

No. ISSN : 2339-1650



universitas
bandar lampung

THE FIRST
INTERNATIONAL CONFERENCE ON
**LAW, BUSINESS
& GOVERNANCE**

23-24

OCTOBER 2013
BANDAR LAMPUNG
UNIVERSITY (UBL),
INDONESIA

ICON-UBG
2013

Hosted by :
Bandar Lampung University (UBL), Indonesia



in
corporasi
widy



Universitas Cilembu



Universitas Islam Sumatera Utara
1123042013/142013



Maastricht
University

PROCEEDINGS

Icon-LBG 2013

THE FIRST INTERNATIONAL CONFERENCE
ON LAW, BUSINESS AND GOVERNANCE 2013

22, 23, 24 October 2013
Bandar Lampung University (UBL)
Lampung, Indonesia

PROCEEDINGS

Organized by:



Faculty of Law, Faculty of Economics and Faculty of Social Science
Bandar Lampung University (UBL)
Jl. Zainal Abidin Pagar Alam No.89 Labuhan Ratu, Bandar Lampung, Indonesia
Phone: +62 721 36 666 25, Fax: +62 721 701 467
website :www.ubl.ac.id

PREFACE

The Activities of the International Conference are in line and very appropriate with the vision and mission of Bandar Lampung University (UBL) to promote training and education as well as research in these areas.

On behalf of the First International Conference on Law, Business and Governance (Icon-LBG 2013) organizing committee, we are very pleased with the very good response especially from the keynote speaker and from the participants. It is noteworthy to point out that about 67 technical papers were received for this conference.

The participants of the conference come from many well known universities, among others : International Islamic University Malaysia, Utrech University, Maastricht University, Unika ATMA JAYA, Universitas Sebelas Maret, Universitas Negeri Surabaya, Universitas Jambi (UNJA), Diponegoro University, Semarang, Universitas 17 Agustus 1945 Jakarta, Universitas Bandar Lampung, Universitas Andalas Padang, University of Dian Nuswantoro, Semarang, Universitas Terbuka, Universitas Airlangga, Bangka Belitung University, President University, Tujuh Belas Agustus University Jakarta, International Business Management Ciputra University, Surabaya, University of Indonesia, Business School Pelita Harapan University, STIE EKUITAS, Bandung, STAN Indonesia Mandiri School of Economics Bandung, Lampung University.

I would like to express my deepest gratitude to the International Advisory Board members, sponsor and also to all keynote speakers and all participants. I am also gratefull to all organizing committee and all of the reviewers who contribute to the high standard of the conference. Also I would like to express my deepest gratitude to the Rector of Bandar Lampung University (UBL) who give us endless support to these activities, so that the conference can be administrated on time

Bandar Lampung, 22 October 2013

Mustofa Usman, Ph.D
Icon-LBG Chairman

PROCEEDINGS

Icon-LBG 2013

**The First International Conference
on Law, Business and Governance**

22, 23, 24 October 2013

INTERNATIONAL ADVISORY BOARD

M. Yusuf S. Barusman, Indonesia
Andala R.P. Barusman, Indonesia
Mustofa Usman, Indonesia
Hayyan Ul Haq, Netherland
Renee Speijcken, Netherland
Zulfi Diane Zaini, Indonesia
Agus Wahyudi, Indonesia
Harpain, Indonesia
Khomsahrial Romli, Indonesia
Ida Farida, Indonesia
Warsono, Indonesia
Andreas Budihardjo, Indonesia
Pawito, Indonesia
I Gusti Ayu Ketut Rahmi, Indonesia
Lintje Anna Marpaung Indonesia
Zainab, Indonesia
Nik Ahmad Kamal Nik Mahmood, Malaysia
Maliah Sulaiman, Malaysia
Mohanraj, India
Wahyu Sasongko, Indonesia
Ari Darmastuti, Indonesia

PROCEEDINGS

Icon-LBG 2013

**The First International Conference
on Law, Business and Governance**

22, 23, 24 October 2013

STEERING COMMITTEE

Executive Advisors

Dr. Ir. M Yusuf S. Barusman, MBA
Prof. Dr. Khomsahrial Romli, M.Si.
Dr. Lintje Anna Marpaun, SH., MH.
Drs. Thontowie, MS

Chairman

Drs. Harpain, MAT, MM

Co-Chairman

Helta Anggia, S.Pd., M.A

Secretary

Tissa Zadya, SE., MM.

Technical Committee of Law Division

Dr. I Gusti Ayu KRH, SH., MH
Dr. Erina Pane, SH., MH
Dr. Zulfi Diane Zaini, SH.,MH
Dr. Zainab Ompu Jainah, SH., MH
Erlina B, SH.,M.Hum

Business Division

Prof. Dr. Sudarsono
Dr. Lindrianasari, S.E., M.Si., Akt
Dr. Anggrita Denziana, SE., Akt.,MM
Dr. Alex Tribuana Sutanto, ST., MM.
Dra. Rosmiati Tarmizi, MM, Ak.
Dr. Drs. Fauzi Mihdar, MM
Andala Rama Putra, SE, M.A, Ec.
Afrizal Nilwan, SE,, M.Ec., Akt.
Tina Miniawati, SE., MBA.

