papers of Gajek i Kałuszka (2001), Białek (2005). We compare all definitions. Several properties of the average rate are discussed. In particular, it is shown that the average rate of return is a martingale provided the prices of assets on financial markets form a (vector) martingale and provided some additional condition is satisfied. The second part of the article is devoted to the construction of the measure of a given one fund. This measure is based on the author's proposition of the price index and it seems to be a proper tool for ranking of funds.

| 18:20 | Poster | 8 |

The influence of censorship on the results of data analysis

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In the paper results of study on the influence of inadequate information on the estimation of survival curve using the Kaplan-Meier method will be presented. Authors carried out the time of being unemployed analysis for people unregistered from the District Labour Office in Szczecin in

the IV quarter of 2006. Methods of survival analysis allowing censored data applying were used. In the described study these are the people that have been unregistered due to different than finding job reasons. In their case one can suppose that they took a job but did not report it to the office. This information may have essential influence to the course of survival curve describing probability of being unemployed (in register) for specific period of time.

18:20	Poster	9

Growth business cycle of the Czech Republic – empirical investigation of de-trending techniques

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The purpose of this paper is to make an empirical investigation of de-trending techniques for the Czech Republic case in the process of business cycle modeling. Economy of this country belongs to the group of transition type, which usually disposes with limited sample size. This fact can significantly influence assumptions as well as results of de-trending methods in usage. For obtaining cyclical fluctuation, deterministic as well as stochastic methods are applied. According to the empirical results, two approaches of business cycle are discussed, classical and growth type. From the range of de-trending techniques standard types will be used, namely first order difference, linear filtering, unobserved component model and Hodrick-Prescott filter. In the case of Hodrick-Prescott filter, derivation of smoothing parameter especially for the Czech Republic case will be investigated. The aim is, on the basis of empirical analysis, to recommend suitable method for business cycle modeling in the Czech Republic. Available data are quarterly values of Gross Domestic Product (GDP) 1996/Q1 – 2008/Q3.

18:20	Poster	10

Simulation of the amount pension payments from the second pillar

Iwona Staniec[1], Edyta Marcinkiewicz[1], Filip F. Chybalski[2]

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In the paper it was analyzed how the capital gathered in the open pension funds (OPFs) depends on the nominal rate of return, and the value of monthly salary index in the enterprise sector as well as the average amount of fee paid by members of OPF. On this basis, the forecasts of the nominal rate of return and the salary index were made for the period 2009-2013 and the amounts of simulated payments from the second pillar for all OPFs in the years 2014-2024 were set. These pensions will be individual, calculated according to the tables of life expectancy, but the expected rate of return will not be able to exceed the technical rate fixed by the state.

18:20   Poster   11

Modelling the employment structure in public companies for a small sample

Waldemar Tarczyński, Mirosława Gazińska

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The key success factor in an enterprise operating in the market economy is an optimum employment level and its productivity, e.g. measured with total revenues per employee. An interesting issue is whether labour efficiency affects economic and financial performance of the company and the whole market. In the case of any statistical regularities concerning this issue, it is necessary to allow for the variables related to employment, e.g. in the analyses of listed companies. Those variables can increase the efficiency of investment in terms of the expected rate of return on investment. This subject matter is of particular importance in Po-land where the ownership transformations and transition to market economy have resulted in major changes in employment in individual companies. The paper provides an analysis of the structure of companies by their group labour productivity in homogenous groups of listed companies, so-called megasectors, in relation to their economic and financial condition. At present, plenty of research strives to find statistical methods which would avoid the limiting assumptions underlying classical methods. In this paper one of such methods is presented – the bootstrap method, which will be related to the estimation of group labour productivity in relation to financial and economic condition of listed companies where classical assumptions cannot be accepted.

