ASIA INTERNATIONAL MULTIDISCIPLINARY CONFERENCE 2017

TECHNOLOGY & SOCIETY:
A MULTIDISCIPLINARY PATHWAY FOR
SUSTAINABLE DEVELOPMENT

1-2 MAY 2017

UNIVERSITI TEKNOLOGI MALAYSIA

Economics, Business and Management

FOCUS AREAS

- Social Sciences and Humanities
- Science, Technology and Engineering
- Economics, Business and Management
- Life Sciences and Others

UTM — Innovation and Commercialisation Centre (ICC) — Universiti Teknologi Malaysia

ASIA — ACADEMIA SOCIETY & INDUSTRY ALLIANCE

Economics, Business & Management

(EBM 2017)

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Pre-Conference Training Workshop

AIMC 2017
ASIA International Multidisciplinary Conference

Conference Program

Schedule for AIMC 2017
Conference Theme: Technology and Society: a multidisciplinary pathway for sustainable development
Venue: Seminar Room 2, FAB, Universiti Teknologi Malaysia, Johor Bahru, Malaysia

Monday, 1st May 2017

Time	Event
07:30-08:45	Registration
08:45-09:00	Guests Seating
09:00-09:20	Opening Note by **Prof. Dr Amran Rasli (UTM)**
09:20-09:40	Keynote Speech by **Prof. Dr Rajah Rasiah (UM)**
09:40-10:00	Keynote Speech **Prof. Dr Hadi Nur (UTM)**
10:00-10:15	Introduction of Connecting Asia by **Dr Muhammad Imran Qureshi (UniKL)**
10:15-10:20	Group Photograph
10:20-10:45	**Breakfast**
10:45-13:00	Parallel Sessions / 5Slides 5 Minute 5 Slides (5S 5M)) Competition /Poster Presentation Competition
13:00-14:00	**Lunch & Prayer Break**
14:00-16:00	Parallel Sessions
	5Slides 5 Minute 5 Slides (5S 5M) Competition
	Poster Presentation Competition
16:00-16:15	**Tea Break**
16:15-18:15	Parallel Sessions
	5Slides 5 Minute 5 Slides (5S 5M) Competition
	Poster Presentation Competition

CONFERENCE GALA DINNER

AIMC 2017
ASIA International Multidisciplinary Conference

Venue: Pulai Spring Resort, Skudai, Johor Bahru[a]
Date: 1 May 2017
Time: 19:00 – 22:00 Hours

Time	Program
19:00 – 19:30	Registration & Guest Seating
19:30 – 19:40	Welcome Speech by Conference Chairman **Prof. Dr Amran Rasli**
19:40 – 20:00	Keynote address by **Vice Chancellor UTM, Prof. Datuk IR. Dr Wahid Bin Oma**r
20:00 – 20:05	Montage (ASIA Achievements & AIMC 2017)
20:05 – 20:15	About ASIA till Now and Future Plans of ASIA, Launch of ASIA Membership Campaign
20:15 – 20:30	Presentation of Awards and cash prize
20: 30 – 21:15	Cultural Event
21: 15 – 21:20	Photo Sessions
21: 20 – 22:00	Networking & Dinner
22:00	End of the Event

Dinner Theme: Connecting People Globally
Dinner Attire: Traditional Attire[a]

Tuesday, 2 May 2017

09:00-17:00	**Virtual Conference (Audience is not allowed)**

[a]20km, Jalan Pontian Lama, 81110 Pulai, Johor Malaysia
Tel : +607 521 2121, Fax : +607521 1818, Email: enquiry@pulaisprings.com

[b]**(The Guests are requested to wear their own Country's Traditional Attire)**

WELCOME MESSAGES FROM CONFERENCE CHAIR

Professor Dr Amran Rasli

We welcome all respected Researchers to the AIMC 2017, ASIA International Multidisciplinary Conference on four sub-themes i.e. Social Sciences and Humanities, Life Sciences, Science, Technology and Engineering, Economics, Business and Management. AIMC 2017 received more than 1700 abstracts from 22 countries. However, after rigorous review process, 500 quality abstracts were selected for oral presentations. The presentations are divided into different categories including 5Slides 5Minute (5S 5M) competition which are a trademark of ASIA, poster presentation competition and oral presentations with a cash prize for winners. These papers cover a wide range of disciplines consisted of Social Sciences and Humanities, Psychology, Education, Linguistics, Civilization and Law, Anthropology, Life Sciences, Environmental Sciences, Biosciences, Pharmacy, Medical Sciences, Earth sciences, Geology, Agriculture, Anatomy, Genetics, Zoology, Science, Technology and Engineering, Civil Engineering, Mechanical Engineering, Chemical Engineering, Electrical Engineering, Energy, Marine Engineering, Information technology and Computer science, Bioinformatics, Geo-informatics and real states, Mathematics, Physics and Chemistry, Economics, Business and Management, Economics, Business Management, Accounting and Finance, Management, Marketing, Technology management, Human Resource and Operations Management, that bring new and general insights body of knowledge and research world. We are delighted that we will have Special Keynote Speakers Prof. Datuk Ir. Dr Wahid bin Omar Vice Chancellor UTM, Prof. Dr Rajah Rasiah. Professor Dr Hadi Nur and Dr Muhammad Imran Qureshi. They will deliver an insightful keynote on the emerging agenda of the conference. ASIA is a Research society intended to create a symbiotic partnership between academia and industry to provide sustainable solutions for social and industrial issues. ASIA Mediterranean network is a conference management system which aims to bring all respective stakeholders, including practitioners, educators, and professionals on one platform from all over the globe to share the latest developments and transfer the academic and tacit knowledge to make the society more sustainable and knowledgeable. Recently the ASIA Mediterranean Network conducted 2nd ASIA International Conference AIC 2016 at UTM Kuala Lumpur Malaysia. In addition, 2nd AFAP International Conference on Entrepreneurship and Business Management (AICEBM 2015) was successfully conducted at Kuala Lumpur Malaysia. In 2015 ASIA International Conference (AIC 2015) in collaboration with UTM-ICC was also successfully organised. In the same vein, ASIA extends the journey of success to organise ASIA International Multidisciplinary Conference AIMC 2017 in collaboration with UTM-ICC, and Universiti Technologi Malaysia on four sub-themes i.e. Social Sciences and Humanities, Life Sciences, Science, Technology and Engineering, Economics, Business and Management.at Universiti Teknologi Malaysia, International Campus, Johor Bahru, Malaysia.

GUIDE TO SESSION CHAIRS

Before Session

1. Please arrive at the meeting room 5 minutes earlier before the session starts.

2. You can check the program on the official conference website in advance.

3. If there are any changes of the session time or presenting abstract, the working staff will notify you right at the registration desk.