Governance Division

Dr. Drs. Supriyanto, M.Si.
Dr. Ahmad Suharyo, M.Si.
Dr. Hasan Basri, M.Si.
Drs. Hassan Basrie, M.Psi.
Dr. Dra. Ida Farida, M.Si.
Dr. Wawan Hernawan, M.Pd.
Drs. Suwandi, MM.
Drs. Yadi Lustiadi, M.Si.
Dra. Agustuti Handayani, MM

Treasure

Samsul Bahri, SE
Dian Agustina, SE

PROCEEDINGS

Icon-LBG 2013

**The First International Conference
on Law, Business and Governance**

22, 23, 24 October 2013

ORGANIZING COMMITTEE

Chair Person

Tissa Zadya, S.E, M.M

Vice Chair Person

Dra. Yulfriwini, M.T

Administration

Proceedings and Certificate Distribution

Dr. Zainab Ompu Jainah, SH., MH.
R Nadia RP Dalimunthe, S.S., M.Hum.
Drs. Suwandi, MM
Dra. Agustuti Handayani, MM
Berry Salatar, S.Pd.
Kartini Adam, SE
Atin Inayatin
Agung Saputra
Jacinda
Purwanto

Special Events

Dr. Zulfi Diane Zaini, SH.,MH.
Siti Rahmawati, SE
Khairudin, SE., M.S.Ak
Olivia Tjioer, SE., MM.
Achmad Haris
Alvin Aritanando
Mochammad Fikri H.
Ayu Safitri
Pandu Kurniawan
Cecilia Ariani J.B

Sponsorship

Dr. Alex Tribuana Sutanto, ST., MM.
Agus Gunawan
Tari Ines Safitri
Winda Natasya
Dicky Wahyudi
Poppy Irawati
Toni Arifin
Hansen Adi Pangestu

Receptionist and Registration

Dra. Agustuti Handayani, M.M
Tami Ruli, S.H., M.Hum
Haninun, S.E., M.S.Ak
Nilawati
Refli Setiawan
Moh. Fileri H
Alvin Aritanando
Tia Agustina
Rina

Documentation

Noning Verawati, S.Sos
Hesti, S.H
Rifandi Ritonga, SH
Febtry Mariska
M Sabila Rasyad
Putu Riski Mandala
Rico Febrianto
Yahya Saiful
Luqman
Reno Art Simorang

Transportation and Accommodation

Irawati, SE
Pandi
Edi

Consumption

Susilowati, S.T., M.T
Risti Dwi Ramasari, S.H., M.H
Dra. Azima Dimiyati, MM
Olivia Tjioener, S.E., M.M
Mei Endang Lestari
Nadia May Linda
Widiya Nanda

Publication and Public Relation

Ir. Indriati Agustina Gultom, MM.
Dina Ika Wahyuningsih, S.Kom
Noning Verawati, S.Sos., M.A
Siti Masitoh
Wahyu Pamungkas
Habib Mustofa
Andre Putra
Sandi Prayoga
Roni Semendawai
Syifaudin
Dharma Saputra
Yohanes Alex

Facility and Decoration

Siti Rahma Wati, SE
Dina Ika Wahyuningsih, S.Kom
Zainal Abidin, SE
Ahyar Saleh, SE
Eko Suhardiyanto
Wagino
Sugimin

Table Of Content

Preface.....	ii
International Advisory Board	iii
Steering Committee	iv
Organizing Committee.....	vi
Table of Content	ix

Keynote Speakers :

1. Leadership Style, Climate, Commitment and Corporate Performance – Andreas Budihardjo	I-1
2. The Great Paradox of Good Governance in Indonesia - Andrik Purwasito	I-8
3. Local Autonomy and Inter-Sector Performance-Based-Governance in Lampung Province – Ari Darmastuti	I-15
4. Urgency of Regulatory Priorities Watershed in Order To Conduct an Integrated Watershed Administrative Law In Indonesia – I Gusti Ayu Ketut Rachmi Handayani.....	I-22
5. The Strategic Development Model of Organizational Dynamic Capabilities at Private Higher Education Institutions Using Soft System Methodology – M Yusuf S Barusman.....	I-29
6. Governance, Business and The Environment - Maliah Sulaiman	I-39
7. Good Governance and The Rule Of Law - Nik Ahmad Kamal Nik Mahmud	I-45
8. The Legal Protection of Geographical Indications in Indonesia Towards The Asean Economic Community - Wahyu Sasongko.....	I-56
9. Bank Indonesia Law Relations With The Financial Services Authority (FSA) in Indonesian Banking Supervision - Zulfi Diane Zaini	I-63
10. Application of Factor Analysis to Public Sector Integrity in Indonesia - Warsono, Armen Yasir, Dian Kurniasari, Widiarti, Ridwan Saifuddin	I-69
11. Strengthening Creative Economic Resources Through Designing Appropriate Regulatory Model in Managing and Optimising Cultural Property- Hayyan ul Haq.....	I-76

Invited Speaker

12. The Direction Of Future Management Accounting Research In The Asia Pacific Region - Grahita Chandrarin	I-77
---	------

Paper Presenter :

Law :

1. Indonesian Marriage Legal System Construction In Order to Protect Children From Marriage Law That is Not Recorded - Amnawaty.....	II-1
2. Urgently of Harmonization of National Legislation on Juvenile Criminal Justice Towards International Standards: A Review of Rules of Deprivation of Liberty of Child Offender - Antonius Ps Wibowo.....	II-14

