Laporan kegiatan co host

The 4th RSU National and International Research Conference on Science and Technology, Social Sciences, and Humanities 2019. (RSUSSH 2019)

The 4th RSU National and International Research Conference on Science and Technology, Social Sciences, and Humanities 2019. (RSUSSH 2019)

RSUSSH 2019 is co-organized by Rangsit University (Thailand), Prachachuen network (Thailand), Malayan Colleges Laguna (Philippines), Nonglam University (Vietnam), Hanoi University of Science and Technology (Vietnam), University of Wollongong (Australia), National University of Kaohsiung (Taiwan), Dewey International University (Cambodia), Vietnam National University *(Vietnam) and* **University of Merdeka Malang (Indonesia)**

The conference will be held at the STUDENT CENTER BUILDING, RANGSIT UNIVERSITY, THAILAND **on 26th April 2019.**

RSUSSH 2019 is an international forum for the presentation of technological advances and research results including start up in the fields of **Science and Technology, Social Science and Humanities.** The conference will bring together leading researchers in the fields of medical science, scientists and engineers, architects, educations, and sociologists in the domain of interest from around the world. This conference aims to establish a learning network leading to the expansion and development of knowledge beneficial to society and the country

RSUSSH 2019 is entitled **"Big Data and New Face of Asia: Reflection in Science, Arts, Social Sciences, and Humanities"**. This will be an academic platform for both Thai and foreign professionals to present their research findings and share their experience or shoot the start up idea which further leads to the promotion of a strong collaboration within national and international research networks.

We warmly welcome authors to submit their research-based papers to RSUSSH 2019, and share valuable experiences with the researchers around the world

Foto Kegiatan

Team Universitas Merdekla Malang besama delegasi dari Vietnam dan UITM Mara Malaysia

Team Co-Host Universitas Merdeka Malang


Co Host
The 4th RSU National and International Research Conference
on Science and Technology, Social Sciences, and Humanities 2019.
(RSUSSH 2019)

Sesi Foto : Opening Ceremony

Penyerahan Sertifikat Presenter

Bersama Seluruh Presenter dan Pembahas

Proceedings

The 4th RSU National and International Research Conference on Science and Technology, Social Sciences, and Humanities 2019. (RSUSSH 2019)

MESSAGE FROM

THE PRESIDENT OF RANGSIT UNIVERSITY

Dr. Arthit Ourairat

Rangsit University, in its vision statement, declares that the University's lofty goal is to become a Holistic Innovative-Driven university. The university has then upheld to its key principle: "Education is, in fact, an innovation in itself". Research has, therefore, been designated as one of the most vital strategies in developing our educational programs with a view to maximizing the competitiveness of the University and the potential of its faculty members and students. It is essential that research and innovation be integrated to pave their way for future development.

*It is such a great honor and privilege for Rangsit University to host this National and International Research Conference in collaboration with all concerned research networks. This Conference, under the theme of **"Big Data & New Face of Asia: Reflection in Science, Arts, Social Sciences, and Humanities",** will serve as a forum for academia and researchers from various disciplines to present research projects and share their knowledge as well as to promote additional research networks and collaboration.*

On behalf of Rangsit University, I would like to take this opportunity to extend my warm welcome to all distinguished participants, most particularly for keynote speakers, resource persons, friends from overseas and research networks.

Arthit Ourairat, Ph.D.
President of Rangsit University

MESSAGE FROM

THE VICE PRESIDENT FOR ACADEMIC AFFAIRS RANGSIT UNIVERSITY

Asst. Prof. Dr. Nares Pantaratorn

The International and National Conference 2019, Rangsit University has collaborated with Malayan Colleges Laguna (Philippines), Hanoi University of Science and Technology (HUST) (Vietnam), Nong Lam University (Vietnam), Vietnam National University (Vietnam), Dewey International University (Cambodia), National University of Kaohsiung (Taiwan), National Yunlin University of Science and Technology (Taiwan), University of Merdeka Malan (Indonesia), University of Wollongong (Australia), National University of Singapore (Singapore) in organizing the RSU National and International Research Conference 2018 with the theme of "Big Data & New Face of Asia: Reflection in Science, Arts, Social Sciences, and Humanities".

Rangsit University itself has continuously provided support to faculty members, staff and students so that they can engage in quality research projects which are in line with the national strategy. The University, through its research and academic service mission has continuously strived for academic excellence in all disciplines. The University, for instance, has provided support to faculty members and students by widely disseminating their research findings by means of presenting and publishing their works both regionally and internationally. This support reflects the University's commitment to preparing its graduates to function in the real world and to meet the demands of global integration.

I would like to thank and extend my congratulations to all participants who contributed to the success of this conference. Hopefully these proceedings will be fruitful and continue annually. For those interested in research findings and new knowledge, I do hope this will create awareness that new knowledge findings should be applied for the benefit of our community, society and national prosperity.

Assistant Professor Nares Pantaratorn, Ph.D.
Vice President for Academic Affairs
Rangsit University

NOTE OF EDITOR

The 4th RSU National and International Research Conference on Science and Technology, Social Sciences, and Humanities 2019. (RSUSSH 2019) is organized by Rangsit University (Thailand) collaborated with Prachachuen Research Network, Malayan Colleges Laguna (Philippines), Nonglam University (Vietnam), Hanoi University of Science and Technology (Vietnam), University of Wollongong (Australia), National University of Kaohsiung (Taiwan), Dewey International University (Cambodia), Vietnam National University (Vietnam), University of Merdeka Malang (Indonesia) and National University of Singapore (Singapore).

Theme of this event is **Big Data and New Face of Asia: Reflection in Science, Arts, Social Science, and Humanities**. The conference provided academic platform for both Thai and foreign professionals to present their research findings and share their experience or shoot the ideas which further leads to the promotion of a strong collaboration within national and international research networks.

The published papers have passed the process of improvement accommodating the discussion during the conference as well as the reviewers' comments that relies on the goodwill of those people involved in the field. We invited more than 50 researchers from related fields to review papers for the proceeding. We would like to thank all the reviewers for their time and effort in reviewing the documents.