During Session

1. Please divide the available time equally among all presenters. Each paper should be presented in ten minutes, followed by three minutes discussion time.

2. At the beginning of the session, briefly, introduce yourself, announce of your arrangement of the presentations to the presenters and the audience. Please make sure the presenters are aware that they will receive their certificate at the end of the session.

3. We will have our working staff ready at the end of each session to take a group picture of the participants, please help to gather everyone for the photo shoot.

4. Papers with more than one author do not get any extra time for the presentation.

5. Please remind the presenters of the remaining time they have three minutes before the end of their presentation. If a speaker goes beyond the allotted time, the session chair should ask him/her to close the presentation promptly and politely.

6. Confer the certificate of participation to every presenter at the end of the session.

7. Please try to make sure the session timely proceeds since some attendees need to move from session to session.

8. If any problem which affects the continuation of your session appears, please send someone to contact the organisers.

9. If any of the presenters fail to appear at the session, please return their certificates to the organising committee.

SESSION CHAIRS & JUDGES

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Prof. Dr. Amran bin MD. Rasli	Management	UTM
Prof. Dr. Rajah A/l Rasiah	Business Economics	UM
Dr. Nurwina Akmal Binti Anuar	Biosciences and Health Sciences	UTM
Dr. Shafqat Ullah Khan	Communication/Electrical Engineering	UTM
Dr. Muhammad Adil Khattak	Mechanical and Nuclear Engineering	UTM
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Dr. Mehrbakhsh Nilashi	Computing	UTM
Dr. Zahid Sultan	Built Environment	UTM
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Dr. Munirah Binti Onn	Applied Sciences	UiTM
Dr. Yulia Hendri Yeni	Business and Management	Unand,
Dr. Syed Zuhaib Haider Rizvi	Lasers Induced Plasma	UTM
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Assoc. Prof. Dr. Mukhiddin Muminov	Analysis, Mathematical Physics	UTM
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Dr. Tan Sui Hong, Helen	Business and Management	UTM
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Dr. Qais Ali	Computing	UTM
Dr. Usman Ahmad	Computing	LCW, Pak

Names	Area	University
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Dr. Muhammad Imran Qureshi	Operation Management	Uni KL
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Dr. Salmiah Jamal Mat Rosid	Chemistry	UTM

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Program Director
Dr Muhammad Imran Qureshi

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Zia ur Rehman

OUR DIGNITARIES

Prof. Datuk. Ir. Dr Wahid bin Omar
Vice-Chancellor,
Universiti Teknologi Malaysia

Datuk Wahid Omar is a Professor of Structural Engineering at the Faculty of Civil Engineering, Universiti Teknologi Malaysia (UTM). He was appointed as the Vice-Chancellor of UTM in September 2013. Wahid Omar obtained his PhD. in Structural Engineering from the University of Birmingham, his Master's degree in Bridge Engineering from the University of Surrey, and his Bachelor of Science in Civil Engineering degree from the University of Strathclyde, United Kingdom. He is a Fellow of the Institution of Engineers Malaysia, a registered Professional Engineer with the Board of Engineers Malaysia and a member of various professional bodies. He is also an Honorary Member of the ASEAN Federation of Engineering Organization (AFEO). His areas of expertise include structural assessment, reinforced and pre-stressed concrete and ductility of high strength concrete and project management. Prior to his present appointment, he was the Deputy Vice-Chancellor (Development) (2011-2013) and the Director of the Office of Asset and Development (2008-2011). In his capacity as the then Director of the Office of Asset and Development, he was entrusted with a major task to manage UTM campus development projects worth RM1 billion.

Professor Dr Amran Rasli has a PhD in Society, Business & Globalisation from Roskilde University, Denmark. He is currently the Director of Innovation and Commercialization Centre, Universiti Teknologi Malaysia. His main task is to screen UTM research and development projects, and subsequently, create commercial ventures through licensing and/or formation of spin-offs companies. He is a director of two spin-off companies on behalf of UTM. He also liaises, plans and conducts entrepreneurship activities with funding agencies to ensure the sustainability and impact for the entrepreneurs and the agencies concerned. At the Faculty of Management, Prof. Dr Amran Rasli teaches postgraduate students, supervise doctoral students, conduct research projects and write journals for publication as per the expectation of the university. Prof. Dr Amran Rasli is still active in doctoral supervision having graduated 31 PhD scholars so far. He had been invited as a visiting professor at University College of Engineering and Technology, Pahang, Indian Institute of Risk Management, Hyderabad, India, Hebei University, China, Kaunas Technological University, Lithuania, National Central University, Taoyuan, Taiwan, National Chen Kung University, Tainan, Taiwan and Universitas Sebelas Maret, Surabaya, Indonesia. He is currently an Adjunct Professor at Asia E-University.

Dr Rajah Rasiah is Professor of Economics and Technology Management at the Faculty of Economics and Administration, University of Malaya. He was the first holder of the Khazanah Nasional Chair of Regulatory Studies and a Professorial Fellow at UNU-MERIT and a member of the GLOBELICS scientific board, and an advisory member of the Industrial Development Research Centre, Zhejiang University. He is also a member of the National Science Research Council, Malaysia, and an advisory member of the Export Committee of the Ministry of International Trade and Industry, Malaysia. He has contributed extensively to projects commissioned by UNCTAD, World Bank, ILO, UNIDO, UNESCO, UNDP and WIPO in Africa, Asia and Latin America. He obtained his doctorate in Economics from Cambridge University in 1992 and was a Rajawali fellow at Harvard University in 2014. He is the 2014 recipient of the Celso Furtado prize from the World Academy of Sciences for his contributions to the field of social sciences. He has published more than 300 research articles in SCOPUS, ISI indexed and Impact factor journals. He has supervised 32 Doctoral Theses and 18 Master Theses. More than 100 scientific papers have been presented since 2007 at various international conferences. About 17 books have been published in national and international publishers. His work has been cited extensively (<3700) with 94 i10 index and h index 31.