3. The Urgency of Total Economic Value Aspect in Food Security Regulation In Order to Engage Asia's Trade Area (Indonesia Case Study) - Anugrah Adiastruti	II-25
4. Strike as The Last Resort In Dispute Settlement Between Workers and Employers - Arinto Nugroho	II-30
5. Politics of Land Law For Indonesian Farmers (Towards the Bill of Land in Indonesia) - Elita Rahmi	II-35
6. State Role In Building People's Economy Amid Economic Globalization - Elly Nurlaili	II-40
7. Legal Protection of Traditional Crafts Tapis Lampung Based Local Wisdom in The Era of Globalization- Erlina B	II-45
8. Perda Progressive : an Alternative To Fulfillment of Poor People Rights of Health in Local Autonomy - H.S. Tisnanta, Agus Triono	II-52
9. The Comparison Between Indonesian Constitutional Court and Russian Constitutional Court - Lintje Anna Marpaung.....	II-58
10. The Politics of Islamic Criminal Law in Indonesia (A Critical Analysis) - Mohamad Rapik.....	II-67
11. Learning Environmental Rights, Finding Green Future: The Road to Ecojustice - Muhammad Akib, Fathoni	II-73
12. The CSR of Tobacco Industries: The Concept And Its Implementation – Nanik Trihastuti	II-80
13. The Comparison Of The Indonesian Ppatk Role With Other Countries Financial Intelligence Unit (FIU) - Nikmah Rosidah	II-86
14. Benefits Of Ratification Of The Madrid Protocol (Protocol Relating To The Madrid Agreement Concerning The International Registration Of Marks) For The Protection Of Intellectual Property Rights In Indonesia - Risti Dwi Ramasari.....	II-92
15. Equitable Law of Democracy Political Policy Against The Election of Incumbent - S. Endang Prasetyawati	II-99
16. Narcotics Crime as A Phenomenon of Transnational Organized Crime - Zainab Ompu Jainah	II-110
17. Safety Net of The Financial System in The Perspective of Indonesian Banking Law - Zulfi Diane Zaini	II-115
18. National Land Law Reform in Facing Globalization - Darwin Ginting	II-122
19. Land Dispute Settlements Insocial Philosophy Perspectives (A Case Study in PTPN VII of Bergen Unit Business in South Lampung Regency) - Herlina Ratna S.N.	II-130
20. Analysis of Regional Expansion as Implications of Regional Autonomy Implementation - Indah Satria	II-137
21. Normative Judicial Analysis of Dissolution of Political Parties Towards Democratic System in Indonesia - Rifandy Ritonga	II-141
22. Limitations Of Legal Ability In Dispute Resolution Of Consumer Protection - Tami Rusli.....	II-147

Business

1. Accountability And Financial Performance of Local Government in Indonesia – Aminah, Lindrianasari	III-1
--	-------

2. Competitive Advantage; The Affecting Factors and Its Impact on Selling-In Performance (Studies on Patronage Outlets PT. Indosat Semarang) - Ana Kadarningsih	III-7
3. Bankruptcy Analysis of Banking Companies in Indonesia Period 2001-2012 (Using the Altman Z-Score Model)- Andi Sanjaya, Lindrianasari, Aminah.....	III-20
4. The Influence of Audit Committee Quality and Internal Auditor Objectivity Toward The Prevention of Fraudulent Financial Reporting(A Survey in BUMN of Indonesia) - Angrita Denziana	III-26
5. Performance Measurement of Management Study-Program Based on Balanced Scorecard from Students' Perception – Ardansyah, Ayu Ichda Mardatila.....	III-32
6. E-Business : At A Glance Indonesia Online Shop Agent - Arnes Yuli Vandika, Samsul Arifin, Eka Imama Novita Sari, Debi Herlina Meilani	III-37
7. Brand Awareness Strategy: Role of Blackberry Messenger (Case in Sumber Tiket Murah Travel: PIN 2144C41F) - Dian Pane, Baroroh Lestari.....	III-40
8. Analysis of Corporate Social Responsibility Implementation And Social Audit at PT Semen Padang - Elvira Luthan, Sri Dewi Edmawati	III-50
9. Tourism Investment, Supply and Demand in Indonesia: Impact and Factor Analysis -Faurani Santi, Rina Oktaviani, Dedi Budiman Hakim, Reni Kustiari.....	III-61
10. The Effect of Job Satisfaction and Organizational Justice on Organizational Citizenship Behavior with Organization Commitment as The Moderator - Fauzi Mihdar.....	III-75
11. The Economic of Umar Bin Khatt b Policy in Modern Economic Policy - Hendri Hermawan Adinugraha	III-83
12. The Influence of Corporate Governance Implementation toward Bank Performance (Empirical Study on Banks Listed in Indonesia Stock Exchange) - Heriyanni Mashitoh, Irma.....	III-90
13. The Factors That Influence The Firm Performance In The Furniture Industry Jepara - Mahmud,Guruh Taufan H, Ida Farida.....	III-102
14. The Implication of Opportunistic Behavior Towards a Financial Report Conservatism : A Study of Banking Company Go-Public at BEI - Novi Darmayanti, Nur Suci Mei.....	III-110
15. Innovation Strategy With Environment Variable Antesenden Internal, External And Environmental Partnership Strategy For Their Impact On The Sustainable Competitive Advantage (Survey on Small Business in Pangkalpinang city) - Reniati and Dian Prihardini Wibawa	III-118
16. The Infuence of Cash Flow Information Toward Stock Return - Reza Kurniawan	III-126
17. The Influence of Internal Control toward Production Cost Control Efectivity - Sarjito Surya.....	III-132
18. The Influence of Management Information System to Management Control System - Sihar Tambun, Vienda A. Kuntjoro.....	III-138
19. Identifying Indonesia-Uruguay Bilateral Trade Opportunities:A Revealed Comparative Advantage Approach - Sulthon Sjahril Sabaruddin, Riris Rotua Sitorus	III-145
20. Redesign the Competence Business Strategy of SME's in Dealing with ASEAN Economic Community (AEC) Trade Liberalization 2015 Case Studies: SME's Creative Industry Sector in Bandung - Teddy Fauzi	III-153

21. Service Innovation: In Highly Competitive of Hotel Industry - Widjaja Hartono	III-157
22. The Impact of Liquidity, Profitability And Activity Ratio To The Probability Of Default For Banking Companies Listed in Indonesia Stock Exchanges For The Period 2006 To 2012 - William Tjong, Herlina Lusmeida	III-164
23. Using Altman Z-Score Model and Current Status Of Financial Ratio to Asses Of Consumer Goods Company Listed in Indonesia Stock Exchange (IDX) - Yoppy Palupi Purbaningsih,	III-169
24. Analysis of Factors Affecting Foreign Direct Investment Mineral Mining Sector in Indonesia Period 2009-2012 - Zeflin Anggal, Purwanto	III-176
25. Implement of M-Government to Improve Public Services - Ahmad Cucus, Yuthsi Aprilinda	III-181
26. The Development of Productivity Performance Models: Based on Self-efficacy, Trust, Systems Quality, and Information Quality. Study on Information Systems of PT Pindo Deli Paper Products - Indah Kartika Sandhi.....	III-187