18:20   Poster   12

Badanie efektywności predykcyjnej modelu klasy GMDH opartego na behawioryzmie uczestników rynku walutowego

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W pracy przedstawiono wyniki eksperymentu przeprowadzonego w celu predykcyjnym na rynku walutowym. Założono, że rynek nie jest efektywny i daje się z przeszłości wyekstrahować wiedzę o błędach popełnionych przez uczestników wybranej platformy brokerskiej. Dla wykonania predykcji wykorzystano zmodyfikowaną metodę GMDH umożliwiającą sukcesywny wybór nieliniowego modelu wielomianowego najlepiej w danym kroku opisującego rynek. Przedstawiono interesujące wyniki eksperymentu na danych historycznych potwierdzającego użyteczność metody. Danymi wejściowymi były zarejestrowane na platformie zachowania inwestorów – rozkład otwartych pozycji i złożonych zleceń. Stąd – rozpatrywane podejście można zaliczyć do modelowania behawioralnego.

18:20	Poster	13

Decisions make by government organisations

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The article describes the principles, techniques and procedures applicable in relation to appraisal and evaluation. Appraisal and evaluation are essential parts of good financial management. The general principles should apply to any proposal - whether project, programme or policy related - with implications for expenditure / use of resources. The effort that should go into appraisals and evaluations and the detail to be considered is a matter of judgement.

18:20	Poster	14

Uogólniona miara dopasowania w modelu liniowym

Wojciech Zieliński

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Wmodelu regresji liniowej stosowane sa dwie miary wpływu zmiennych niezaleznych na zmienna zalezna: współczynnik determinacji oraz współczynnik korelacji czastkowej. W pracy zaproponowane jest uogólnienie tych miar i skonstruowana jest miara wpływu grupy zmiennych niezaleznych z wyłaczeniem wpływu pozostałych zmiennych niezaleznych.

18:20	Poster	15

## Investigation of β coefficient stability- rolling windows approach

Krzysztof Kompa

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Współczynnik β modelu Sharpe'a odgrywa kluczową rolę w teorii i praktyce inwestowania. Stanowi bowiem wygodną i obliczeniowo prostą miarę ryzyka, wspomagając podejmowanie decyzji. W literaturze przedmiotu coraz częściej podnoszone są kwestie długości próby, na podstawie której szacowany jest ten parametr. W pracy [Witkowska, 2008] badania prowadzono dla różnej długości szeregów czasowych stóp zwrotu, z tym samym w każdym przypadku, elementem końcowym. Inne podejście proponowane jest w pracy [Tarczyński, 2008], w której prowadzono badanie zmienności bety w czasie metodą rolling Windows, przy arbitralnie przyjętej szerokości okna (10 próbek). Oba podejścia, wskazując na szereg istotnych problemów, nie wydają się wyczerpywać zagadnienia doboru długości próby do szacowania parametrów modelu Sharpe'a. Celem badań prezentowanych w tej pracy było szczegółowe rozpoznanie zachowania bety w cza-

sie, przy różnych długościach okna i różnych rodzajach stóp zwrotu. Analizie poddano wszystkie spółki notowane na GPW za okres od ich pierwszych notowań do końca 2008 r. badając zachowanie ich statystyk opisowych w czasie (dla różnych szerokości okien, różnych stóp zwrotu i różnych miar rynku, także branżowych. Przykładowe wyniki szacowania parametru beta spółki CEZ prezentowane są na rysunku.
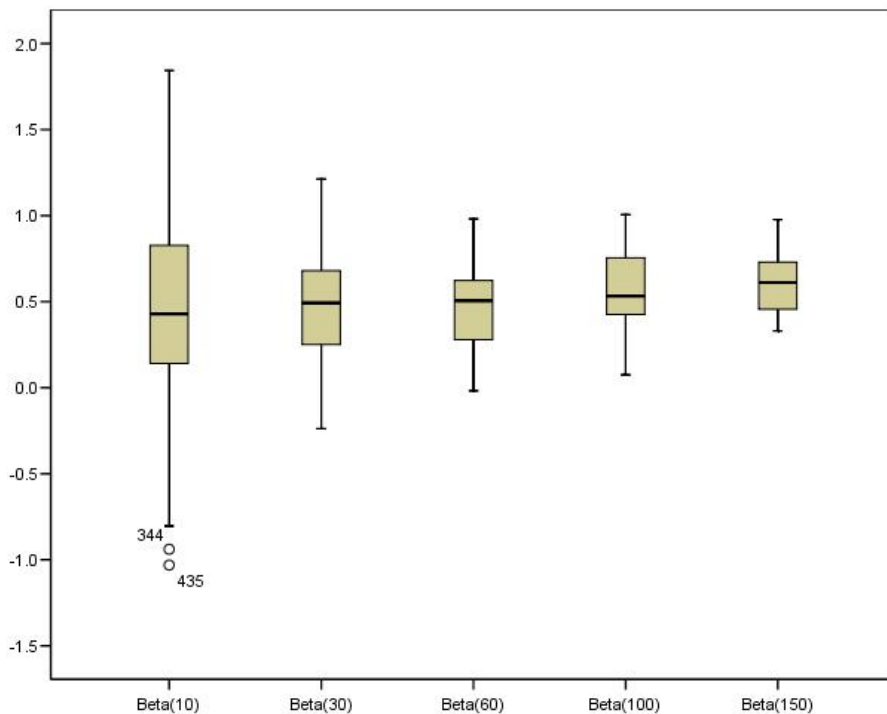
Wykres skrzynkowy przedstawia rozkład wartości beta. Pudełko określa rozstęp międzykwartylowy, w którym znajduje się 50% obserwacji. Pozioma linia przechodząca przez pudełko określa wartość środkową (medianę), która dla każdego okna kształtuje się niemal na tym samym poziomie, przybierając wartości bliskie 0,5. Wąsy określają najwyższą oraz najniższą obserwowaną wartość, która nie odstaje od pozostałych. W zbiorze danych dla okna 10 występują dwie obserwacje nietypowe, kolejno o numerze 344 oraz 435.