The published articles are categorized into 9 groups as follow;

G1 Medical, Medical Technology and Health Science
G2 Science, Engineer Tech, Digital Innovation and Information Tech
G3 Architecture, Art and Design Education
G4 Agricultural Science, Biotech, and Food Science
G5 Education Challenges for Asian Future
G6 Accounting and Finance, Business, Economics, Aviation
G7 Liberal Arts
G8 Humanity and Social Science /Law
G9 Chinese Studies

Finally, we would like to thanks to all of the proceeding team who have dedicated their constant support and countless time to bring these scratches into a book.

Associate Professor Dr. Kanda Wongwailkhit
Editor
Proceeding of RSU conference 2019

SCIENTIFIC COMMITTEES / REVIEWERS

Organized by

- *Rangsit University (Thailand),*
- *Prachachuen network (Thailand),*
- *Malayan Colleges Laguna (Philippines),*
- *Nonglam University (Vietnam),*
- *Hanoi University of Science and Technology (Vietnam),*
- *University of Wollongong (Australia),*
- *National University of Kaohsiung (Taiwan),*
- *Dewey International University (Cambodia),*
- *Vietnam National University (Vietnam)*
- *University of Merdeka Malang (Indonesia)*
- *National University of Singapore (Singapore)*

SPONSER

RSUSSH 2019 CONFERENCE COMMITTEE / REVIEWER

SCIENTIFIC REVIEWERS

Assoc. Prof. Dr. Steven Pickford	WOLLONGONG UNIVERSITY, AUSTRALIA
Assoc. Prof. Dr. Bernice Kotey	UNIVERSITY OF NEW ENGLAND, AUSTRALIA
Assoc. Prof. Dr. Pauline T. Jones	UNIVERSITY OF WOLLONGONG, AUSTRALIA
Assoc. Prof. Dr. AKM Ahsan Ullah	UNIVERSITY OF BRUNEI DARUSSALAM, BRUNEI
Dr. Jianping Li	ZHEJIANG NORMAL UNIVERSITY, CHINA
Dr. Laura Southgate	ASTON UNIVERSITY, ENGLAND
Prof. Robert C. Rickards	GERMAN POLICE UNIVERSITY, GERMAN
Asst. Prof. Dr. Paulina NEISCH	CITY UNIVERSITY OF HONGKONG
Dr. Md. Asad Khan	JAMIA MILLIA ISLAMIA JAMIA NAGAR, INDIA
Prof. Grahita Chandrarin	UNIVERSITY OF MERDEKA MALANG, INDONESIA
Dr.Jenny Rizkiana	BANDUNG INSTITUTE OF TECHNOLOGY, INDONESIA
Prof. Dr. Akihiro Matoba	KANAGAWA UNIVERSITY, JAPAN
Prof. Dr. Nobuhiro kihara	KANAGAWA UNIVERSITY, JAPAN
Prof. Dr. Ryo Maezono	JAPAN ADVANCED INSTITUTE OF SCI. & TECH., JAPAN
Prof. Dr. Yoshiteru hayami	CHIKUSHI JOGAKUEN UNIVERSITY, JAPAN
Assoc. Prof. Dr. Andrew Li	KYOTO INSTITUTE OF TECHNOLOGY, JAPAN
Prof. Dr. Normah Omar	UNIVERSITI TEKNOLOGI, MALAYSIA
Dr. Muarice Cuypers DBA	FONTYS UNIVERSITY OF APPLIED SCIENCE, NETHERLANDS.
Assoc. Prof. Dr. Ellenita Red	MALAYAN COLLEGES LAGUNA, PHILIPPINES
Assoc. Prof. Dr. Dennis A. Martillano	U. OF THE PHILIPPINES-DILIMAN MALAYAN COLLEGES LAGUNA, PHILIPPINES
Md Mizanur Rahman	QATAR UNIVERSITY, QATAR
Dr. Tan Beng Kiang	NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE
Asst. Prof. HU Qidong	NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE
Asst. Prof. Dr Deron Raymond HERR	NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE
Asst. Prof. Dr. Yufeng Zhou	NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE
Assoc. Prof. Dr. Sheng-Fen Nik Chien	NATIONAL CHENG KUNG UNIVERSITY, TAIWAN
Assoc. Prof. Dr.Teng-Wen Chang	YUNTECH, YUNLIN UNIVERSITY OF SCI &TECH, TAIWAN
Assoc. Prof. Ozgur Erdogan	OKAN UNIVERSITY, TURKEY
Prof. Dr. Shaowei Chen	UNIVERSITY OF CALIFORNIA, USA.
Dr. Sorachai Kornkasem	COLUMBIA UNIVERSITY, USA.
Dr. Melissa A. Vitek, OD, FAAO	SALUS UNIVERSITY, USA.
Prof. Dr. Nguyen Duc Thuan	HANOI UNIVERSITY OF SCI. & TECH., VIETNAM
Dr. Nguyen Thai Ha	HANOI UNIVERSITY OF SCI. & TECH., VIETNAM
Dr. Viet Dong Nguyen	HANOI UNIVERSITY OF SCI. & TECH., VIETNAM
Dr. Quoc Bao Nguyen	NONG LAM UNIVERSITY, VIETNAM
Dr. Bing Zhu	ASSUMPTION UNIVERSITY, THAILAND
Assoc. Prof. Dr. Rosechongporn Komolsevin	BANGKOK UNIVERSITY, THAILAND
Asst. Prof. Dr. Kasemson Pipatsirisak	BANGKOK UNIVERSITY, THAILAND
Asst. Prof. Dr. Prawat Benyasrisawat	BANGKOK UNIVERSITY, THAILAND
Dr. Ampon Shaoosanuk	BANGKOK UNIVERSITY, THAILAND
Asst. Prof. Dr. Adisak Chandprapalert	BURAPHA UNIVERSITY, THAILAND
Asst. Prof. Dr. Booncherd Nuim	BURAPHA UNIVERSITY, THAILAND
Asst. Prof. Dr. Boonyadist Vongsak	BURAPHA UNIVERSITY, THAILAND
Asst. Prof. Dr. Pattrawadee Makmee	BURAPHA UNIVERSITY, THAILAND
Dr. Watcharin Padungratchadakit	BURAPHA UNIVERSITY, THAILAND
Dr. Sriros Tongchure	CHANDRAKASEM RAJABHAT UNIVERSITY, THAILAND
Assoc. Prof. Patraporn Tungpunkom	CHIANG MAI UNIVERSITY, THAILAND
Asst. Prof. Nantasit Kittiwarakul	CHIANG MAI UNIVERSITY, THAILAND
Dr. Arus Kunkhet	CHIANG MAI UNIVERSITY, THAILAND
Dr. Chirasak Sararat	CHIANG MAI UNIVERSITY, THAILAND
Dr. Supparerk Pothipairatana	CHIANG MAI UNIVERSITY, THAILAND
Prof. Dr. Tanongkiat Kiatsiriroat	CHIANG MAI UNIVERSITY, THAILAND
Asst. Prof. Dr. Taweesak Prasansuttiporn	CHIANG MAI UNIVERSITY, THAILAND
Assoc. Prof. Dr. Morakot Piemjai	CHULALONGKORN UNIVERSITY, THAILAND
Assoc. Prof. Dr. Pornanong Budsaratragoon	CHULALONGKORN UNIVERSITY, THAILAND
Assoc. Prof. Kittipong Dhanuthai	CHULALONGKORN UNIVERSITY, THAILAND
Asst. Prof. Eathipol Srisawaluck	CHULALONGKORN UNIVERSITY, THAILAND

