ISBN : 978-602-19590-4-6

Proceeding International Conference on Mathematical and Computer Sciences (ICMCS 2013)

October 23-24, 2013

Jatinangor West Java, Indonesia

Organized by:
Department of Mathematics
and Department of Informatics Engineering
Faculty of Mathematics and Natural Sciences
Universitas Padjadjaran
and Indonesian Mathematical Society (IndoMS)

ISBN: 978-602-19590-4-6

Proceedings of

INTERNATIONAL CONFERENCE ON MATHEMATICAL AND COMPUTER SCIENCES

PREFACE

This event is a forum for mathematician and computer scientist for discussing and exchanging information and knowledge in their area of interest. It aims to promote activities in research, development and application not only on mathematics and computer sciences areas, but also all areas that are related to those two fields.

This proceeding contains sorted papers from the International Conference on Mathematical and Computer Sciences (ICMCS) 2013. ICMCS 2013 is the inaugural international event organized by Mathematics Department Faculty of Mathematics and Natural Sciences University of Padjadjaran, Indonesia.

In this proceeding, readers can find accepted papers that are organized into 3 track sections, based on research interests which cover (1) Mathematics, (2) Applied Mathematics, (3) Computer Sciences and Informatics.

We would like to express our gratitude to all of keynote and invited speakers:

- Prof. Dr. M. Ansjar (Indonesia)
- Assoc. Prof. Dr. Q. J. Khan (Oman)
- Prof. Dr. Ismail Bin Mohd (Malaysia)
- Prof. Dr. rer. nat. Dedi Rosadi (Indonesia)
- Prof. Dr. T. Basarudin (Indonesia)
- Assoc. Prof. Abdul Thalib Bin Bon (Malaysia)
- Prof. Dr. Asep K. Supriatna (Indonesia)

We also would like to express our gratitude to all technical committee members who have given their efforts to support this conference.

Finally, we would like to thank to all of the authors and participants of ICMCS 2013 for their contribution. We hope your next participation in the next ICMCS.

Editorial Team

PROCEEDINGS

INTERNATIONAL CONFERENCE ON MATHEMATICAL

AND COMPUTER SCIENCES

UNIVERSITAS PADJADJARAN JATINANGOR

on October, 23rd-24th 2013

EDITORS

Dr. Setiawan Hadi, M. Sc.CS.
Dr. Sukono, MM., M.Si.
Dr. Diah Chaerani, M.Si.

PROCEEDINGS

INTERNATIONAL CONFERENCE ON MATHEMATICAL

AND COMPUTER SCIENCES

UNIVERSITAS PADJADJARAN JATINANGOR

on October, 23rd-24th 2013

REVIEWERS

Prof. Dr. Budi Nurani R., M.S.
Prof. Dr. Asep Kuswandi Supriatna, M.S.
Prof. Sudradjat Supian, M.S.
Prof. Dr. Ismail Bin Mohd.
Assoc. Prof. Dr. Abdul Talib Bon
Dr. Stanley Pandu Dewanto, M.Pd.
Dr. Atje Setiawan Abdullah, M.S., M.Kom.
Dr. Sukono, MM., M.Si.
Dr. Diah Chaerani, M.Si.
Dr. Endang Rusyaman, M.S.
Dr. Nursanti Anggriani, M.S.
Dr. Juli Rejito, M.Kom.

PROCEEDINGS

INTERNATIONAL CONFERENCE ON MATHEMATICAL
AND COMPUTER SCIENCES
UNIVERSITAS PADJADJARAN JATINANGOR
on October, 23rd-24th 2013

SCIENTIFIC COMMITTEE

1. Prof. Dr. A.K. Supriatna (Unpad, Indonesia)
2. Prof. Dr. Budi Nurani (Unpad, Indonesia)
3. Prof. Sudradjat (Unpad, Indonesia)
4. Prof. Dr. Edy Soewono (ITB, Indonesia)
5. Prof. Dr. Ismail Bin Mohd. (UMT, Malaysia)
6. Prof. Pramila Goyal, Ph.D (CAS-IIT, India)
7. Prof. Ronald Wasserstein, Ph.D (ASA, USA)
8. Prof. Sjoerd Verduyn Lunel, Ph.D (Leiden, The Netherland)
9. Prof. Preda Vasile, Ph.D (Buchurest, Romania)
10. Prof. Marius Lofisescu, Ph.D (Academic, Romania)
11. Assoc. Prof. Dr. M. Suzuri (UMT, Malaysia)
12. Assoc. Prof. Dr. Anton Kamil (USM, Malaysia)
13. Assoc. Prof. Dr. Abdul Talib Bon (UTHM, Malaysia)
14. Assoc. Prof. Anton Prabuwono, Ph.D (UKM, Malaysia)
15. Dr. Atje Setiawan, M.Kom (Unpad, Indonesia)
16. Dr. F. Sukono, MM., M.Si.
17. Dr. Eng. Admi Syarif (Unila, Indonesia)
18. Dr. Sannay Mohamad (UBD, Brunei)
19. Assoc. Prof. Dr. Q.J.A. Khan (SQU, Oman)
20. Prof. Dr. T. Basarudin (UI, Indonesia)