Dr Hadi Nur is a Professor and specialised in advanced materials and heterogeneous catalysis. His main field of undergraduate and graduate studies was in chemistry and materials engineering at the Institut Teknologi Bandung. He obtained his B.S. and M.Eng. (cum laude) degrees in 1992 and 1995, respectively. Shortly after that, he continued his postgraduate studies in zeolite chemistry at the Universiti Teknologi Malaysia (UTM) as he received his PhD degree in 1998. His postdoctoral studies started with a year as a UTM Postdoctoral Fellow and with two years as a Japan Society for Promotion of Science (JSPS) Postdoctoral Fellow at Catalysis Research Center (CRC), Hokkaido University, Sapporo, Japan. He continued there as a Center of Excellence (COE) Visiting Researcher at CRC for half a year. In May 2002, he joined the Ibnu Sina Institute for Fundamental Science Studies, Universiti Teknologi Malaysia. He was a visiting scientist at the Institute for Heterogeneous Materials Systems, Helmholtz-Zentrum Berlin for Materials and Energy, Germany from July to September 2015. Currently, he is a full professor at UTM. He has supervised many postgraduate students studying for PhD and M.S. degrees in heterogeneous catalysis and advanced materials, for example, zeolite chemistry and catalysis, photocatalysis, semiconductor nanoparticle-polymer composite, bifunctional oxidative, and acidic catalysts and phase-boundary catalysis. Currently, he and his family enjoy living in Johor Bahru area and are glad that they made the move.
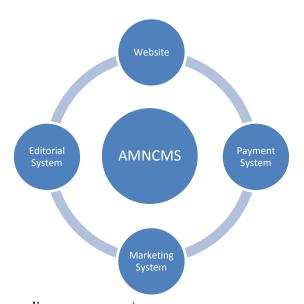
Muhammad Imran Qureshi is a doctor of management from Universiti Teknologi Malaysia. His doctorate research focused on the work practices for sustainable manufacturing under Socio-technical systems context. He is currently working as a senior lecturer in Malaysian Institute of Industrial Technology (MITEC), Universiti Kuala Lumpur. He is also founding Director of Connecting ASIA research network. He has ten years of teaching experience in the field of Operations Management, Strategic Management, Project Management, Total Quality Management, Statistical Process Control, Environmental Management, Logistic and Supply Chain Management, Production Management and Operations Research, Statistics and Data Analysis. He is a professional trainer for data analysis. He has conducted several workshops on Structural Equation Modeling (SEM) using AMOS and SMART PLS, qualitative data analysis using NVIVO. On the research side, his research profile consists of more than 100 research publications in renowned journals with a cumulative impact factor above 34. He has written several impact factor publications with world renowned publishers like ELSEVIER and SPRINGER in the area of Operations Management, Environmental Management, Sustainability and Organizational Behavior. His work has been cited extensively with 15 i10 index and h index 12.

CONNECTING ASIA CONFERENCE MANAGEMENT SYSTEM NETWORK (CACMSN)

AMNCMS provides all solutions for the problems in managing conferences. This is a comprehensive system to manage conference website, marketing and payment system. AMNCMS also contains an integrated editorial system for submission and review of the conference articles. AMNCMS enables conference organisers to manage multiple conferences on the single web and provide hassle free easy to use interface for organisers and researchers over the globe. AMNCMS is undergoing the process for copyright protection as stipulated by the commercialization policy of Universiti Teknologi Malaysia (UTM). Many local and international conferences are using AMNCMS for hassle free conference management. Our team is committed to providing quality services to satisfy conference organisers needs.

CONNECTING ASIA CONFERENCE MANAGEMENT SYSTEM NETWORK

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Email: Editor@asiamediterranean.org, info@asiamediterranean.org

Address: UTM Innovation and Commercialisation Centre, Industry Centre, Technovation Park, Universiti Teknologi Malaysia, 81300 Johor Bahru, Johor, Malaysia.

Call for Paper

International Conference on Management, Accounting, Business and Entrepreneurship (ICMABE 2017)

Tentative Dates: 15 - 18 October, 2017
Tentative Venue: Jakarta, Indonesia

Themes

Management, Accounting and Finance, Entrepreneurship & Business

All accepted articles will be published in **Scopus** indexed journals

For further information please visit: http://asiamediterranean.org
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Call for Paper

3ʳᵈ ASIA International Conference 2017 (AIC-2017)

Tentative Dates: 16-17 December 2017
Tentative Venue: UTM, Kuala Lumpur, Malaysia

Themes

Marketing, Management, Finance, Economics, Sustainablit, Humanities & Education

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EFFECT OF CORPORATE GOVERNANCE QUALITY, FIRM SIZE, LEVERAGE, AND FINANCIAL PERFORMANCE ON INTELLECTUAL CAPITAL DISCLOSURE EMPIRICAL STUDY: MANUFACTURING COMPANIES LISTED ON THE IDX

Corresponding Author: Elvira Luthan

Andalas University

Co-Authors: Sandra Ayu ; Ilmainir

Abstract

Introduction: *This study aims to determine the effect of corporate governance quality, firm size, leverage, and financial performance on intellectual capital disclosure, in manufacturing companies listed on Indonesian Stock Exchange.* **Methodology:** *The observation period is 2010 up to 2015. Sampling was done using purposive sampling method, with 45 manufacturing companies as the result. This study used a secondary data. This study used multiple linear regression analysis method. Data tabulation process used SPSS version 19.0 for Windows.* **Findings:** *The results showed that the corporate governance quality, firms size, and financial performance that measured by earnings per share (EPS) have positive significant effect on the intellectual capital disclosure. This is shown from the significant value smaller than α of 0.05 and positive t value. While leverage have negative significant effect on the intellectual capital disclosure. The result showed that leverage variable have the significant value smaller than α of 0.05 and negative t value.* **Contribution:** *The results showed that the corporate governance quality, firms size, and financial performance that measured by earnings per share (EPS) have positive significant effect on the intellectual capital disclosure. This is shown from the significant value smaller than α of 0.05 and positive t value. While leverage have negative significant effect on the intellectual capital disclosure. The result showed that leverage variable have the significant value smaller than α of 0.05 and negative t value.*

Keywords: agency theory, signalling theory, intellectual capital disclosure, corporate governance quality, firm size, leverage, earnings per share (EPS)

THE HYBRID ROLE OF HUMAN RESOURCE MANAGEMENT AND INFORMATION TECHNOLOGY VIA COMPETITIVE INTELLIGENCE CYCLE

Corresponding Author: Ainul Mohsein binti Abdul Mohsin

Universiti Sains Malaysia

Co-Authors: Nor Hasliza binti Md. Saad

Abstract

Introduction: *In today's innovation-led economy, the financial services organisations acknowledge talent is the key competitive differentiator. However, despite the importance of talent to the business performance, the Malaysian financial services organisations are having difficulty to find the best fit candidates. Studies indicated this phenomenon to mismatch of skills. Nevertheless, this study takes a different angle and focuses on a hybrid role of management and technology. It focuses on the obtainability of big data resources of the 21st century and the competency of the human resource professionals to interpret reliable information about the competitive talent market to make strategic and tactical decision on talent management. The aim of this paper is to understand are human resource professionals in Malaysia able to cope with a hybrid role that requires several interdisciplinary competencies. The paper will explore the corporate human resource in the financial services sector ability to fully exploit competitive intelligence on talent market. In order to answer this question, an in-depth literature review is conducted on that topic and then defined the competitive intelligence elements and decision support system that could contribute on talent management framework.* **Methodology:** *Competitive Intelligence is not just market research and information gathering. It is an ongoing process of translating data and information into intelligence by using psychological techniques and new technology. In this study the phases developed by Calof and Dishman (2002) and Bernhardt (1994) is adopted. Saayman et al. (2008) study has refined and validates the constructs and items of the CI process. Hence, this study will adapt the items by Saayam et al. (2008).The CI cycle embedded the Gary and Scott Framework. According to the Gray and Scott Framework, human resources metrics can be guided by human resources activities and classification of decision structure. They argue that technology could be used to support decision- making at different degree of semi-structured and unstructured decision making and management decision level making levels and activities. problems. Based on the above literature review, the following propositions are anticipated.*