Governance

1. Controlling for Agricultural Land Conversion District in West Java Province Tasikmalaya - Ade Iskandar	IV-1
2. Local Handicraft Development Policy Implementation - Ani Heryani	IV-5
3. Designing IT Governance Approach Standard ISO 38500 for Indonesia Higher Education - Arnes Yuli Vandika, Samsul Arifin, Eka Imama Novita Sari, Debi Herlina Meilani	IV-9
4. Potential Thematic Campaign for Lampung Tourism - Hasan Basri	IV-12
5. Globalization and Its Effect on Democracy - Ida Farida	IV-17
6. Bureaucracy Communication and Government Organizational Culture - Khomsahrial Romli	IV-23
7. Creative Economic Development Mode Through Business Learning Group For The Purpose of Ending The Poverty - Soewito, Suwandi	IV-29
8. Child Protection Strategies at Agrarian Conflict Area (A Case Study at Moro-Moro Village, Register 45, Mesuji Regency) - Wijatnika	IV-36

APPLICATION OF FACTOR ANALYSIS TO PUBLIC SECTOR INTEGRITY IN INDONESIA

A) Warsono¹, B) Armen Yasir², C) Dian Kurniasari¹, D) Widiarti¹, E) Ridwan Saifuddin³

¹Department of Mathematics, University of Lampung, Indonesia

²Faculty of Law, University of Lampung, Indonesia

³BAPPEDA Kota Metro, Lampung, Indonesia

Abstract

The main purpose of this study is to analyze interrelationships among variables used on the survey of public sector integrity by Indonesia's Corruption Eradication Commission (Komisi Pemberantasan Korupsi, KPK). The nine variables include corruption experiences, corruption perceptions, working environments, administration systems, the behavior of individuals, corruption prevention efforts, integrity experiences, integrity potencies, and integrity total. Using factor analysis, the approach is to explain these variables in terms of their common underlying dimensions, well-known as factors. Technically, factor analysis involves condensing the information contained in a number of original variables into a smaller set of new composite factors with a minimum loss of information. The results show that based on eigen values the first factor alone accounts for 70.7% of the common variance. The second factor alone accounts for 13,4%. The common variance of the nine variables explained by two factors is 84.1%. Using the varimax rotation and based on values of factor loadings the first factor makes high contribution to the variance of corruption experiences, corruption perceptions, working environments, the behavior of individuals, integrity experiences, and integrity total variables. The second factor makes high contribution to the variance of corruption prevention efforts and integrity potencies variables. Similar results, also, are obtained by quartimax rotation and equamax rotation.

Keywords: Corruption Eradication Commission (KPK), Factor Analysis, Eigenvalues, Factor Loadings, Varimax Rotation, Quartimax Rotation, Equamax Rotation

1. INTRODUCTION

Originally introduced by Spearman (1904)[11] in the area of psychology, factor analysis is one of a number of statistical methods which comprise the branch of statistical theory known as multivariate analysis. Started as a controversial and difficult subject, factor analysis has emerged as one of the most fascinating and usefull data analysis tools and its applicability to many diverse areas such as social sciences, education, and biology. The general purpose of factor analytic techniques is to find a way to condense the information contained in a number of original variables into smaller set of new, composite dimensions or variates (factors) with a minimum loss of information. In meeting its purpose, factor analysis provides several key pieces of information about multivariate data: (1) identifi cation of inferred latent variables referred to as factors, (2) estimates of the amount of variance explained by each factor, and (3) the relationship of the original data to each factor [1, 5, 6, 7, 8, 9, and 10].

Meanwhile in order to support the efforts more effective aort nd efficient to combat and eradicate an extraordinary crime of corruption, Indonesia's Corruption Eradication Commission (Komisi Pemberantasan Korupsi, KPK) regularly conducts integrity surveys on public services in some institutions and local governments across the country [3]. These surveys involve a large number of variables that consist of observable and unobervable or latent variables. As discuss above that because of the prospect of factor analysis usefulness, it makes motivation of this study to examine the application of factor analysis to the area of law, especially to corruption survey data of public sector.

Hopefully, in terms of science application, this study might contribute to analyze suvey data of public sector integrity in Indonesia.

2. DATA OF PUBLIC SECTOR INTEGRITY AND POCEDURE OF FACTOR ANALYSIS

In order to demonstrate the application of factor analysis, this study uses subsets data of public sector integrity in 60 local government (Pemerintah Kota) in Indonesia published by KPK in 2011. The considered data consist of 9 variables that are x_1 : Corruption Experiences; x_2 :Corruption Perception; x_3 : Working Environments; x_4 : Administration systems; x_5 : Behavior of Individuals; x_6 : Corruption Prevention Efforts; x_7 : Integrity Experiences; x_8 : Integrity Potencies; and x_9 : Integrity Total [3].