Z powyższego wykresu wynika, iż wartość środkowa dla obliczonych parametrów beta dla różnych wartości okna kształtuje się na podobnym poziomie. Ważnym wnioskiem jest fakt, iż w miarę zwiększania wielkości okna, a tym samym zwiększania liczby obserwacji wykorzystanych do budowy modelu, zmniejsza się odchylenie standardowe oszacowanych parametrów beta. Dodatkowo, wraz ze zwiększeniem liczby obserwacji różnice pomiędzy wartościami ekstremalnymi maleją (rozstęp się zmniejsza). Można wnioskować, iż wraz ze zwiększaniem długości okna, oszacowania parametrów beta są bardziej wiarygodne, charakteryzują się mniejszymi wartościami skrajnymi i mniejszym odchyleniem standardowym.

W konkluzji należy stwierdzić, że dobór długości próby do oszacowania parametru *beta* (in. długości okna przesuwnego) zależeć powinien od horyzontu inwestycyjnego na jaki podejmowane są decyzje z wykorzystaniem modelu Sharpe'a; szerokie okna sprawdzają się dla inwestycji

współmiernie długoterminowych, wąskie – dla współmiernie krótkoterminowych.

18:20	Poster	16

Analysis of the stock exchange waveforms similarity using the clustering method

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The paper presents the approach to analyze dependencies in the sequences of the company shares' prices in the stock exchange. The method utilizes the clustering method developed previously for the electronic and geotechnical applications. The algorithm is presented in detail, including the discussion of their possible applications in the financial engineering. Further its application to find similarities between the shares time series of the selected Polish companies is presented. The method's usage to the prediction of the future behavior of the prices level is considered. The paper is supplemented with conclusions and future prospects.

Saturday, 20 June

POSTER
Saturday morning, 20 June, 10:50
Conference Foie/SATIN 2

10:50	Poster	17

Taxonomic analysis of the similarity of OPFs investment portfolios during the downturn in the financial markets (in years 2007-2008)

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Specific analysis of the WIG index since the polish OPFs started can lead to conclusion that the current falls on the Warsaw Stock Exchange determine bad OPFs financial results. It should be noted that 6 July 2007 WIG index reached the highest value of 67,568.51 points, and at the end of November 2008 it was equal to only 27,130.09 points.

The purpose of this article is to analyze the similarity of structures of OPFs investment portfolios and the dynamics of the similarity in the period of the Warsaw Stock Exchange downturn in 2007-2008. Since the WIG index got in the long-term downward trend in July 2007, the period from the end of June 2007 until the end of November 2008 was examined. The monthly data of the investment portfolio structure was used as well as the value of OPFs units (as at end of month), obtained from the Financial Supervisory Commission (www.knf.gov.pl). Research was conducted using the taxonomic method of measuring the similarity of objects: distance matrix and hierarchical agglomeration method.