PROCEEDINGS

INTERNATIONAL CONFERENCE ON MATHEMATICAL
AND COMPUTER SCIENCES
UNIVERSITAS PADJADJARAN JATINANGOR
on October, 23rd-24th 2013

ORGANIZING COMMITTEE

Responsible Person	Prof. Dr. Asep K. Supriatna
Chairman	Dr. Asep Sholahuddin, MT.
Vice Chairman	Edi Kurniadi, M.Si.
Secretary	Dianne Amor, M.Pd.
Treasurer	Betty Subartini, M.Si.
Papers and Proceedings	Dr. Setiawan Hadi M.Sc.CS. Dr. Diah Chaerani, M.Si.
Publications and Documentations	Rudi Rosadi, M.Kom. Deni Setiana, M.Cs.
Transportations	H. Agus Supriatna, M.Si.
Consumptions	Elis Hartini, Dra., M.SE. Dwi Susanti, M.Si.
Logistics	H. Ino Suryana, M.Kom.
Events	H. Eman Lesmana, M.SIE. Deni Djohansyah, Drs.
Proceedings	Akmal, MT. Anita, M.Si.
Sponsors	Erick Paulus, M.Kom. Firdaniza, M.Si.

TABLE OF CONTENTS

PREFACE iii

EDITORS iv

REVIEWERS v

SCIENTIFIC COMMITTEE vi

ORGANIZING COMMITTEE vii

TABLE OF CONTENTS viii

A Noble Great Hope for Future Indonesian Mathematicians, **Muhammad ANSJAR** 1

Determining Radius of Convergence of Newton's Method Using Curvature Function, **Ridwan PANDIYA, Herlina NAPITUPULU, and Ismail BIN MOHD** 9

Optimization Transportation Model System, **Abdul Talib BON, Dayang Siti Atiqah HAMZAH** 21

Outstanding Claims Reserve Estimates by Using Bornhutter-Ferguson Method, **Agus SUPRIATNA, Dwi SUSANTI** 36

Bankruptcy Prediction of Corporate Coupon Bond with Modified First Passage Time Approach, **Di Asih I MARUDDANI, Dedi ROSADI, GUNARDI & ABDURAKHMAN** 45

Subdirect Sums of Nonsingular *M*-Matrices and of Their Inverses, **Eddy DJAUHARI, Euis HARTINI** 53

Teaching Quotient Group Using GAP, **Ema CARNIA, Isah AISAH & Sisilia SYLVIANI** 60

Analysis of Factors Affecting the Inflation in Indonesia by Using Error Correction Model, **Emah SURYAMAH, Sukono, Satria BUANA** 67

Network Flows and Integer Programming Models for The Two Commodities Problem, **Lesmana E.** 77

Necessary Conditions for Convergence of Ratio Sequence of Generalized Fibonacci, **Endang RUSYAMAN & Kankan PARMIKANTI**.....86

Mean-Variance Portfolio Optimization on Some Islamic Stocks by Using Non Constant Mean and Volatility Models Approaches, **Endang SOERYANA, Ismail BIN MOHD, Mustafa MAMAT, Sukono, Endang RUSYAMAN**.....92

Application of Robust Statistics to Portfolio Optimization, **Epha Diana SUPANDI, Dedi ROSADI, ABDURAKHMAN**.....100

Multivariate Models for Predicting Efficiency of Financial Performance in The Insurance Company, **Iin IRIANINGSIH, Sukono, Deti RAHMAWATI**.....108

A Property of $\boldsymbol{z^{-1}F^{m}\left[\left[z^{-1}\right]\right]}$ Subspace, **Isah AISAH, Sisilia SYLVIANI**.....119

Fractional Colorings in The Mycielski Graphs, **Mochamad SUYUDI, Ismail BIN MOHD, Sudradjat SUPIAN, Asep K. SUPRIATNA, Sukono**.....123

Simulation of Factors Affecting The Optimization of Financing Fund for Property Damage Repair on Building Housing Caused by The Flood Disaster, **Pramono SIDI, Ismail BIN MOHD, Wan Muhamad AMIR WAN AHMAD, Sudradjat SUPIAN, Sukono, Lusiana**.....134

Analysis of Variables Affecting the Movement of Indeks Harga Saham Gabungan (IHSG) in Indonesia Stock Exchange by using Stepwise Method, **Riaman, Sukono, Mandila Ridha AGUNG**.....142

Learning Geometry Through Proofs, **Stanley DEWANTO**.....153

Mathematical Modeling In Inflammatory Dental Pulp On The Periapical Radiographs, **Supian S., Nurfuadah P., Sitam S., Oscanda F., Rukmo M., and Sholahuddin A**.....157

The Selection Study of International Flight Route with Lowest Operational Costs, **Warsito, Sudradjat SUPIAN, Sukono**.....164