Suppose we make observations on $p=9$ variables $\mathbf{x} = (x_1, x_2, \dots, x_9)'$ with mean vector $\boldsymbol{\mu} = (\mu_1, \mu_2, \dots, \mu_9)'$ and variance-covariance matrix $\boldsymbol{\Sigma}$, the factor analysis model expresses each variable as a linear combination of underlying common factors $\mathbf{f} = (f_1, f_2, \dots, f_k)'$ with an accompanying residual $\boldsymbol{v} = (v_1, v_2, \dots, v_9)'$ and can be explained by:

$$\mathbf{x} = \boldsymbol{\mu} + \mathbf{L}\mathbf{f} + \boldsymbol{v}$$

that implies

$$\begin{aligned} x_1 &= \mu_1 + \lambda_{11}f_1 + \dots + \lambda_{1k}f_k + v_1 \\ x_2 &= \mu_2 + \lambda_{21}f_1 + \dots + \lambda_{2k}f_k + v_2 \\ &\dots\dots\dots \\ x_9 &= \mu_9 + \lambda_{91}f_1 + \dots + \lambda_{9k}f_k + v_9 \end{aligned}$$

The elements f_1, f_2, \dots, f_k are called the *common factors*; the number of factors k should be substantially smaller than p . The coefficient λ_{ij} is the weights called the *factor loadings*, so that λ_{ij} is the loading of the i^{th} variable on the j^{th} factor. The coefficient λ_{ij} indicates the importance of the j^{th} factor f_j to the i^{th} variable x_i and can be used in interpretation of f_j . The variable v_1, v_2, \dots, v_p describes the residual variation specific to the i^{th} variable. The residual variables are called the *specific factors*. It is assumed that $E(v_i) = 0, \text{var}(v_i) = \psi_i, \text{cov}(v_i, v_k) = 0, i \neq k, \text{ and } \text{cov}(f_i, v_j) = 0$ [4, 6, 13, 15].

From the above factor model and under the assumptions, we have

$$E(\mathbf{f}) = \mathbf{0}, \text{cov}(\mathbf{f}) = \mathbf{I},$$

$$E(\boldsymbol{v}) = \mathbf{0}, \text{cov}(\boldsymbol{v}) = \boldsymbol{\psi}$$

$$\text{cov}(\mathbf{f}, \boldsymbol{v}) = \mathbf{0}$$

$$E(\mathbf{x}) = \boldsymbol{\mu}, \text{cov}(\mathbf{x}) = \mathbf{L}\mathbf{L}' + \boldsymbol{\psi}$$

$$\text{cov}(\mathbf{x}, \mathbf{f}) = \mathbf{L}$$

$$\lambda_{ij} = \text{cov}(x_i, f_j) = \sigma_{ij} = \lambda_{i1}\sigma_{1j} + \lambda_{i2}\sigma_{2j} + \dots + \lambda_{ik}\sigma_{kj}$$

and

$$\begin{aligned} \psi_{ii} &= \text{var}(x_i) = \lambda_{i1}^2\sigma_{11} + \lambda_{i2}^2\sigma_{22} + \dots + \lambda_{ik}^2\sigma_{kk} + \psi_{ii} \\ &= (\lambda_{i1}^2\sigma_{11} + \lambda_{i2}^2\sigma_{22} + \dots + \lambda_{ik}^2\sigma_{kk}) + \psi_{ii} \\ &= h_i^2 + \psi_{ii} \\ &= \text{communality} + \text{specific variance} \end{aligned}$$

The quantity ψ_{ii} , the contribution of the specific factor v_i , is called the *uniqueness* or *specific variance*, and the quantity h_i^2 , the contribution of common factors, is called *communality of common variance*. Furthermore, $\lambda_{i1}^2\sigma_{11}$ is the contribution of the 1st common factor to the common variance, $\lambda_{i2}^2\sigma_{22}$ is the contribution of the 2nd common factor to the common variance, and so on [6, 8, 9, and 10].

The parameters of the factor analysis model, including the factor loadings and the error variances, are usually unknown and need to be estimated from the sample data. The sample covariance matrix is occasionally used, but it is much more common to work with the sample correlation matrix. In estimating the parameters, this study consider to use correlation matrix and principal factor method.

The factor loadings can be used to interpret the label of the factors in terms of the common elements that load highly on each factor. However, if the factor loadings obtained are difficult to interperate, it is customary to rotate these factor loadings. The interpretation will usually be clearer after rotation of the factor pattern that offers the most adequate interpretation of the variables under

examination. For example, suppose the factor loadings corresponding the first two original variables are wether positively or negatively high for the first factor, The first common factor then can be interpreted as a linear combination of only these two variables. Factor rotations are broadly classified as either orthogonal, in which the

rotated factors are orthogonal to each other , or oblique, in which the rotated factors are not orthogonal to each other [5, 6, 8, 9, and 10].

In many areas of applications, orthogonal rotations are used commonly. Orthogonal rotation is the process of extracting so that the factor axes are maintained at 90 degrees. There are three popular orthogonal that varimax rotation, quartimax rotation and equamax rotation [1, 4, and 5]. Among them the variamax method proposed by Kaiser in 1958 [7] is the most popular of these methods and is often used to rotate principal components solutions. For comparison purposes, this study consider varimax rotation, quartimax rotation, and equamax rotation.