Studies carried out show that the open pension funds in the period from July 2007 to November

2008 (which is in the history of their operation in Poland so far the longest and most important collapse of the stock market) aiming at reduction of percentage shares in their portfolios did not copied their policies to such large extent as before the downturn. However, as hierarchical tree drawn to the method of agglomeration indicated clearly, one fund, namely OPF Polsat, very significantly differed from other funds, which was caused by not reducing the percentage of shares in its portfolio. As a result it recorded a loss – most significant reduction of unit value among all funds. The last moment of measurement allows to notice the stabilization of the similarity of OPFs portfolios, because part of the distances did not increase from June to November 2008, despite the fact that the funds still were selling out shares.

10:50	Poster	18

Factors affecting TFP formation in manufacturing in Poland. Application of a dynamic panel model[1]

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The article attempts to estimate total factor productivity (TFP) for sectors included in section D „manufacturing". TFP is an unobservable variable and its value is estimated using two alternative methods. The one described in the article takes advantage of a production function. More precisely, sectors' TFP was sought by estimating the parameters of the Cobb-Douglas production function. TFP was assumed to be a function of time and technological progress was understood as defined by Hicks. The assumption about the sectors' different productivity was realized using a constant diversification procedure. The parameters of the productivity function were estimated with panel data, using a groupwise heteroskedasticity model.

The last stage of the analysis consisted in constructing and estimating a model describing TFP formation by sector. The model's explanatory variables were the alternative measures of human capital, physical capital, R&D expenditures, and technology transfer via international trade. The TFP formation model was a dynamic panel data model. To estimate the model, the Arellano-Bond first-differenced GMM and Blundell-Bond system GMM were applied. The SGMM-based results should be viewed as satisfactory.

[1] Research project N111 0938 33 financed from the funds allocated to scientific activities in the years 2007-2009.

10:50	Poster	19

Szacowanie i modelowanie TFP w przemyśle polskim na podstawie danych panelowych [1]

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W artykule podjęto próbę oszacowania łącznej produktywności czynników produkcji (TFP) według działów sekcji D „przetwórstwo", oraz określenia czynników, które determinują jej

kształtowanie.

TFP jest zmienną nieobserwowalną, a do oszacowania jej wartości można stosować metodę indeksową lub wykorzystać funkcję produkcji. W prezentowanym badaniu zastosowano dwie metody, bazujące na funkcji produkcji Cobba – Douglasa. Różnią się one sposobem oszacowania elastyczności produkcji względem nakładów pracy. Pierwsza z metod wymaga oszacowania parametrów funkcji wydajności. Przyjęto założenie, że TFP jest funkcją czasu, a postęp techniczny rozumie się w sensie Hicksa. Założenie o zróżnicowaniu produktywności względem działów zrealizowano stosując procedurę dywersyfikacji stałej. Parametry funkcji wydajności oszacowano na podstawie danych panelowych, stosując model z heteroskedastycznością grupową. Druga metoda opiera się na założeniu o dooskonałej konkurencji na rynkach czynników produkcji i założeniu, że elastyczność produkcji względem nakładu pracy jest stała w czasie a może się różnić między działami. Lepsze wyniki uzyskano stosując pierwszą z wymienionych metod.

Ostatecznym etapem analizy było skonstruowanie i oszacowanie modelu opisującego kształtowanie się łącznej produktywności czynników produkcji w działach. W roli zmiennych objaśniających modelu występowały alternatywne miary kapitału ludzkiego, kapitału fizycznego, nakładów na działalność badawczo – rozwojową, transferu technologii, dokonującego się poprzez handel międzynarodowy. Model kształtowania się TFP był modelem dynamicznym, szacowanym na podstawie danych panelowych. Do jego estymacji stosowano *first-differenced GMM* Arellano i Bonda oraz *system GMM* Blundella i Bonda. Wyniki uzyskane na podstawie SGMM uznać należy za zadowalające.