Asst. Prof. Dr. Supa-art Sirikantaramas	CHULALONGKORN UNIVERSITY, THAILAND
Asst. Prof. Dr. Theera Nuchpiam	CHULALONGKORN UNIVERSITY, THAILAND
Asst. Prof. Dr. Pim Soonsawad	CHULALONGKORN UNIVERSITY, THAILAND
Dr. Kevin A. Tompkins	CHULALONGKORN UNIVERSITY, THAILAND
Prof. Dr. Mali Hunsom	CHULALONGKORN UNIVERSITY, THAILAND
Prof. Dr. Supot Hannongbuo	CHULALONGKORN UNIVERSITY, THAILAND
Asst. Prof. Dr. Rangsima Sakoolnamarka	CHULALONGKORN UNIVERSITY, THAILAND
Asst. Prof. Dr. Thitinan Boonpap Common	DHURAKIJ PUNDIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Jittinun Boonsathirakul	KASETSART UNIVERSITY, THAILAND
Assoc. Prof. Dr. Kiattawee Choowongkomon	KASETSART UNIVERSITY, THAILAND
Assoc. Prof. Dr. Sasivimol Meeampol	KASETSART UNIVERSITY, THAILAND
Asst. Prof. Dr. Natchuda Wijitjammaree	KASETSART UNIVERSITY, THAILAND
Asst. Prof. Narong Kiantongkul	KASETSART UNIVERSITY, THAILAND
Asst. Prof. Dr. Kanaid Silsat	KHON KAEN UNIVERSITY, THAILAND
Asst. Prof. Dr. Tanit Padumanonda	KHON KAEN UNIVERSITY, THAILAND
Asst. Prof. Dr. Vuttapong Larpcharoen	KHON KAEN UNIVERSITY, THAILAND
Dr. Panayu Chairatananonda	KING MONGKUT'S INSTITUTE OF TECH. LADKRABANG, THAILAND
Assoc. Prof. Dr. Punyawi Jamjareegulgarn	KING MONGKUT'S INSTITUTE OF TECH. LADKRABANG THAILAND
Assoc. Prof. Dr. Krismant Whattananarong	KING MONGKUT'S UNIVERSITY OF TECH. NORTH BKK, THAILAND
Asst. Prof. Dr. Marasri Ruengjitchatchawalya	KING MONGKUT'S UNIVERSITY OF TECH. THONBURI, THAILAND
Asst. Prof. Dr. Rattanachai Pairintra	KING MONGKUT'S UNIVERSITY OF TECH. THONBURI, THAILAND
Asst. Prof. Dr. Thanit Swasdisevi	KING MONGKUT'S UNIVERSITY OF TECH. THONBURI, THAILAND
Asst. Prof. Dr. Jirawan Tiansuwan	KING MONGKUT'S UNIVERSITY OF TECH. THONBURI, THAILAND
Dr. Nandh Tawarangkul	KING MONGKUT'S UNIVERSITY OF TECH. THONBURI, THAILAND
Assoc. Prof. Dr. Suphat Sukamolsarn	MAEJO UNIVERSITY, THAILAND
Asst. Prof. Dr. Pakpoom Hannapha	MAHASARAKHAM UNIVERSITY, THAILAND
Asst. Prof. Dr. Nittaya Wannakit	MAHASARAKHAM UNIVERSITY, THAILAND
Assoc. Prof. Dr. Noppawan Phumalamorales	MAHIDOL UNIVERSITY, THAILAND
Assoc. Prof. Potchaman Sinavarat	MAHIDOL UNIVERSITY, THAILAND
Asst. Prof. Dr. Arisara Leksansern	MAHIDOL UNIVERSITY, THAILAND
Asst. Prof. Dr. Arthorn Sanpanich	MAHIDOL UNIVERSITY, THAILAND
Asst. Prof. Dr. Charnyote Pluempitiwiriyawej	MAHIDOL UNIVERSITY, THAILAND
Asst. Prof. Dr. Surapong Lertsithichai	MAHIDOL UNIVERSITY, THAILAND
Assoc. Prof. Dr. Adisorn Leelasantitham	MAHIDOL UNIVERSITY, THAILAND
Asst. Prof. Dr. Parinya Sanguansat	PANYAPIWAT INSTITUTE OF MANAGEMENT, THAILAND
Dr. Mongkonkorn Srivichai	RAJAMANGALA UNIVERSITY OF TECH. LANNA, THAILAND
Dr. Widchaporn Taipjutorus	RAJAMANGALA UNIVERSITY OF TECH. PHRANAKHON, THAILAND
Asst. Prof. Supawadee Sukeecheep MOSS	RAJAMANGALA UNIVERSITY OF TECH. SUVARNABHUMI, THAILAND
Ms. Penprapak Manapreechadeelert	RAJAMANGALA UNIVERSITY OF TECH. SUVARNABHUMI, THAILAND
Dr. Thitapa Sinturat	RAJAMANGALA UNIVERSITY OF TECH. THANYABURI, THAILAND
Assoc. Prof. Somchit Luanchamroen	RAMKHAMHAENG UNIVERSITY, THAILAND
Assoc. Prof. Dr. Onjaree Natakuatoong	RATTANA BUNDIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Chaiyasit Dankittikul	SILPAKORN UNIVERSITY, THAILAND
Asst. Prof. Dr. Prasan Pankaew	SILPAKORN UNIVERSITY, THAILAND
Asst. Prof. Dr. Boonjeera Chiravate	SILPAKORN UNIVERSITY, THAILAND
Dr. Sineenart Sukolratanametee	SILPAKORN UNIVERSITY, THAILAND
Asst. Prof. Dr. Chaiyosh Isavorapant	SILPAKORN UNIVERSITY, THAILAND
Asst. Prof. Dr. Eknarin Bangthamai	SILPAKORN UNIVERSITY, THAILAND
Dr. Pattama Theekaprasertkul	SILPAKORN UNIVERSITY, THAILAND
Assoc. Prof. Dr. Supanee Chayabutra	SILPAKORN UNIVERSITY, THAILAND
Assoc. Prof. Dr. Achariya Rangsiruji	SRINAKHARINWIROT UNIVERSITY, THAILAND
Assoc. Prof. Onanong Pringsulaka	SRINAKHARINWIROT UNIVERSITY, THAILAND
Asst. Prof. Dr. Ittipaat Suwathanpornkul	SRINAKHARINWIROT UNIVERSITY, THAILAND
Asst. Prof. Rapindhorn Kongsomboon	SRINAKHARINWIROT UNIVERSITY, THAILAND
Dr. Wanasin Sattayanuwat	SRINAKHARINWIROT UNIVERSITY, THAILAND
Asst. Prof. Watcharachai Wiriyasuttiwong	SRINAKHARINWIROT UNIVERSITY, THAILAND
Asst. Prof. Dr. Waraporn Thaima	SRIPATUM UNIVERSITY, THAILAND
Assoc. Prof. Dr. Piyakorn Whangmahaporn	SRIPATUM UNIVERSITY, THAILAND
Assoc. Prof. Dr. Sakon Phu-ngamdee	SRIPATUM UNIVERSITY, THAILAND
Assoc. Prof. Dr. Subin Yurarach	SRIPATUM UNIVERSITY, THAILAND
Dr. Kathryn Anne Hughes	STAMFORD INTERNATIONAL UNIVERSITY, THAILAND
Asst. Prof. Panithan Bannatham	SUAN SUNANDHA RAJABHAT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Nuanjid Chaowakeratipong	SUKHOTHAI THAMMATHIRAT OPEN UNIVERSITY, THAILAND