EFFECT OF CORPORATE GOVERNANCE QUALITY, FIRM SIZE, LEVERAGE, AND FINANCIAL PERFORMANCE ON INTELLECTUAL CAPITAL DISCLOSURE
Empirical Study: Manufacturing Companies Listed on the IDX

Elvira Luthan, Sandra Ayu & Ilmainir
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Economics Faculty, Andalas Univ.

Abstract

This study aims to determine the effect of corporate governance quality, firm size, leverage, and financial performance on intellectual capital disclosure, in manufacturing companies listed on Indonesian Stock Exchange. The observation period is 2010 up to 2015. Sampling was done using purposive sampling method, with 45 manufacturing companies as the result. This study used a secondary data. This study used multiple linear regression analysis method. Data tabulation process used SPSS version 19.0 for Windows.

The results showed that the corporate governance quality, firms size, and financial performance that measured to return on assets (ROA) and earnings per share (EPS) have positive significant effect on the intellectual capital disclosure. This is shown from the significant value smaller than α of 0.05 and positive t value. While leverage have negative significant effect on the intellectual capital disclosure. The result showed that leverage variable have the significant value smaller than α of 0.05 and negative t value.

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Keywords: agency theory, signalling theory, intellectual capital disclosure, corporate governance quality, firm size, leverage, return on assets (ROA), earnings per share (EPS)

1. Introduction

The phenomenon of intellectual capital in Indonesia began to develop after the emergence of Financial Accounting Standard in Indonesia (PSAK) No.19 (Revised 2000) on intangible assets. Intellectual capital is defined as the sum of the three main elements of the organization namely human capital, structural capital, and customer capital (Pulic, 1998; Bontis, 2001; Serrat, 2011). These three elements are related to knowledge, human experience, and technology that can provide more value for the company in the form of competitive advantage of a company (Sawarjuwono & Kadir, 2003).

Intellectual capital becomes a very valuable asset in the modern business. As a result, accountants are required to seek more detailed information on matters relating to the management of intellectual capital from identification, measurement to disclosure in the company's financial statements. (Sawarjuwono & Kadir, 2003).

Research on intellectual capital disclosure is interesting in Indonesia. Because in Indonesia there is no standard guidance in measuring intellectual capital. Disclosure of intellectual capital is a new thing that has not been applied by many companies in Indonesia (Meizaroh dan Lucyanda, 2012). Intellectual capital disclosure is an important issue that should also be disclosed in the company's annual report. But in fact, public companies in Indonesia are still low and less thorough in disclosing information about the company's intellectual capital.

The theories in accounting literature related to intellectual capital disclosure are the agency theory (Palepu dan Healy, 2001). The core of agency theory is the separation of functions between investor ownership (principal) and control on the management (agent). This leads to a conflict of interest and information asymmetry between the principal and the agent that will increase agency costs (Jensen dan Meckling, 1976).

One instrument that can be used by companies to control agency costs is the implementation of corporate governance (Palepu dan Healy, 2001; Cerbioni dan Parbonetti, 2005). According to FCGI/ *Forum for Corporate Governance in Indonesia* (2001), corporate governance is a set of rules governing relationships between shareholders, managers of companies, creditor parties, governments, employees, as well as other internal and external stakeholders related to their rights and obligations or in other words a system that controls company. The purpose of corporate governance is to create added value for all interested parties (*stakeholders*).

Many studies have proven that there is influence between corporate governance and intellectual capital disclosure. Companies with good corporate governance have a high awareness to increase the level of intellectual capital disclosure. The quality of corporate governance in this study was measured using a corporate governance disclosure index developed from Leal, Carvalhal, Silva (2005) and Silveira & Barros (2006).

This study adds firm size and leverage as a variable affecting intellectual capital disclosure. Based on agency theory, large companies have higher agency costs than small firms (Jensen dan Meckling, 1976). As a result, large companies will reveal more information than small companies. White et al. (2007), Ulum et al. (2009) found that firm size had a significant positive effect on intellectual capital disclosure. The larger the size of the company, the more disclosure of intellectual capital information in the annual report.

Leverage is used to measure a company's ability to meet its long-term liabilities and how much the company is financed with debt (Fahmi, 2012). Agency theory predicts that firms with high leverage will reveal more information, as the cost of agency companies with such capital structures is higher. Firms with high leverage have an obligation to meet long term creditor information needs, so that the company will

provide information comprehensively beyond those required by the standard. White et al. (2007) and Ulum et al. (2009) concluded that leverage proved to have a significant effect on intellectual capital disclosure.

Another theory that can be used to explain intellectual capital disclosure is signal theory. (Suwardjono, 2005). Management seeks to disclose information that investors consider highly desirable if the information is good news, even though the information is not required by the standards. Disclosure of the intellectual capital of the company is expected to provide a signal to investors about the prospects of the company in the future.

Financial performance affects intellectual capital disclosure supported by signaling theory. The high financial performance is used to give credible cues that the company has the ability to lower the cost of capital. A well-performing company will differ in its disclosure to a poorly performing company by voluntarily disclosing non-financial information including intellectual capital. (Suhardjanto & Wardhani, 2010).

The financial performance in this study using return on assets (ROA) as a measurement of operating performance and earnings per share (EPS) as a measure of market performance. ROA is used to measure the company's ability to generate return on total assets. (Palepu *et al.*, 2004). While EPS is used to measure the amount of income earned per share for shareholders (Kasmir, 2010). ROA and EPS are expected to provide a good assessment for investors on the company's performance information.

Previous studies provide inconsistent conclusions about the effect of financial performance on intellectual capital disclosure. Research conducted by Haniffa and Cooke (2002), Chang et al. (2007), Suhardjanto & Wardhani (2010), and Saendy (2015) proves that companies with high financial performance will increase the intellectual capital disclosure. While research conducted by Purnomosidhi (2006), Sonnier et al. (2007), and Meizaroh & Lucyanda (2012) concluded that well-performing companies will reduce intellectual capital disclosure compared to poorly performing companies.