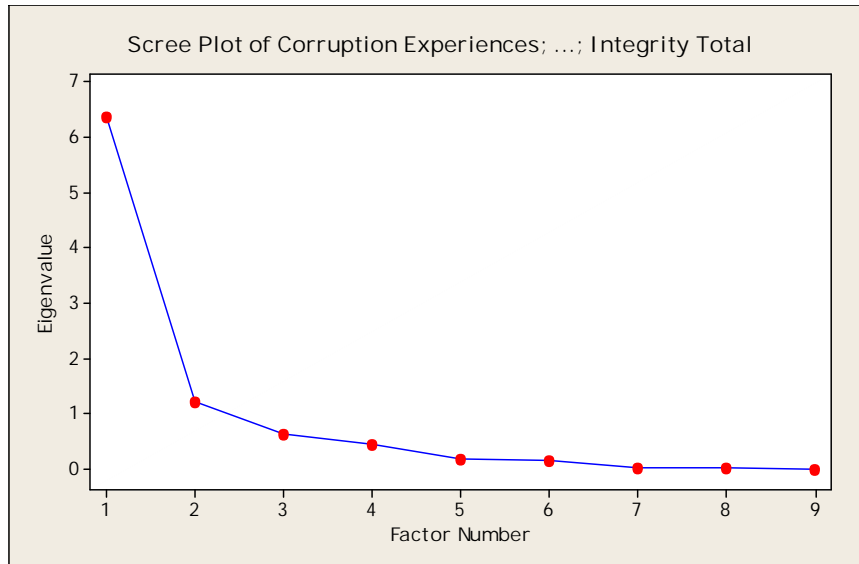
3. DATA ANALYSIS AND RESULTS

To demonstrate how to implement factor analysis this study use use data set published by Indonesia’s Corruption Eradication Commission known as Komisi Pemberantasan Korupsi (KPK) [2]. Tabel 1 contains the unrotated component analysis factor matrix. The first row of numbers at the bottom of each column is the column variance (eigenvalues) of each factor and indicates the relative important of each factor in accounting for the variance associated with the set of variables. To determine the numbers of factors needed to explain correlations among variables, the most popular approaches are the eigenvalue-greater-than-one rule, the proportion of variance explained by the factors, and the scree plot that a plot of the eigenvalues associated with each of the factors extracted, against each factor. The first factor,

Table 1. Estimated unrotated factor loadings, eigenvalues, and communalities

Principal Component Factor Analysis of the Correlation Matrix					
Unrotated Factor Loadings and Communalities					
Variable	Factor1	Factor2	Factor3	Factor4	Communality
Corruption Experiences	0,929	0,242	0,096	0,169	0,960
Corruption Perceptions	0,937	0,246	0,073	0,148	0,965
Working Environments	0,856	0,299	-0,011	-0,296	0,910
Administration Systems	0,665	-0,137	-0,730	0,034	0,995
Behavior of Individuals	0,847	-0,032	0,138	-0,461	0,950
Corruption Prevention Efforts	0,435	-0,851	0,200	0,103	0,964
Integrity Experience	0,941	0,167	0,100	0,223	0,973
Integrity Potencies	0,846	-0,478	-0,039	-0,100	0,956
Integrity Total	0,969	0,025	0,073	0,160	0,971
Eigenvalue	6,3636	1,2098	0,6234	0,4472	8,6440
% Var	0,707	0,134	0,069	0,050	0,960

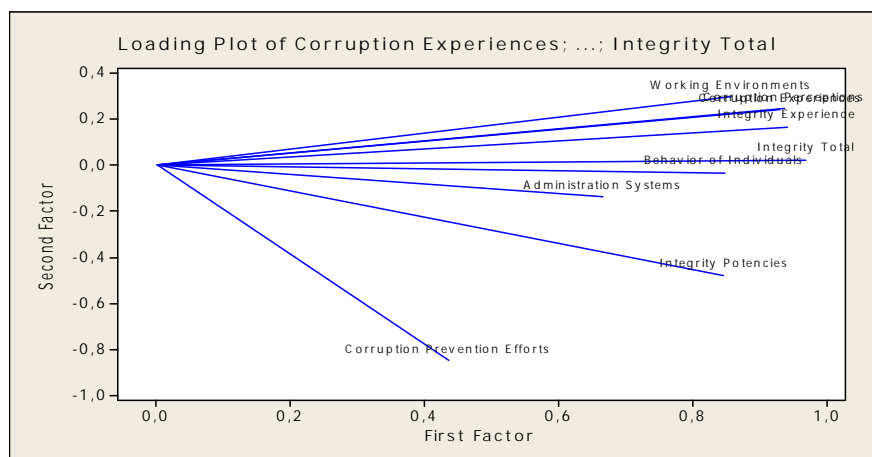
with eigenvalue of 6.3636, accounts for approximately 70.7% of the variance. The second factor, with eigenvalue of 1.2098, accounts for 13.4% of the variance explained. The remaining factors have eigenvalues less than 1. The cumulative percent of variance explained by the first two factors is 84.1%. Based upon the first two rules, therefore, we might consider the first and the second factor retained. As shown in Graph 1, moreover, the scree plot confirms our conclusion. The elbow of the scree plot is approximately at two factors.



Graph 1. Scree plot of KPK data set with 9 variables

Table 1 also presents unrotated factor loadings all of variables that extracted by the principal component method. Factor loadings represent the degree of association or correlation of each variable with each factor. Based on unrotated factor loadings, the first factor can be roughly interpreted as “General Integrity Conditions”, since it is positively high correlated with variable Integrity Total, Integrity Experience, Corruption Perceptions, Corruption Experiences, Working Environments, Behavior of Individuals, Integrity Potencies, and Administration Systems. The first factor can be labeled as a “Integrity Index” factor. Because it is negatively high correlated with variable Corruption Prevention Efforts, the second factor can be called “Corruption Prevention” factor.

Vector plot graph can be constructed from the factor loadings of Table 1, as shown below (Graph 1). This is a graphical expression of the information in the factor pattern. This graph presents clearly that the first factor is defined primarily by variable Integrity Total, Integrity Experience, Corruption Perceptions, Corruption Experiences, Working Environments, Behavior of Individuals, Integrity Potencies, and Administration Systems. The second factor is represented mainly by variable Corruption Prevention Efforts.