Assoc. Prof. Dr. Sita Yiemkuntitavorn	SUKHOTHAI THAMMATHIRAT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Tweesak Chindanurak	SUKHOTHAI THAMMATHIRAT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Ranee Esichaikul	SUKHOTHAI THAMMATHIRAT UNIVERSITY, THAILAND
Dr. Pornthep Nisamaneepong	THAILAND INSTITUTE OF NUCLEAR TECH., THAILAND
Assoc. Prof. Dr. Dumrong Adunyarittigun	THAMMASAT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Phunthip	THAMMASAT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Pongthep Suntigul	THAMMASAT UNIVERSITY, THAILAND
Assoc. Prof. Kajorn Lakchayapakorn	THAMMASAT UNIVERSITY, THAILAND
Assoc. Prof. Somchat Taertulakarn	THAMMASAT UNIVERSITY, THAILAND
Assoc. Prof. Thippaporn Tharavanij	THAMMASAT UNIVERSITY, THAILAND
Asst. Prof. Dr. Pattamawan Jimarkon Zilli	THAMMASAT UNIVERSITY, THAILAND
Asst. Prof. Dr. Wilaiporn Kotbungkair	THAMMASAT UNIVERSITY, THAILAND
Dr. Pansa Rawd-ard	THAMMASAT UNIVERSITY, THAILAND
Prof. Dr. Kowit Phuangngam	THAMMASAT UNIVERSITY, THAILAND
Asst. Prof. Dr. Nattaya Vuthiganond	THAMMASAT UNIVERSITY, THAILAND
Asst. Prof. Dr. Kittipong Chainok	THAMMASAT UNIVERSITY, THAILAND
Asst. Prof. Dr. Vuttapong Larpcharoen	UNIVERSITY OF THE THAI CHAMBER OF COMMERCE, THAILAND
Asst. Prof. Dr. Namfon Atsawamekhin	UNIVERSITY OF THE THAI CHAMBER OF COMMERCE, THAILAND
Dr. Mana Treelayapewat	WALAILAK UNIVERSITY, THAILAND
Dr. Wararat Whanchit	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Aviruth Charoensup	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Adirak Kanchanaharuthai	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Grit Thonglert	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Kanchana Chanprasert	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Manus Sangworasil	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Paniti Netinant	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Tadsanee Punjanon	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Wiboon Trakulhun	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Wimol Chobchuenchom	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Noppadol Dharawanij	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Suchada Nimmannit	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Anchalee Chayanuvat	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Chalongrat Chermanchonlamark	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Doungtip Chareonrook	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Jirapornchai Suksaeree	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Kanitsorn Terdpaopong	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Kraisorn Sappayatosok	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Kritsada Sriphaew	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Laddawun Sununliganon	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Mongkol Thianprathuangchai	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Narupol Chaiyot	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Phat Pisitkasem	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Rujapa Paengkesorn	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Somchai Lekcharoen	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Somsak Aueatchasai	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Supinda Lertlit	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Thiti Vitayasorana	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Todsanai Chumwatana	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Ubon Sanpatchayapong	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Wutthipong Chinnasri	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Plt. Off. Dr. Wannee Sooksatra	RANGSIT UNIVERSITY, THAILAND
Dr. Somboon Sooksatra	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Siriwan Wasukree	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Sutat Palama	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Thiraporn Glinsukon	RANGSIT UNIVERSITY, THAILAND
Dr. Bruce Weeks	RANGSIT UNIVERSITY, THAILAND
Dr. Chanakiat Samarnbutra	RANGSIT UNIVERSITY, THAILAND
Dr. Chanchai Jewjinda	RANGSIT UNIVERSITY, THAILAND
Dr. Jamie Wallin	RANGSIT UNIVERSITY, THAILAND
Dr. Jantima Angkapanichkit	RANGSIT UNIVERSITY, THAILAND
Dr. Jiracha Vicheanpanya	RANGSIT UNIVERSITY, THAILAND
Dr. Kittiphun Khongsawatkiat	RANGSIT UNIVERSITY, THAILAND
Dr. Kritsaneekron Jaroenkuson	RANGSIT UNIVERSITY, THAILAND