This research is important because there is no standard rules of measurement and presentation of intellectual capital in Indonesia. Although there are regulations governing intangible assets ie PSAK No.19 (Revised 2000), but he does not regulate the measurement and items of intellectual capital that need to be disclosed in detail. The condition is a concern and challenge for accountants to seek information on how to identify, measure and present intellectual capital (Purnomosidhi, 2006).

The importance of presentation and disclosure of the company's intellectual capital, prompting the authors to conduct research on manufacturing companies listed in Indonesia Stock Exchange in 2010 – 2015. Manufacturing companies are selected as a population because the group of companies has different characteristics with other industries and has the largest number of publicly traded exchanges compared to other companies.

2. Literature Review

One of the impacts of the implementation of corporate governance is the disclosure of information to stakeholders. The better the implementation of corporate governance,

will increase management disclosures about the management of funds invested by investors. Agency theory can be used to explain the effect of firm size and leverage on intellectual capital disclosure. In general, large-sized companies will disclose more information than the smaller companies. Meanwhile, firms with higher levels of leverage will disclose more information because of the high cost of agency. The Company has an obligation to meet the long term creditor information needs, so that the company will disclose information more comprehensively. Based on signaling theory, a company with good performance will be motivated to disclose information about its intangible assets more in its annual report. More disclosure of the company's intellectual capital is expected to provide a positive signal to investors about the good prospects the company will gain in the future.

2.1. Hypothesis Development

The quality of corporate governance is the extent to which a company implements a corporate governance mechanism within its enterprise. Some aspects to assess the quality of corporate governance based on research Leal & Carvalhal-da-Silva (2005) and Silveira & Barros (2006) are:

a. Access to information, Access to company information, both financial and non-financial, is important to investors and potential investors for decision making.

b. The content of public information and disclosure. The principle of transparency, responsibility, and accountability in corporate governance can be realized through information disclosure on corporate governance practices, future investment plans, compensation plans, as well as the actual efficiency indicators achieved by the company.

c. The structure of the board of commissioners and directors. Information related to the structure of the board of commissioners and directors supports the principles of transparency, independence and accountability. Information on the size of the board of commissioners, profiles of board members including established committees reflects the quality of corporate governance practices. The existence of independent commissioners, profiles of board members and committees of its formation such as audit committee, nomination committee, and remuneration committee become one of the sources of information supporting independence.

d. Ownership structure and shareholder rights. Information regarding the company's ownership structure and shareholder rights illustrate the fulfillment of the principles of transparency, equality and fairness. Such information may be a description of the company's stock classes, the voting rights for each, and the disclosure of shareholder ratings including the percentage of ownership.

The better implementation of corporate governance will increase management disclosures about corporate management and funds invested by investors. The company will voluntarily increase its disclosure in order to protect investors and reduce agency conflicts. Research Fitriani & Purwanto (2010) and Meizaroh & Lucyanda (2012) concluded that the implementation of corporate governance has a positive effect on intellectual capital disclosure. Research Bukh et al. (2005), White et

al. (2007), and Chiedu et al. (2013) also resulted in the conclusion that the implementation of corporate governance significantly influences intellectual capital disclosure.

H$_1$: The quality of corporate governance has a significant positive effect on intellectual capital disclosure.

The firm size is a scale that describes the size of the company as indicated by total assets, total sales, average selling rate, and average total assets. The greater the total asset, or the number of sales, or the average selling rate, and the average total asset the greater of firm size. Based on agency theory, large companies have greater agency costs than small firms (Jensen and Meckling, 1976) that will reveal more information than small firms (Suwardjono, 2005). White et al. (2007), Ulum et al. (2009) and Suhardjanto and Wardhani (2010) have concluded that firm size has a significant positive effect on intellectual capital disclosure.

H$_2$: Company size has a significant positive effect on intellectual capital disclosure.

Leverage shows the company's ability to meet long-term obligations and measure how much the company is financed with debt (Fahmi, 2012). According to Sugiarto (2009), leverage is used to determine how much the company's dependence on debt used to finance the company's operations. Agency theory predicts that firms with higher leverage ratios will reveal more information, because the agency costs are higher with such capital structures. The study by White et al. (2007) and Ulum et al. (2009) has proven that leverage significantly affects intellectual capital disclosure. Companies with high leverage will provide information more comprehensively beyond those required by the standards.

H$_3$: Leverage has a significant positive effect on intellectual capital disclosure.

Based on signaling theory, firms with high profitability indicated by high ROA, tend to disclose more broadly. Management wants to give a positive signal to investors that the company is in a strong competitive position and shows that the company's performance is good. Companies that generate high profits tend to conduct more extensive disclosures. Management wants to give a positive signal to investors that the company is in a strong competitive position and shows that the company's performance is good (Miller et al., 1999). Research Suhardjanto and Wardhani (2010) concluded that the level of corporate profitability as measured by ROA, significant effect on disclosure of intellectual capital of the company.

H$_4$: Return on assets (ROA) have a significant positive effect on intellectual capital disclosure.

Based on the signaling theory, companies that have a high EPS will increase the disclosure because it is a positive signal that the company has a good performance.

Research Chang et al. (2007) and Sandy (2015) show that financial performance as measured by EPS has a positive effect on intellectual capital disclosure.

H$_5$: Earnings per share (EPS) has a significant positive effect on intellectual capital disclosure.

3. Research Method

Research is a scientific curiosity or investigation of organized, systematic, data-driven, critical, to be objective about a certain problem with the aim of obtaining answers or solutions. This research is empirical explanatory verifikatif research, is cross sectional. The population in the study is a manufacturing company listed on the Indonesia Stock Exchange 2010-2015. Total population of 142 companies. Sample selection based on certain criteria (purposive sampling). From the criteria set forth obtained 45 manufacturing companies as a sample. The data used in this research are secondary data obtained from Indonesian Capital Market Directory (ICMD), www.idx.co.id and other relevant sources of information.

This study used 5 variables which are measured using measurement instruments that are adopted from previous studies and has published in several research journals. The disclosure of intellectual capital was measured using the Intellectual Capital Disclosure Index developed by Bukh et al. (2005) of 78 items. The measurement method uses content analysis. The quality of corporate governance is measured using a corporate governance disclosure index developed from Leal & Carvalhal-da-Silva (2005) and Silveira & Barros (2006). The measurement method uses content analysis.

The firm size in this study is measured by total assets (Sugiarto, 2009). Leverage is measured by the debt equity ratio (DER), dividing total debt and total equity (Wild et al., 2005). Return on assets (ROA) is measured by dividing net income by total assets (Ross et al., 2009). While earnings per share (EPS) is measured by dividing net income and number of shares outstanding (Ross et al. 2009).