[1] Praca naukowa finansowana ze środków na naukę w latach 2007-2009, jako projekt badawczy nr N111 0938 33

10:50	Poster	20

Metoda AHP w ocenie stosowalności metod oceny zdolności kredytowej w systemie ekspertowym

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Podstawową działalnością większości banków jest udzielanie kredytów. Wiąże się to z ryzykiem utraty części lub całości długu. Banki mają obowiązek dokonywania oceny zdolności kredytowej, jednak metoda jest dowolna. Dobrym rozwiązaniem może być zastosowanie systemu ekspertowego wspomagającego pracę inspektora kredytowego. Największym problemem w zbudowaniu takiego systemu jest określenie poprawnej i przejrzystej bazy reguł. W pracy ocenia się stosowalność poszczególnych metod oceny zdolności kredytowej do zastosowania w SE. Do zbudowania rankingu posłużyła metoda AHP.

10:50	Poster	21

Simulation investigation of consequences following from transport decisions

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Two organizational planes can be distinguished in transport systems , namely macroeconomic (international, national, regional) and microeconomic (transport companies, consumers of transport services). Transport decisions taken on a macroeconomic scale refer to the programming of transport system development and affect its effective functioning .

10:50	Poster	22

Private equity supported by banking sector as a factor backing up the Polish economy

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Enormous challenges face Poland at the present time, ensuing from the adoption in 1989 of a market economy after forty-five years of a centrally planned economy. Private equity providers play an important role in the United States, the United Kingdom and many other countries by investing in new and existing companies, accepting higher risks with the expectation of higher returns. The Author argues in this paper that a significant increase in private equity investment, particularly made by banks, would help emerging entrepreneurships and the newly-privatised industries in Poland to grow at a rate that would be sufficient to assure quick growth, create economic stability and reduce unemployment and poverty to a more acceptable level.

10:50	Poster	23

Results of mistaken time period in analysis in the case of framing effect for some capital market's models

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Each economic activity around the world should be supported by analysis driven on the different level of difficulty. Supporters of Becker's theory would claim that such situation is the result of aspiring to try to calculate in decision making process. Their opponents – behavioural economists – will explain such events as willingness to justify own decisions or to blur responsibility for investment decisions. In both cases the same problem is exact specification of time period for analysis.

The article presents the importance of a choice of a proper time window for analysis for correct diagnosing of situation based on information taken from TNI (tragic news indicator), BSOPM, Markowitz's and Sharpe's models. This indicator shows the role of expansiveness of media relations on the Stock Exchange situation. The correct specifying of this time window for TNI allows to determine how strong is an influence of negative information on changes of the Stock Exchange indexes and how strong speculative information is (supporting by BNI – bad news indicator and GNI – good news indicator). In case of a capital market's model the result causes the proper pricing of a financial instrument and proper valuation of risk.

10:50	Poster	24

Analysis of economic activity movements in the Czech Republic – frequency approach

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The primary purpose of this work is to identify the business cycle types in the Czech Republic 1996/Q1 – 2008/Q3. In the light of business cycles problematic, and viewed from the frequency analysis perspective, harmonic analysis will be used. Deterministic as well as stochastic methods are applied for obtaining a cyclical fluctuation,. According to the empirical results, two approaches to the business cycle are discussed, the classical and growth types. From the range of de-trending techniques, the first order difference, linear filtering, unobserved component model and Hodrick-Prescott filter are used. In the case of Hodrick-Prescott filter, a cyclical fluctuation estimate with the derivation of smoothing parameter designed specially for the Czech Republic case is investigated. The aim is, on the basis of our empirical analysis, to distinguish types of cyclical fluctuations in the Czech Republic. A consequent analysis of potential sources of cyclical movement is done.

10:50	Poster	25

Identification of periodicity type in the Czech Republic growth business cycle

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Using harmonic analysis, the paper identifies types of business cycle in the Czech Republic 1996/Q1 – 2008/Q3 from the periodicity point of view. In order to obtain a cyclical fluctuation, an empirical investigation of de-trending techniques for the Czech Republic case in the process of business cycle modeling is done. With respect to empirical results, two approaches to business cycle are discussed, the classical and growth types. The first order difference, linear filtering, unobserved component model and Hodrick-Prescott filter are used as de-trending techniques. In the case of Hodrick-Prescott filter, a cyclical fluctuation estimate with the derivation of the smoothing parameter designed specially for the Czech Republic case is investigated. The aim is, on the basis of empirical analysis, to distinguish types of cyclical fluctuations in the Czech Republic.