Dr. Kunlayarat Lormanenoprat	RANGSIT UNIVERSITY, THAILAND
Dr. Nipaporn Chalermnirundorn	RANGSIT UNIVERSITY, THAILAND
Dr. Pimurai Limpapath	RANGSIT UNIVERSITY, THAILAND
Dr. Pipatpong Watanawanyoo	RANGSIT UNIVERSITY, THAILAND
Dr. Rachada Lapyai	RANGSIT UNIVERSITY, THAILAND
Dr. Srisamorn Pumsa-ard	RANGSIT UNIVERSITY, THAILAND
Dr. Suejit pechprasarn	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Manus Sangworasil	RANGSIT UNIVERSITY, THAILAND
Dr. Thanet Sophonnithiprasert	RANGSIT UNIVERSITY, THAILAND
Dr. Wallapa Chalermvongsavej	RANGSIT UNIVERSITY, THAILAND
Dr. Warawan Suwannaphati	RANGSIT UNIVERSITY, THAILAND
Dr. Yang Yunlin	RANGSIT UNIVERSITY, THAILAND
Supachai Kunaratnpruk, M. D.	RANGSIT UNIVERSITY, THAILAND
Mr. Edward Devere Bacon	RANGSIT UNIVERSITY, THAILAND
Prof. Dr. Phensri Thongnopnua	RANGSIT UNIVERSITY, THAILAND
Prof. Dr. Takenobu Matsuura	RANGSIT UNIVERSITY, THAILAND
Prof. Clinic Issarawan Boonsiri	RANGSIT UNIVERSITY, THAILAND
Prof. La-ongthong Vajrabhaya	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Tool Sriamporn	RANGSIT UNIVERSITY, THAILAND
Dr. Wiroj Pimanmassuriya	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Tassanee Panjanon	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Panya Maneechakr	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Ampaporn Namvongprom	RANGSIT UNIVERSITY, THAILAND
Laddawan Sunanlikanon	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Piyasuda Mawai	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Varaporn Laksanalamai	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Panan Karnjanapoom	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Gessanee Maneerat	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Pitak Chumongkol	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Wutthipong Chinnasri	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Somchai Lekcharoen	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Tanett Pongtheerat	RANGSIT UNIVERSITY, THAILAND
Dr. Nakonthep Tipayasupara	RANGSIT UNIVERSITY, THAILAND
Dr. Pannarat Wansavatkul	RANGSIT UNIVERSITY, THAILAND
Mr. Fengkun Wang	RANGSIT UNIVERSITY, THAILAND
Mr. Fudong Luo	RANGSIT UNIVERSITY, THAILAND
Mr. Jiang Haiyue	RANGSIT UNIVERSITY, THAILAND

ORGANISING COMMITTEES

Prof. Vorachai Sirikulchayanont	RANGSIT UNIVERSITY, THAILAND
M.DAcm. Katatip Kunjara	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Anusorn Tamajai	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Narong Petprasert	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Dr. Thammasak Rujirayanyong	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Nantachai Thongpance	RANGSIT UNIVERSITY, THAILAND
Assoc. Prof. Yaowaluk Pimainog	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Anchalee Chayanuvat	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Chetneti Srisa-an	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Kritsada Sriphaew	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Narupol Chaiyot	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Nimnuan Visedsun	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Piyasuda Mawai	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Rujapa Rapaengkesorn	RANGSIT UNIVERSITY, THAILAND
Dr. Kanjanita Suchao-in	RANGSIT UNIVERSITY, THAILAND
Mr. Sompong Sanguanbun	RANGSIT UNIVERSITY, THAILAND
Prof. Dr. Tirasak pasharawipas	RANGSIT UNIVERSITY, THAILAND
Assoc.Prof.Dr.Kanokporn Chayaburakul	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Kanitsorn Terdpaopong	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Sani Boonyagul	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Sauwalak Kittiprapas	RANGSIT UNIVERSITY, THAILAND

Asst. Prof. Dr. Supinda Lertlit	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Todsanai Chumwatana	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Walaiporn Nakapan	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Witchayanee Ocha	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Wonlop Buachoom	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Dr. Tanett Pongtheerat	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Siriwan Wasukree	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Thammasak Aueragsakul	RANGSIT UNIVERSITY, THAILAND
Dr. Kulabutr Komenkul	RANGSIT UNIVERSITY, THAILAND
Dr. Nakhonthep Thipayasuparat	RANGSIT UNIVERSITY, THAILAND
Dr. Nipaporn Chalermnirundorn	RANGSIT UNIVERSITY, THAILAND
Dr. Nipaporn Tewawong	RANGSIT UNIVERSITY, THAILAND
Dr. Noppadol Suwannasap	RANGSIT UNIVERSITY, THAILAND
Dr. Phitsini Suvarnaphaet	RANGSIT UNIVERSITY, THAILAND
Dr. Pimurai Limpapath	RANGSIT UNIVERSITY, THAILAND
Flying Officer Dr. Prapont Chittaputta	RANGSIT UNIVERSITY, THAILAND
Mr. Fudong Luo	RANGSIT UNIVERSITY, THAILAND
Mr. Nipon Jongpitaksyl	RANGSIT UNIVERSITY, THAILAND
Mr. Thee Nabhindhakara	RANGSIT UNIVERSITY, THAILAND
Dr. Nguyen Thai Ha	HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY, VIETNAM
Dr.Viet Dong Nguyen	HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY, VIETNAM
Dr.Quoc Bao Nguyen	NONG LAM UNIVERSITY, VIETNAM
Prof. Dr.Magatani Kazushige	TOKAI UNIVERSITY, JAPAN
Prof. Dr. Grahita Chandrarin	UNIVERSITY OF MERDEKA MALANG, INDONESIA
Assoc. Prof.Dr. Pauline T. Jones	UNIVERSITY OF WOLLONGONG, AUSTRALIA
Assoc.Prof.Dr.Bernice Kotey	UNIVERSITY OF NEW ENGLAND,AUSTRALIA
Assoc.Prof.Dr.Teng-Wen Chang	YUNLIN UNIVERSITY OF SCIENCE AND TECHNOLOGY, TAIWAN
Assoc.Prof.Dr.Ellenita Red	MALAYAN COLLEDGES LAGUNA, PHILIPPINES
Assoc.Prof.Dr.AKM Ahsan Ullah	UNIVERSITY BRUNEI DARUSSALAM, BRUNEI
Asst.Prof.Dr.Yufeng Zhou	NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE
Assoc.Prof.Dr.Teng-Wen Chang	YUNTECH, YUNLIN UNIVERSITY OF SCI &TECH, TAIWAN
Dr.Tan Beng Kiang	YUNTECH, YUNLIN UNIVERSITY OF SCI &TECH, TAIWAN
Dr.Sheng-Fen Nik Chie	NATIONAL CHENG KUNG UNIVERSITY, TAIWAN
Mr. Meas Raksmey	DEWEY INTERNATIONAL UNIVERSITY, CAMBODIA
Prof. Dr. S Thameem Dheen	NATIONAL UNIVERSITY OF SINGAPORE, SINGAPORE