4. Results
4.1. Descriptive Statistics

Descriptive statistic show the total of data (N) that used in this research to show the maximum value, minimum value, and mean and also standard deviation from the variable that has been by object. The following table shows the results of descriptive statistical tests of 45 manufacturing companies being sampled.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CG Quality	270	.4444	.8519	.613447	.1156943
Firm Size	270	7.82000E+10	2.45435E+14	9.79405E+12	3.71495E+13
Leverage	270	.0422	30.100	.518947	.3628235
ROA	270	-.2080	.7151	.104574	.1218397
EPS	270	-8.3100E2	1.7621E4	5.628184E2	1.8856961E3
IC Disclosure	270	.1923	.7179	.459163	.1137821
Valid N (listwise)	270				

Source: Data processed with SPSS version 19

4.2. Classical Assumption Testing

Classical assumption testing is performed before hypothesis testing. The testing is an important one in the process of the multiple regressions to convince the data is reliable. Classical assumption of normality testing, multicollinearity testing, heteroscedasticity testing, and autocorellation testing. The consideration of the data is normal if the dots are spread out follow the diagonal line. The data is assumed to be normal. Residual normality test is also done through Kolmogorov-Smirnov test. Kolmogorov-Smirnov test results can be seen in Table below.

One-Sample Kolmogorov-Smirnov Test

		Unstandardiz ed Residual
N		249
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	,08553517
Most Extreme Differences	Absolute	,075
	Positive	,034
	Negative	-,075
Kolmogorov-Smirnov Z		1,185
Asymp. Sig. (2-tailed)		,120

a. Test distribution is Normal.

b. Calculated from data.

The residual normality test in Table above is by transforming the data by natural logarithm (LN) of firm size because based on the normality test, the data distribution is not normal. Researchers also detect the presence of data outliers. Ghozali (2016: 41) stated that data outliers are data which have unique characteristics that look very different from other observations that appear in extreme form. The remaining data after removing outlier data is 249. In Table 4.2 above shows that the value of sig. > 0.05, ie 0.120 so it can be concluded that the disturbing or residual variable has been normally distributed.

Multicollinearity is indicated by comparing tolerance values and VIF (Variance Inflation Factor). VIF for corporate governance quality (X1) is 1.325 with tolerance of 0.755, LN_ firm size (X2) has a VIF 1.367 with a tolerance value of 0.732, leverage (X3) has a VIF 1.142 with a tolerance value of 0.876, return on assets (X4) has a VIF1.279 with a tolerance of 0.782, while earnings Per share (X5) has a VIF 1.129 with a tolerance of 0.886. Each independent variable has a VIF <10 and tolerance value> 0.10, so it can be concluded that there are no symptoms of multicollinearity among independent variables in the regression model.
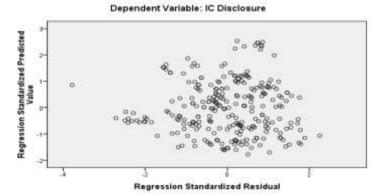
Autocorrelation testing aims to test whether in a regression model, there is a correlation between errors factor in a period with errors factor in prior periods. Basis for making decision whether autocorrelation exist or not, could be seen from the value of Durbin Watson (DW) that should not less than -2 and should not more than 2 (-2<DW<2). Based on the test can be found that the value of durbin Watson is 1,826. Since the DW value of 1.826 is greater than the upper limit of (du) 1,770 and less than 4-du (4-1.770 = 2,230), it can be concluded that there is no autocorrelation.

Heteroscedasticity is detected by looking at the plot graph between the predicted values of the dependent variable (ZPRED) with the residual SRESID (Ghozali, 2016: 134). From Figure below, it is seen that there is no clear pattern and the

points spread randomly above and below the zero on the Y axis. It can be concluded that there is no heteroscedasticity in the regression model.

Scatterplot

Dependent Variable: IC Disclosure

4.3. Hypothesis Testing

To test the hypothesis, multiple linear regression method, the coefficient of determination (R^2), and the test of significance of individual / partial parameters (t statistic test) (Ghozali, 2016)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.310	.094		-3.295	.001
	CG Quality	.444	.053	.451	8.359	.000
	LN_Firm Size	.018	.004	.263	4.813	.000
	Leverage	-.051	.016	-.162	-3.239	.001
	ROA	.122	.049	.130	2.465	.014
	EPS	.001	.000	.109	2.187	.030

a. Dependent Variable: IC isclosure

From statistical data processing, we get multiple linear regression equation as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e$$

$$Y = -0.310 + 0.444X_1 + 0.018X_2 - 0.051X_3 + 0.122X_4 + 0.001 X_5 + e$$

2. Coefficient of Determination Test (R^2)

The coefficient of determination (R^2) is used to measure how far the model capability in explaining the variation of independent variables simultaneously to the dependent variable (Ghozali, 2016).

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.649[a]	.422	.411	8.73405

a. Predictors: (Constant), Kualitas CG, LN_Ukuran Perusahaan, Leverage, ROA, EPS

b. Dependent Variable: IC Disclosure

The value of adjusted R Square is 0.411. This means that 41.1% variations in intellectual capital disclosure variables are influenced by the five independent variables of corporate governance quality, firm size, leverage, return on assets, and earnings per share.

3. Test Statistic t (t test)

Statistical Test t is done to find out how big influence of each independent variable to dependent variable (Ghozali, 2016). The default is to compare the value of significance produced with α 0.05 and compare t value with t table. Test results can be seen in the following table:

Based on the results of processed statistical data in Table above, that the coefficient of corporate governance quality significant at 0.000 <α 0.05 and t value > t table is 8.359> 1.6505. The firm size has sig value. 0.000 <α 0.05 and t count> t table is 4.813> 1.6505. The leverage variable has a sig value. 0.001 <α 0.05 and the value of t arithmetic <t table is -3.239 <1.6505. The variable return on assets has a sig value. 0.014 <α 0.05 and the value of t arithmetic> t table ie 2.465> 1.6505. This shows that corporate governance quality, firm size, return on assets, and earnings per share have a significant positive effect on intellectual capital disclosure. While the leverage has a significant negative effect on intellectual capital disclosure.

4.4. **Discussion of Hypothesis Test Results.**

4.4.1. **The influence of the quality of corporate governance on intellectual capital disclosure**

The results of data processing concluded that the quality of corporate governance has a positive significant influence on the disclosure of intellectual capital. This means that the relationship between the quality of corporate governance in line with the disclosure of intellectual capital. The higher the quality of corporate governance will increase the intellectual capital disclosure.