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The Effects of Industry Sector and Location on Venture-Backed American Companies, 1995-2008

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The emergence of economic geography theory can be attributed to the pioneering works of Nobel Laureate Paul Krugman who hypothesized that uneven economic development of regions could take place if transportation costs preclude trade. The importance of industry sector is also well established in economic literature. This paper recognizes these contributions and applies them to the venture capital market in the United States.

This paper analyzes how the venture capital market is affected by macroeconomic measures, location and industry. Capital venture investment data for the U.S.A. from 1995 to 2009Q1 are examined. This data is augmented by quarterly observations of the following macroeconomic variables over the same time period: real gross domestic product (GDP), federal funds rate, and 3-year, 5-year, 10-year interest rates. The main objective of this paper is to examine the role of geography and type of industry in determining investment in the venture capital entrepreneurial sector. This paper also explores the effects of the aforementioned macroeconomic measures on venture capital investment. The venture capital investment activity data are from The MoneyTree Survey, which allows for the data to be stratified into nineteen regions and seventeen industries.

This paper analyzes the data through a statistical and graphical analysis. Basic summery statistics, Pearson correlation coefficients, and regression parameter estimates are used to explore how the variables affect the venture capital market. The results affirm the importance of geographic location and industry sector in venture capital investment. This conclusion is present even in the current economic downturn, displaying that region and industry remain powerful factors even under the pressure of large macroeconomic forces. Since the venture capital market relies heavily on expectations of future GDP, examining venture capital investment data and trends provides insight into how the current economic crisis is affecting the economy of the United States.

This paper makes several important conclusions. The first is that geography and industry sectors are important factors in United States' venture capital investment regardless of the state of the aggregate economy. Secondly, as one might expect, GDP is positively associated with venture capital investment, while the sum of the interest rates is negatively associated with venture capital investment. Thirdly, the correlation between capital venture investment and interest rate decreases as the length of the interest rate term increases. Furthermore, the Silicon Valley region and the software industry account for a large percentage of capital venture investment and deals in the United States. Finally, venture capital investment decreased dramatically in 2008 due to the current global recession.

10:50	Poster	27

Łączenie danych z dynamicznym obcięciem. Wyniki wstępne

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Problem ewaluacji działań jest problemem brakujących danych. Zatem ważnym zagadnieniem jest konstrukcja adekwatnej kontrfaktycznej grupy porównawczej. W artykule zaproponowane modyfikację procedury pozwalającej uznać obserwację za dobrze dobrany stan kontrfaktyczny. Proponowana zmiana polega na wprowadzeniu nowego mechanizmu sprawdzania czy jednostka z grupy kontrolnej jest bliskim odpowiednikiem jednostki z grupy porównawczej. W ostatniej części artykułu zaprezentowano wyniki symulacji badającej właściwości statystyczne proponowanego rozwiązania. Uzyskane wyniki wskazują, że metoda pozwala osiągnąć lepsze rezultaty niż dotychczas wykorzystywane techniki

10:50	Poster	28

Application weighted VaR in capital allocation

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The paper deals with the application of a coherent risk measure weighted VaR. After investigating some basic properties of this risk measure, we apply the obtained results to the financial problems optimization and capital allocation. Under some assumption on mean weighted VaR have some good properties that are not shared by another tail measures. This allows one to say that weighted VaR is one of the most useful classes of coherent risk measures. Application deals with data from Warsaw Stock Exchange.

10:50	Poster	29

Analiza zależności liczby otwartych pozycji kontraktów terminowych na indeks WIG20 w relacji do obrotu na rynku kasowym

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Organizacja w ramach jednej platformy obrotu zarówno rynku kasowego jak i terminowego pozwala na zwiększenie możliwości budowania strategii inwestycyjnych przez uczestników tych rynków. W szczególności odnosi się to do otwierania pozycji na rynku terminowym i przeciwstawnych pozycji na rynku kasowym (tzw. arbitraż).