TECHNICAL AFFAIRS COMMITTEES

Asst. Prof. Thossaporn Thossansin	RANGSIT UNIVERSITY, THAILAND
Asst.Prof. Dr.Wutthipong Chinnasri	RANGSIT UNIVERSITY, THAILAND
Mr. Ekachai somboon	RANGSIT UNIVERSITY, THAILAND
Pol. Maj. Gen. Kitisak Pukatiew	RANGSIT UNIVERSITY, THAILAND
Mr. Rerngsak Keawpetch	RANGSIT UNIVERSITY, THAILAND

ACADEMIC AFFAIRS COMMITTEE (PROGRAM CHAIR)

Assoc. Prof. Dr. Kanda Wongwailikhit	RANGSIT UNIVERSITY, THAILAND
Asst. Prof. Arrerut Yamkesorn	RANGSIT UNIVERSITY, THAILAND

CONFERENCE CHAIR

Asst. Prof. Dr. Nares Pantaratorn	RANGSIT UNIVERSITY, THAILAND

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

Page

G7: Liberal Arts

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)

TABLE OF CONTENTS (CONT.)
Abstract

Page

TABLE OF CONTENTS (CONT.)

Abstract

Experimental Research on Changes in Disclosure and Assurance Strategies of Corporate Social Responsibility Reporting in Vietnam

Nguyen Thi Hong Thuy* and To Lan Phuong

Vietnam National University, University of Economics and Business, Vietnam
*Corresponding author E-mail: nththuy@vnu.edu.vn

Abstract

The purpose of this paper is to shed some light on the effect of the economic recovery on corporate social responsibility (CSR) reporting and CSR assurance strategies that companies disclose online to stakeholders. Our research is done for listed companies on Vietnam's stock market since 2012, the period of Vietnam's economic recovery. This paper focuses on the Vietnam stock market in the period of 2012 to 2017, using data from 41 companies from several sectors that link to environment matter. Descriptive statistical methods are used to evaluate the relationship between changing reporting strategies and assurance strategies and business performance. The results of this paper indicate that: changes in the CSR reporting strategy of companies (adoption versus discontinuation) has a significant change in the profitability (ROE) of the companies; changes in the CSR assurance strategy of companies does not have a significant impact either from an accounting perspective (ROA and ROE) or from a market perspective (MTB and Tobin's q); those perceive CSR reporting and assurance as a valuable investment in spite of its costs. Hence, even in the context of the current financial crisis, this study identifies a business in a stage of expansion, not only CSR reporting but also an assurance of CSR reports. There seems to be an investment view of CSRA which can help companies differentiate their products or services from the competition and reinforce the trust from stakeholders.

Keywords: *Corporate social responsibility, reporting, disclosure strategy, assurance strategy, sustainability report, profitability*

1. Introduction

As an emerging market in Asia, Vietnam has achieved high economic growth, and Vietnamese enterprises have been increasingly concerned about corporate social responsibility. Social responsibility reporting has become an interested research area for domestic scholars.

As stipulated in the Circular no. 155/2015/TT-BTC issued by Ministry of Finance on the guidance of disclosing information on the stock market, several big corporations in Vietnam (such as Vinamilk and Baoviet) have prepared integrated reports for corporate social responsibility. With the growing environmental and social concerns worldwide, societal governance and environmental performances are integrated with the traditional economic and financial reporting. Traditional double entry financial accounting only concerns about quantification of business transactions in terms of money but cannot be measured natural resources and social contribution. Therefore, social responsibility accounting is required by corporate stakeholders. Social responsibility accounting reports should "include quantitative and qualitative information on their financial (economic) social/ethical and environmental performance in a balanced way" according to KPMG (2005). The aim of this paper is to provide an overview of the applicability of social responsibility accounting in Vietnam as well as to briefly analyze the factors that impact the applicability of social responsibility accounting.

The reason why we focus on the assurance of CSR reports is that one of the issues which came up as the most important is the existing consensus on the need to provide greater transparency to business information (CSR reporting) and credibility (reinforced by external assurance). In this regard, we agree with Fernández and Souto (2009) that CSR is an effective management tool which offers confidence to stakeholders as the company is perceived as responsible and trustworthy. This fact has led companies to disclose CSR reports that extend the traditional financial information provided to shareholders to a wider range of stakeholders. As a consequence, companies have had to redefine its objectives in response to social expectations (see Porter and Kramer, 2002; Selvi, Wagner & Türel, 2010; Giannarakis and Theotokas, 2011; Pérez & Del Bosque, 2012). Indeed, the changing environment might have made companies consider the convenience to hire professional assurance services to make information more reliable

The scope of our research is listed companies in Vietnam from 2012 to 2017, the period of Vietnam's economic recovery, and discusses possible changes in the strategies followed by Vietnamese firms.