The results of this study are consistent with research conducted by Fitriani and Purwanto (2010) and Meizaroh and Lucyanda (2012). They found that the quality of corporate governance had a positive effect on intellectual capital disclosure. Research Haniffa and Cooke (2002), Cerbioni and Parbonetti (2005), Bukh et al. (2005), White et al. (2007), Abeysekera (2010), Taliyang and Jusop (2011), and Chiedu et al. (2013) also supports the results of this study.

The results of this study support agency theory. Companies with good corporate governance quality can work to reduce or decrease agency costs by increasing voluntary disclosure, one of which is intellectual capital disclosure (Ujiantho and Pramuka, 2007). The better the quality of corporate governance, the more it will increase the awareness of management to reveal more information that is not required by the standard.

4.4.2. **Effect of firm size on intellectual capital disclosure**

The results of statistical processing concluded that firm size has a significant positive influence on intellectual capital disclosure. This means the relationship between firm size in the same direction as intellectual capital disclosure. The larger the size of the company, the more it will increase intellectual capital disclosure.

The results of this study are consistent with the research of Ulum et al. (2009) and Suhardjanto and Wardhani (2010) which concluded that firm size had a significant

positive effect on intellectual capital disclosure. The results of the study are also consistent with the overseas research conducted by White et al. (2007).

This study supports agency theory, where large firms have greater agency costs than small firms that will reveal more information than small firms (Suwardjono, 2005). The reason big companies reveal more information than small companies, namely: bigger companies are more likely to have lower information production costs than small companies. Large corporations have a wide range of ownership that reveal more information because of the demands of shareholders. Large companies enable recruiting highly qualified human resources needed to implement sophisticated reporting systems. While smaller companies are worried by more and more disclosure may jeopardize the company's competitive potential.

4.4.3. **Effect of leverage on intellectual capital disclosure**

The results of data processing can be concluded that leverage has a significant negative effect on the disclosure of intellectual capital. The results of this study are not consistent with agency theory told by Jensen and Meckling (1976). Agency theory predicts that firms with higher leverage ratios will reveal more information, because agency costs with such capital structures are higher. Additional information is needed to dispel the doubt of bondholders against the fulfillment of their rights as creditors.

The results of this study are different from those of White et al. (2007) and Ulum et al. (2009) which concluded that leverage has a positive effect on intellectual capital disclosure. However, this study supports the research of Suhardjanto and Wardhani (2010) which concludes that leverage has a significant negative impact on intellectual capital disclosure rates.

Leverage affects negatively intellectual capital disclosure may be caused by both creditors and investors less attention to the quality of corporate leverage. Companies which have higher debts indicate that the company gains higher trust, so management assumes no need to expand the disclosure of information about intellectual capital.

4.4.4. **Effect of return on assets (ROA) on intellectual capital disclosure**

The results of data processing concluded that ROA has a significant positive influence on intellectual capital disclosure. The greater the ROA, the more it will increase intellectual capital disclosure.

This research is in line with the research of Suhardjanto and Wardhani (2010) which concludes that the level of profitability of the company as measured by ROA has a significant effect on the level of intellectual capital disclosure of the company.

The results of this study support the signal theory that firms with high profitability tend to disclose more information. The company's management wants to give a positive signal of good news to investors that the company is in a strong competition position and shows that the company's performance is good (Suwardjono, 2005).

4.4.5. **The effect of earnings per share (EPS) on intellectual capital disclosure.**

The results of data processing conclude that the EPS has a positive significant effect on the disclosure of intellectual capital. The bigger the EPS will increase intellectual capital disclosure. The results of this study are supported by Chang (2007) and Saendy (2015) research. The study shows that financial performance as measured by EPS has a positive effect on intellectual capital disclosure.

This study supports signal theory because companies with high EPS will increasingly increase voluntary disclosure. The goal is to give a positive signal that the company has a good performance and has the ability to distribute revenue earned to its shareholders (Kasmir, 2010).

5. Conclusion

From the results of multiple linear regression testing can be concluded that: the quality of corporate governance, firm size, return on assets (ROA), and earnings per share (EPS) have a significant positive effect on intellectual capital disclosure.

This indicates that the better the quality of corporate governance, the larger the size of the company, the higher the performance indicated by the higher return on assets (ROA) and earnings per share (EPS) in the company, it will further encourage management to reveal more information intellectual capital voluntarily. While leverage has a significant negative effect on the disclosure of intellectual capital. This shows that the higher the leverage, it will reduce the level of disclosure of intellectual capital.

5.2. Limitations of Research

The population in this study only use manufacturing companies, so the results cannot be generalized to all companies. Then the ability of independent variables affect the dependent variable is quite small. Data were collected by content analysis in which subjectivity researchers cannot be ignored.

5.3. Suggestions

For further research, it is expected to use other variables suspected to influence intellectual capital disclosure such as industry type and age of company. For academic, the results of this study should be able to add information, contribution of thought and study in building theory related to subjects related to variables in this research, such as good corporate governance, accounting theory and financial management.

For the management of the company, is expected to improve the disclosure of intellectual capital voluntarily as an added value for the company. Investors are more likely to see non-financial indicators such as disclosure without ignoring the fundamental side of the company itself. As for the government, the problem in this study opens the opportunity for policy makers to establish rules on the importance of intellectual capital information, so that regulation is needed on how to recognize, measure, and reveal intellectual capital.

References

Abeysekera, I. 2010. The influence of board size on intellectual capital disclosure by Kenyan listed firms. Journal of Intellectual Capital. Vol. 11, No. 4, pp. 504-518.

Bontis, N. 2001. Assessing Knowledge Assets: A Review of The Models Used To Measure Intellectual Capital. International Journal of Management Reviews. Volume 3, Issue 1, pp. 41-60.

Bukh, P.N, C. Nielsen, P. Gormsen, dan J. Mouritsen. 2005. Disclosure of Information on Intellectual Capital in Danish IPO Prospectuses. Accounting, Auditing & Accountability Journal. Vol. 18 No. 6, 2005. pp. 713-732.