Graph 1. Vector of unrotated factor loading

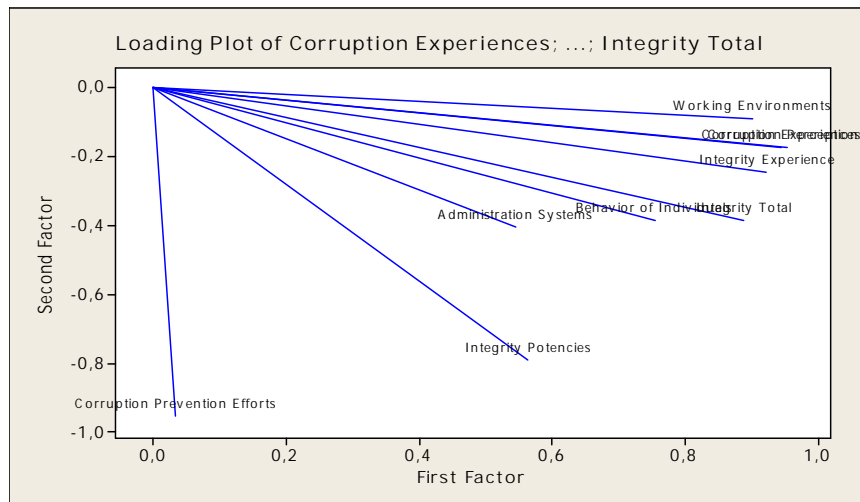
Since the factor solution is not unique and to achieve a simpler factor structure that can obtain another factor solution by rotating the axes. This study considers to use orthogonal rotations that are varimax, quartimax, and equamax methods. In applied social sciences subject, orthogonal rotation is used most often, probably because it is the default in major statistical programs and the perception that orthogonally rotated solutions are more easily interpreted because the factor loadings represent correlations between the indicators and the latent factors.

In the varimax rotation, the first factor receives high factor from the variables Corruption Perceptions, Corruption Experiences, Integrity Experience, Working Environments, Integrity Total, Behavior of Individuals, Integrity Potencies, and Administration Systems, respectively (Table 2). Table 2, also, shows that the second factor receives high factor from the variables Corruption Prevention Efforts and Integrity Potencies.

Table 2. Varimax rotated factor loadings, eigenvalues, and communalities

Rotated Factor Loadings and Communalities Varimax Rotation			
Variable	Factor1	Factor2	Communality
Corruption Experiences	0,944	-0,174	0,922
Corruption Perceptions	0,953	-0,173	0,938
Working Environments	0,902	-0,092	0,822
Administration Systems	0,545	-0,405	0,461
Behavior of Individuals	0,754	-0,387	0,719
Corruption Prevention Efforts	0,034	-0,955	0,914
Integrity Experience	0,923	-0,246	0,913
Integrity Potencies	0,564	-0,791	0,945
Integrity Total	0,889	-0,387	0,940
Eigenvalue	5,4411	2,1323	7,5734
% Var	0.605	0.237	0.841

Graph 2 presents vector plot graph can be constructed from the factor loadings of Table 2. This graph presents clearly that the first factor is defined primarily by variables Corruption Perceptions, Corruption Experiences, Integrity Experience, Working Environments, Integrity Total, Behavior of Individuals, Integrity Potencies, and Administration Systems. The second factor is represented mainly by variables Corruption Prevention Efforts and Integrity Potencies.



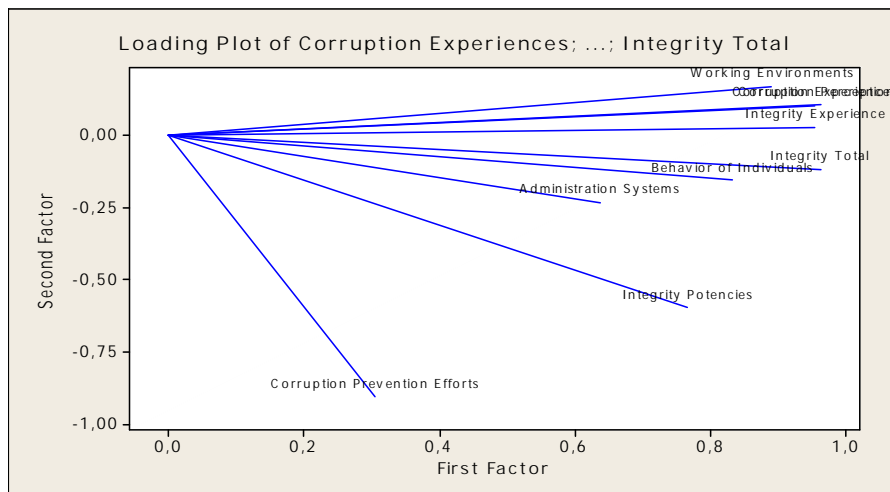
Graph 2. Vector of varimax rotated factor loading

In the quartimax rotation, the first factor receives high factor from the variables Corruption Perceptions, Integrity Total, Corruption Experiences, Integrity Experience, Working Environments, Behavior of Individuals, Integrity Potencies, and Administration Systems, respectively (Table 3). Based on Table 3, it can be interpreted that the second factor receives high factor from the variables Corruption Prevention Efforts and Integrity Potencies.

Table 3. Quartimax rotated factor loadings, eigenvalues, and communalities

Rotated Factor Loadings and Communalities Quartimax Rotation			
Variable	Factor1	Factor2	Communality
Corruption Experiences	0,955	0,103	0,922
Corruption Perceptions	0,963	0,106	0,938
Working Environments	0,891	0,170	0,822
Administration Systems	0,638	-0,233	0,461
Behavior of Individuals	0,833	-0,156	0,719
Corruption Prevention Efforts	0,305	-0,906	0,914
Integrity Experience	0,955	0,027	0,913
Integrity Potencies	0,767	-0,597	0,945
Integrity Total	0,962	-0,118	0,940
Variance	6,2524	1,3210	7,5734
% Var	0,695	0,147	0,841

Graph 3 presents vector plot graph can be constructed from the factor loadings of Table 3. This graph presents clearly that the first factor is defined primarily by variables Corruption Perceptions, Integrity Total, Corruption Experiences, Integrity Experience, Working Environments, Behavior of Individuals, Integrity Potencies, and Administration Systems. The second factor is represented mainly by variables Corruption Prevention Efforts and Integrity Potencies.