2. Objectives

We aim to fulfill this gap so as to evidence that in spite of its costs, the extra credibility of CSR reporting provided by external assurance is regarded as valuable and kept by management even in a context of crisis or economic recovery. The structure of this paper is as follows. After the introduction that highlights the opportunity and interest of this research, the second section of the paper presents the theoretical framework and a brief literature review. The third section explains the sample design and the methodological approach of our empirical study. In the fourth section, the results of the study are discussed. Finally, we present the main conclusions that can be drawn from this research. The research framework is designed to answer the following questions

Question 1: Will changes in CSR reporting strategies affect business performance?

Question 1: Will changes in CSR assurance strategies affect business performance?

3. Materials and Methods

Sustainability reporting is made on a voluntary basis. It means that businesses can take a proactive position disclosing this kind of information, which can be understood as a differentiation strategy to show a signal in periods of Vietnam's economic recovery of concern for environmental and social issues. In addition, the business can go a step further and assure that information to provide it with higher credibility.

Therefore, the incentives to voluntarily disclose information on sustainability or even the incentives to publish the assurance report on this kind of information can be framed in the context of the signaling theory (Connelly, B. L., Ketchen, D. J., & Slater, S. F., 2011). The basic assumption of this theory is based on the existence of transaction costs, in which the economic agents being considered rational individuals. Therefore, this theory is based on the existence of information asymmetries between managers and investors, managers with good news having incentives to disclose this information to the market (see (Ross, S.A., 1979)). Also, according to Beaver (1989), voluntary disclosure plays a very important role in the efficient functioning of capital markets. Indeed, Cormier, Ledoux & Magnan (2011) investigated how social and environmental disclosures affect information asymmetry on the stock market. Their results show that social and environmental disclosures reduce stock market asymmetries.

Firstly, the concept of CSR or sustainability reporting should be looked into. The Commission of the European Communities (2001) defines CSR as “a concept whereby companies integrate social and environmental concerns in their business operations . . . on a voluntary basis”. The position of public and private organizations in favor of showing a stronger link between the company and the environment has favored that companies put in place mechanisms that show their commitment to aspects of social and environmental nature. In summary, CSR could be understood as an evolving concept (Carroll, A.B., 1999), by which firms integrate social, environmental, and economic concerns into their strategy and decision-making.

The Global Reporting Initiative (GRI, 2007) provides a broad-based framework for the disclosure of CSR reports, with guides on report content. These guides cover the three dimensions of corporate social responsibility (economic, social and environmental aspects). In fact, according to data published by the European Union (2009) referred to 2008, 68 percent of CSR reports follow the Global Reporting Standard Initiative.

The definition of CSR made by Branco & Rodrigues (2008) includes two main factors that motivate companies to publish CSR reports: good relations with stakeholders, and conforming to stakeholder norms on operations.

The need for CSR reports has increased in accordance with the changing needs of organizations. Actually, organizations are socially responsible to each party related with the organization

(Karaibrahimoğlu, Y.Z., 2010) and their aim is to create economic and social value (see, for instance, (Sachs, Maurer, Rühli & Hoffmann, 2006).

Hazlett, McAdam & Murray (2007) explore the relationship between quality management and CSR. Their research is based on six case studies of organizations that have been recognized as leaders in business improvement. Beltratti (2005) points out the closeness between CSR and ethics. The results of the meta-analysis research carried out by Orlitzky, Schmidt & Rynes (2003) confirm a positive relationship between social responsibility and financial performance.

There are interesting papers published in the international literature that analyze the reasons and consequences of the disclosure of CSR report by companies (e.g. Gelb & Strawser, 2001). Spence (2007) explores the construction of capitalism discourse through social and environmental reporting. Simpson & Kohers (2002) and Coombs & Gilley (2005) focus on the relationship between CSR and financial performance.

Assurance of CSR (CSRA) reports plays an important role in increasing quality of CSR reports (Perego, P., & Kolk, A., 2012) as it can explain by the companies' willingness to enhance credibility and reliability of the CSR reports. Also, CSRA reports could be understood, from an organizational point-of-view, as a way to improve reporting systems and internal information (Vieho¨ver, M.G., Tu¨ rk, V. and Vaseghi, S., 2010), generating greater transparency as regards the business objectives. From the stakeholders' perspective, CSRA reports should be considered more reliable as they have been assured by an independent professional.

According to Waniak-Michalak et al (2016), most of the disclosures about "Sustainability Accounting" or "Social Responsibility Accounting" are about the development of sustainability accounting research and its role to improve corporate sustainability, developments in social and environmental accounting, developments in corporate social responsibility and environmental management.

Ngwakwe (2011) suggested that sustainability initiatives of the accounting profession would be required to increase the role of accounting towards sustainable development. He also pointed out that the regulations of sustainability accounting and reporting standards should be modified to cope with climate change. Integrating sustainability accounting drives the change in accounting education.

Some authors mentioned the relationship between social responsibility accounting and sustainability. Zadek (1999) stated that "the imperatives of integrating social and environmental goals and measures of performance with the 'financial' become the real step towards placing the process of business within the framework of sustainability".

Adams et al (2011) claimed that there was a needed change in business education to develop personal and leadership skills and to address global problems of poverty, climate change, environmental sustainability, and lifestyle. Ngwakwe (2012) insisted that "sustainability behavior in the accounting profession is a function of global green culture and that the more society embraces profound green values, the more accounting will transform towards sustainability values".

Waniak-Michalak, Macuda & Krasodomskac (2016) in the case of Poland stated that "changes in the way companies operate and report on their performance are reflected in accounting research". In Poland, the CSR concept should be included in the accounting framework, mainly focusing on voluntary corporate disclosures and integrated reporting practices.

In Vietnam, there have been few articles about social responsibility accounting, except several studies on specific aspects of social responsibility accounting such as green accounting, environmental management accounting (Ha Xuan Thach., 2014).

3.1. Sample and Methodology

This study focuses on the Vietnam stock market in the period of 2012 to 2017, the period of economic recovery. Using data from 41 companies from the following sectors: Real Estate, Construction, Textiles, Chemicals, Pharmaceuticals, Gas, Electricity, Energy, ... industries that affect the environment.