Scientific Debate Instructional to Enhance Students Mathematical Communication, Reasoning, and Connection Ability in the Concept of Integral., **Yani RAMDANI**.....172

Rice Supply Prediction Integrated Part Of Framework For Forecasting Rice Crises Time In Bandung-Indonesia, **Yuyun HIDAYAT, Ismail BIN MOHD, Mustafa MAMAT ,Sukono** 183

Global Optimization on Mean-VaR Portfolio Investment Under Asset Liability by Using Genetic Algorithm, **Sukono, Sudradjat SUPIAN, Dwi SUSANTI** 193

Controlling Robotic Arm Using a Face, **Asep SHOLAHUDDIN, Setiawan HADI** 202

Image Guided Biopsies For Prostate Cancer, **Bambang Krismono TRIWIJOYO**.....214

Measuring The Value of Information Technology Investment Using The Val It Framework (Case Study : Pt Best Stamp Indonesia Head Office Bandung), **Rita KOMALASARI**, **Zen MUNAWAR**.....231

Assessment Information Technology Governance Using Cobit Framework Domain Plan and Organise and Acquire and Implement (Case Study: Pt. Best Stamp Indonesia Bandung Head Office), **Zen MUNAWAR**.....242

Curve Fitting Based on Physichal Model Accelerated Creep Phenomena for Material SA-213 T22, **Cukup MULYANA, Agus YODI**.....254

Growing Effects in Metamorphic Animation of Plant-like Fractals based on Transitional IFS Code Approach, **Tedjo DARMANTO, Iping S. SUWARDI & Rinaldi MUNIR**.....260

Mining Co-occurance Crime Type Patterns for Spatial Crime Data, **Arief F HUDA, Ionia VERITAWATI**.....267

An Improved Accuracy CBIR using Clustering and Color Histogram in Image Database, **Juli REJITO**.....276

KEYNOTE SPEAKER

Analysis of Variables Affecting the Movement of Indeks Harga Saham Gabungan (IHSG) in Indonesia Stock Exchange by using Stepwise Method

Riaman, Sukono, Mandila Ridha AGUNG
Riaman, University of Padjadjaran, Indonesia
Firman SUKONO, University of Padjadjaran, Indonesia
Mandila Ridha AGUNG, University of Padjadjaran, Indonesia

Abstract: Stock market is one of the economic driving on a country. It is because the stock market is capital facilities and accumulation of long term funds that directed for increasing community participation in moving the funds in order to support financing the national economy. Almost all industry in the country were represented by stock market. Therefore the fluctuation of stock price that recorded is reflected through an index movement that better known as Indeks Harga Saham Gabungan (IHSG). Indeks Harga Saham Gabungan (IHSG) are affected by some factors, such as internal factor and external factor. Factor that came from overseas is like foreign exchange index, crude oil prices, and sentiment overseas market. Factor that came from domestic is usually came from foreign exchange rate. Through this study, we will see the factors influence, both of internal and external against Indeks Harga Saham Gabungan (IHSG) especially occur in Bursa Efek Indonesia (BEI)

Keyword: IHSG, Internal IHSG Factors, External IHSG Factors

1. Background of The Problem

The global economic crisis had a significant impact on the development of the capital market in Indonesia. The impact of the world financial crisis, better known by the global economic crisis, which occurred in the United States, is very influential towards Indonesia. Because the majority of Indonesian exports performed in the U.S. and of course it greatly affects the economy in Indonesia. One of the most influential impact of the economic crisis America is the rupiah weakened against the dollar, Indeks Harga Saham Gabungan (IHSG) is increasingly unhealthy, and of course exports are hampered due to reduced demand from the U.S. market itself. Besides closing for a few days as well as the suspension of stock trading in Bursa Efek Indonesia (BEI) is one of the real impact and the first time in history, which of course can reflect on how big the impact of the global nature of this problem.

The capital market is one of the economy movers of a country. Because the stock market is a tool of capital formation and accumulation of long-term funds, directed to increase participation from the public in the mobilization of funds, to support its financing national development. In addition, the stock market is also a representation to assess the condition of the companies in a country. Because almost all the industries sector in the State represented by the capital market. Capital markets are experiencing increased (Bullish) or decreased (Bearish) seen from the rise and fall of stock prices listed, reflected through a movement of the index or better known as the Indeks Harga Saham Gabungan (IHSG). IHSG is t he value used to measure the combined performance of all capitals (companies / issuers) listed on the Bursa Efek Indonesia (BEI).

The summary of simultaneous and complex effects on various influencing factors, primarily economic phenomena. IHSG even today used as a barometer of economic health of a country and as a foundation of statistical analysis on current market conditions (Widoatmojo, S. 1996:189). Meanwhile, according to Ang (1997:14.6), Indeks Harga Saham Gabungan (IHSG/*Stock Price Index*) is a value that is used to measure the performance of stocks listed in the stock exchanges. The IHSG issued by the