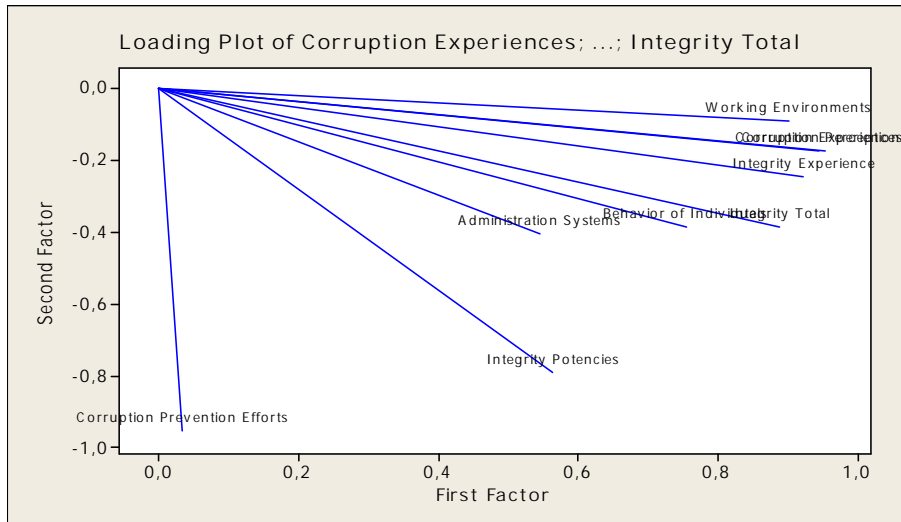
Graph 3. Vector of quartimax rotated factor loading

Results of the equamax are similar than those of the the varimax rotation. the first factor recieves high factor from the variables Corruption Perceptions, Corruption Experiences, Integrity Experience, Working Environments, Integrity Total, Behavior of Individuals, Integrity Potencies, and Administration Systems, respectively (Table 4). Table 4 presents that the second factor recieves high factor from the variables Corruption Prevention Efforts and Integrity Potencies.

Table 4. Equamax rotated factor loadings, eigenvalues, and communalities

Rotated Factor Loadings and Communalities Equamax Rotation			
Variable	Factor1	Factor2	Communality
Corruption Experiences	0,944	-0,174	0,922
Corruption Perceptions	0,953	-0,173	0,938
Working Environments	0,902	-0,092	0,822
Administration Systems	0,545	-0,405	0,461
Behavior of Individuals	0,754	-0,387	0,719
Corruption Prevention Efforts	0,034	-0,955	0,914
Integrity Experience	0,923	-0,246	0,913
Integrity Potencies	0,564	-0,791	0,945
Integrity Total	0,889	-0,387	0,940
Variance	5,4411	2,1323	7,5734
% Var	0,605	0,237	0,841

Graph 4 presents vector plot graph can be constructed from the factor loadings of Table 4. This graph presents clearly that the first factor is defined primarily by variables Corruption Perceptions, Corruption Experiences, Integrity Experience, Working Environments, Integrity Total, Behavior of Individuals, Integrity Potencies, and Administration Systems. The second factor is represented mainly by variables Corruption Prevention Efforts and Integrity Potencies.



Graph 4. Vector of equamax rotated factor loading

4. SUMMARY

Based on survey data of public sector in Indonesia published by KPK in 2011, the results of the factor analysis show that based on eigen values the first factor alone accounts for 70.7% of the common variance. The second factor alone accounts for 13.4%. The common variance of the nine variables explained by two factors is 84.1%. Using the varimax rotation and based on values of factor loadings the first factor makes high contribution to the variance of corruption experiences, corruption perceptions, working environments, the behavior of individuals, integrity experiences, and integrity total variables. The second factor makes high contribution to the variance of corruption prevention efforts and integrity potencies variables. Similar results, also, are obtained by quartimax rotation and equamax rotation.

REFERENCES

- [1] Brown, Bruce L., Suzanne B. Hendrix, Dawson W. Hedges, and Timothy B. Smith. 2012. *Multivariate Analysis for the Biobehavioral and Social Sciences A Graphical Approach*. USA: John Wiley & Sons, Inc., Publication.
- [2] Browne, Michael W. 2001. An Overview of Analytic Rotation in Exploratory Factor Analysis. *Multivariate Behavioral Research*, 36 (1), 111-150
- [3] Direktorat Penelitian dan Pengembangan Kedepuitian Bidang Pencegahan Komisi Pemberantasan Korupsi Integritas. 201. *Sektor Publik Indonesia Tahun 2011. Fakta Korupsi dalam Layanan Publik*. 2011. Diterbitkan oleh Direktorat Penelitian dan Pengembangan Kedepuitian Bidang Pencegahan Komisi Pemberantasan Korupsi.
- [4] Finch, W. Holmes. 2011. A Comparison of Factor Rotation Methods for Dichotomous Data. *Journal of Modern Applied Statistical Methods*, Vol. 10, No. 2, 549-570
- [5] Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., and Tatham, R.L. 2006. *Multivariate Data Analysis*. New Jersey : Pearson Education, Inc.
- [6] Johnson, R.A., and Wichern, D.W. 1982. *Applied Multivariate Statistical Analysis*. New Jersey : Prentice-Hall, Inc.
- [7] Kaiser, H.F. 1958. The Varimax Criterion for Analytic Rotation in Factor Analysis. *Psychometrika*, 23, 187-200.
- [8] Khattree, R. And Naik, D.N. 2000. *Multivariate Data Reduction and Discrimination With SAS Software*. USA : John Wiley and Sons, Inc.
- [9] Mardia, K.V., Kent, J.T., and Bibby, J.M. 1979. *Multivariate Analysis*. San Diego : Academic Press, Inc.
- [10] Sharma, S. 1996. *Applied Multivariate Techniques*. USA : John Wiley and Sons, Inc.
- [11] Spearman, C. 1904. General Intelligence, Objectively Determined and Measured. *American Journal of Psychology*, 15, 201-293.



**universitas
bandar lampung**

Jl. Z.A. Pagar Alam No.26 Labuhan Ratu
Bandar Lampung 35142 Phone: +62 721 701463
www.ubl.ac.id
Lampung - Indonesia

copyright@2013