Występowanie tego zjawiska jest potwierdzane na szeroką skalę na rynkach rozwiniętych, a także rynkach rozwijających się. Celem badań było stwierdzenie występowania zjawiska zależności liczby otwartych pozycji na rynku kontraktów terminowych na WIG20 oraz wartości obrotów akc-

jami na ten indeks w latach 2005 – 2008.

Analiza obejmowała badanie zależności korelacyjnych pomiędzy poszczególnymi szeregami, zdefiniowanie wskaźnika DLR (*Derivative Liquidity Ratio*)oraz HI (*Investment Horizon*) oraz analizę kształtowania się ich wartości w badanym okresie. Ponadto na podstawie odpowiedni zdefiniowanych parametrów przeprowadzono badanie zależności liczby otwartych pozycji oraz wartości obrotów na rynku kasowym z wykorzystaniem testu przyczynowości Grangera dla różnych okresów.

Uzyskane rezultaty dla Giełdy Papierów Wartościowych w Warszawie, pozwalają na postawienie tezy, że rynek kapitałowy w Polsce charakteryzuje się podobną specyfiką jak rynki rozwinięte w Europie, w przypadku których występują silne powiązania pomiędzy liczbą otwartych pozycji, a wartością obrotu instrumentu bazowego, co świadczy o znaczeniu zawierania transakcji celem arbitrażu także na rynku kontraktów na WIG20.

10:50	Poster	30

Investigation of the Strong Form Efficient Market Hypothesis: the Example of Selected Investment Funds

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The aim of the research is evaluation of the efficiency of 19 selected open-end investment funds that have been operating at the Polish market. Analysis is based on daily data and covers the period from November, 2, 2006 to November, 2, 2008. Investigation is provided for the time series that contain observations from 3, 6, 12 and 24 months. The risk-free rate instruments are represented by selected treasury bonds and the market index is represented by the WIG (*Warsaw Stock Exchange Index*). In the research we apply Sharpe, Treynor and Jensen ratios as well as we investigate selectivity and market timing employing Treynor-Mazuy and Henriksson-Merton models.

10:50	Poster	31

Management of risk in government organisations

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The article presents the concepts of risk management in government organisations. It also focuses on both internal processes for risk management and consideration of the organisation's risk management in relation to the wider environment in which it functions.It aims to provide an introduction to the range of considerations which apply in risk management, all of which can be applied at various levels ranging from the development of a strategic, organisation-wide risk policy through to management of a particular project or operation.

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Overall assurance on risk management in public administration

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The article sets out the principles and key process elements for both deriving and delivering over-all assurance on risk management and provides an overview for the assurance process. Whatever the detailed nature of the risk relationships that the organisation has with others across the extended enterprise, each relationship will also give rise to a need for assurance to be provided that risk is being managed in that relationship both appropriately and as planned. Provision for obtaining such assurance is an integral part of the relationship.

| 10:50 | Poster | 33 |

Emerging Market Analysis: the Example of Warsaw Stock Exchange – rolling windows approach

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The term emerging markets is used to describe business and social activity in the process of rapid adaptation to high developed economies. Changes that started in 90-ties of twentieth century in Central and Eastern European economies created capital markets in that countries. Now 10 of post-communist states are members of European Union, some others have been waiting for accession. Emerging markets have been developing rapidly. Investors recognize these markets as more risky but also more profitably. The example of emerging market is Warsaw Stock Exchange (WSE) that started operation in 1991 with 5 companies listed. Now there are over 360 companies listed on the main and the parallel markets.

Rates of return and risk measures are the most important characteristics that describe financial instruments. The analysis of these features, employing statistical methods and measures, is always provided when an investment is considered. In this research the major characteristics such as: central tendency measures of returns, dispersion measures of returns that are treated as risk measures, asymmetry and flatness measures, shape of the probability distribution of selected securities quoted on The Warsaw Stock Exchange and major market indexes are investigated to describe the general situation of the market and it's segments. For all calculations the rolling windows approach is applied.

The research is based on actual data concerning daily observations of shares on the Warsaw Stock Exchange between the years 1998-2008. The original data are transformed into daily and weekly logarithmic rates of return that are evaluated for different transaction days.

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