Cerbioni, F. dan A. Parbonetti. 2005. *Exploring the Effects of Corporate Governance on Intellectual Capital Disclosure: An Analysis of European Biotechnology Companies. Available at SSRN.* https://ssrn.com/abstract=1012838

Chang Y.C. H.R. Chi, dan W.H Chiu. 2007. *Firm Attributes and Intellectual Capital Disclosure: Evidences from IPO Prospectuses in Taiwan. Available on* http://120.107.180.177/1832/9801/9801-13pa.pdf

Chiedu, V.O. J. Ibikunle, dan Y.M. Damagum. 2013. *The Impact of Board Mechanisms on Intellectual Capital Disclosures in Nigeria. Journal of Accounting and Management. Vol.3, No.1, 2013, pp. 65-80.*

Fahmi, I. 2012. *Analisis Laporan Keuangan Cetakan ke-2. Bandung : Alfabeta.*

Ferry, M.G. dan Jones, W.H. 1979. *Determinants of Financial Structure: A new Methodological Approach. Journal of Finance, 01 (3).*

Fitriani, A.E. dan A. Purwanto. 2010. *Pengaruh Struktur Corporate Governance Terhadap Pengungkapan Modal Intelektual (Studi pada Perusahaan Keuangan yang Terdaftar di Bursa Efek Indonesia Tahun 2010). Jurnal Online Tidak Dipublikasikan.*

Forum for Corporate Governance in Indonesia. 2001. *Seri Tata Kelola Perusahaan (Corporate Governance) Edisi ke-Dua. Jakarta.*

Ghozali, I. 2016. *Aplikasi Analisis Multivariate dengan Program SPSS Edisi 8. Semarang: Badan Penerbit Universitas Diponegoro.*

Haniffa, R.M. dan T.E. Cooke. 2002. *Culture, Corporate Governance, and Disclosure in Malaysian Corporations. Abacus. Vol. 38 (3), pp. 317-349.*

Jensen, M.C. dan Meckling, W.H. 1976. *Theory of The Firm: Managerial Behavior, Agency Cost and Ownership Structure. Journal of Financial Economic. Vol. 3, No. 4, pp. 305-360.*

Jogiyanto. 2003. *Teori Portofolio dan Analisis Investasi. Edisi 3. Yogyakarta: Gajah Mada BPFE.*

Kasmir. 2010. *Analisis Laporan Keuangan. Jakarta: Penerbit Raja Grafindo Persada.*

Leal, R.P. dan A.C. da-Silva. 2005. *Corporate Governance and Value in Brazil (and in Chile). Inter-American Development Bank, Latin American Research Network. R-514, pp. 1-80.*

Marisanti. 2012. *Analisis Hubungan Profitabilitas terhadap Pengungkapan Intellectual Capital. (Tesis Online, Universitas Diponegoro, 2012).*

Meizaroh dan J. Lucyanda. 2012. *Pengaruh Corporate Governance, Kinerja Perusahaan, dan Umur Perusahaan terhadap Pengungkapan Modal Intelektual. Media Riset Akuntansi. Vol. 2, Februari 2012, hlm. 65-81.*

Miller, M., B.D. Dupont, V. Fera, R. Jeffrey, B. Mahon, A. Starr. 1999. *Measuring and Reporting Intellectual Capital From a Diverse Canadian Industry Perspective: Experiences, Issues and Prospects. Presented at OECD Symposium, Amsterdam.*

Palepu, K.G. dan P.M. Healy. 2001. *Information Asymmetry, Corporate Disclosure, and the Capital Markets: A Review of the Empirical Disclosure Literature. Journal of Accounting and Economics. Vol. 31, pp. 405–440.*

Pulic, A. 1998. *Measuring the Performance of Intellectual Potential in Knowledge Economy. Paper presented in 1998 at the 2nd McMaster World Congress on Measuring and Managing Intellectual Capital by the Austrian Team for Intellectual Potential.*

Purnomosidhi, B. 2006. *Analisis Empiris terhadap Determinan Praktik Pengungkapan Modal Intelektual pada Perusahaan Publik di BEJ. Jurnal Riset Akuntansi Indonesia, Vol. 9 (1), hlm. 1-25.*

Ross, S.A., R.W. Westerfield, dan B.D. Jordan. 2009. *Pengantar Keuangan Perusahaan Corporate Finance Fundamentals. Jakarta: Penerbit Salemba Empat.*

Saendy, G.A. 2015. *Pengaruh Good Corporate Governance, Kinerja Keuangan, Modal Intelektual Terhadap Pengungkapan Modal Intelektual. Accounting Analysis Journal. Vol.4, No. 3, hlm. 1-10.*

Sawarjuwono, T. dan A.P. Kadir. 2003. *Intellectual Capital: Perlakuan, Pengukuran dan Pelaporan (Sebuah Library Research). Jurnal Akuntansi & Keuangan. Vol. 5, No. 1, Mei 2003, hlm. 35 – 57.*

Serrat, O. 2011. *A Primer on Intellectual Capital. Cornell University ILR School. Available at http://digitalcommons.ilr.cornell.edu/intl. pp. 1-6.*

Silveira, A.D.M. and L.A. Barros. 2006. *Corporate Governance Quality and Firm Value in Brazil. Available at SSRN: https://ssrn.com/abstract=923310*

Sonnier, B.M. K.D. Carson, dan P.P. Carson. 2007. *Accounting for Intellectual Capital: the Relationship Between Profitability and Disclosure. The Journal of Applied Management and Entrepreneurship, Vol. 12, No. 2, pp. 3-14.*

Sugiarto. 2009. *Struktur Modal, Struktur Kepemilikan Perusahaan, Permasalahan Keagenan, dan Informasi Asimetri. Yogyakarta : Graha Ilmu.*

Suhardjanto, D. dan M. Wardhani. 2010. *Praktik Intellectual Capital Disclosure Perusahaan yang Terdaftar di Bursa Efek Indonesia. JAAI. Volume 14, No. 1, Juni 2010, hlm. 71–85.*

Suwardjono. 2005. *Teori Akuntansi. Yogyakarta : PT. BPFE.*

Taliyang, S.M. dan M. Jusop. 2011. *Intellectual Capital Disclosure and Corporate Governance Structure: Evidence in Malaysia. International Journal of Bussiness and Management. Vol. 6, No. 12, December 2011, pp. 109-117.*

Tandelilin, E. 2010. *Portofolio dan Investasi: Teori dan Aplikasi. Yogyakarta: Kanisius.*

Ujiantho, M.A. dan B.A. Pramuka. 2007. *Mekanisme Corporate Governance, Manajemen Laba, dan Kinerja Keuangan. Simposium Nasional Akuntansi X. Makasar.*

Ulum, I. 2009. *Intellectual Capital Konsep dan Kajian Empiris. Yogyakarta: Graha Ilmu.*

Ulum, I. Ariestyowati, dan E. Suprapti. 2009. *Pengaruh Karakteristik Perusahaan terhadap Praktik Pengungkapan Intellectual Capital dalam Laporan Tahunan Perusahaan Publik di Indonesia. (Jurnal online)*

White, G. A. Lee, dan G. Tower. 2007. *Drivers of Voluntary Intellectual Capital Disclosure in Listed Biotechnology Companies. Journal of Intellectual Capital. Vol. 8, No. 3, 2007, pp. 517-537.*

Wild, J.J. K.R. Subramanyam, dan R.F. Halsey. 2005. *Analisis Laporan Keuangan. Jakarta : Penerbit Salemba Empat.*