We focus on companies which have had a change as regards the sustainability reporting strategy (from not having CSR report to having it and vice versa). We then try to explain this change in CSR disclosure strategy through variables linked to performance (both from an accounting viewpoint and from a stock market perspective).

3.2. Hypothesis

Sample 1: Only companies-year with changes in CSR disclosure strategy.

H1a. The accounting perspective (measured by ROA and ROE) shows mean values which do not differ substantially in changes in disclosure on CSR reports after the change in reporting strategy.

H1b. The market perspective (measured by MTB and Tobin's Q) shows mean values which do not differ substantially in changes in disclosure on CSR reports after the change in reporting strategy.

Sample 2: Only companies-year with changes in CSR assurance strategy.

H2a. The accounting perspective (measured by ROA and ROE) shows mean values which do not differ substantially in changes in the assurance on CSR reports after the change in the assurance strategy.

H2b. The market perspective (measured by MTB and Tobin's Q) shows mean values which do not differ substantially in changes in the assurance on CSR reports after the change in the assurance strategy.

4. Results and Discussion

4.1. Sample 1: Only companies which have changes in the disclosure of CSR reports

Our sample here includes 41 companies with changes in the CSR reporting strategy, which includes only 41 observations – 9 of which have discontinued their CSR reporting strategy and 32 of which have adopted it.

We aim to compare their profitability variables (both from an accounting perspective and from a market perspective) of the following year of the change in the reporting strategy with the values of the variables of the year in which the change in the reporting strategy took place. We calculate these variables as the proportional increment – see the following example for the variable ROA (note that the same calculations were done with each variable: ROE, MTB and Tobin's q), being "t" the year in which the change took place.

$$\Delta ROA = \frac{(ROA_{i+1} - ROA_i)}{ROA_i}$$

Next, we present the descriptive statistics for both samples (the observations that change from do not have CSR report to have, i.e. CSR strategy adopters n = 41, and from have the CSR report to do not have, i.e. CSR strategy discontinued n = 9) in Tables 1 and 2.

For the first subsample (see Table 1), including observations from new CSR strategy adopters, as can be seen from an accounting performance perspective, the Δ ROA has a maximum of 34.07 and a minimum is 4.43, with a mean of 6.7890 and a standard deviation of 7.40273. However, the Δ ROE has a maximum of 38.22 and the minimum is 18.98 so the oscillation between these two values is higher than the Δ ROA, with a mean of 8.9835 and a standard deviation of 9.32148. From the point-of-view of capital markets performance, the increase of the market to book ratio (MTB) has a maximum of 3.29 and a minimum is 0.29 with a mean of 1.1379 and a standard deviation of 0.72007. The Δ Tobin's q has a maximum of 2.3 and a minimum is 0.59, with a mean of 1.0990 and a standard deviation of 0.39698.

Table II displays the descriptive statistics for those observations that have discontinued their CSR reporting strategy (n = 9). We observe that from a profitability point-of-view, the Δ ROA has a maximum of 25.95 and a minimum of 0.71, with a mean of 7.1788 and a standard deviation of 7.544. The Δ ROE in this second sample (n = 9) has a maximum of 27.51 and a minimum of 0.89, with a mean of 9.5943 and a standard deviation of 8.09059. From the point-of-view of capital markets, the increasing of MTB has a maximum of 2.59 and a minimum of 0.39 with a mean of 1.1003 and a standard deviation of 0.65772. The Tobin's q has a maximum: 2.34; minimum: 0.66; mean: 1.0645; standard deviation: 0.50778.

Table 1 Descriptive statistics of CSR strategy adopters

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROE	32	-18.98	38.22	8.9835	9.32148
ROA	32	-4.43	34.07	6.7890	7.40273
MTB	32	.29	3.29	1.1379	.72007
TobinQ	32	.59	2.30	1.0990	.39698
Valid N (listwise)	32				

Table 2 Descriptive statistics of CSR strategy discontinuation

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROE	9	.89	27.51	9.5943	8.09059
ROA	9	.71	25.95	7.1788	7.54400
MTB	9	.39	2.59	1.1003	.65772
TobinQ	9	.66	2.34	1.0645	.50778
Valid N (listwise)	9				

We have contrasted our hypotheses H1a and H1b to see whether, for the specific companies that make changes in their CSR reporting strategy, there is an impact on the performance ratios ROA, ROE, MTB and Tobin's q. Therefore, we have to reject H3a and conclude that changes in the CSR reporting strategy of companies (adoption versus discontinuation) have a significant change in the profitability (ROE) of the company. Indeed, if we compare CSR adopters' variables (Table 1) with the cases of CSR discontinuation (Table 2), from an accounting perspective, we can see that there is a mean decrease in ROE following discontinuation, whereas there is an increment in ROE following CSR adoption, which is in line with our expectations.

However, we have to accept H1b, which implies that changes in CSR reporting strategy do not have an impact on profitability from a market perspective.

4.2 Sample 2: Only companies which have changes in the assurance of CSR reports

As can be seen in Table 3, our sample includes now 20 observations which have experienced a change in the assurance strategy, only three of them that have discontinued their CSR assurance reporting strategy whereas 18 are new CSR assurance strategy adopters.

We aim to compare their profitability variables (both from an accounting perspective and from a market perspective) of the following year of the change in the assurance strategy with the values of the variables of the year in which the change in the reporting strategy took place.

Next, we present the descriptive statistics for both samples in Tables 3 and 4. Thus, from the accounting perspective, one can note that the increase in ROA has a maximum of 17.76 and a minimum of 2.97 with a mean of 4.7485 and a standard deviation of 5.93368 (see Table 3). However, the Δ ROE has a maximum of 25.49 and a minimum of 18.98 so the oscillation between these two values are much lower than the increase of ratio ROA, with a mean of 8.3693 and a standard deviation of 9.28243. From the point-of-view of the market, the increase in the MTB ratio has a maximum of 2.89 and a minimum of 0.42, with a mean of 1.2619 and a standard deviation of 0.75393. The Δ Tobin's q variable has a maximum of 2.3 and a minimum of 0.59, with a mean of 1.1383 and a standard deviation of 0.40727.

Table 3 Descriptive statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROE	18	-18.98	25.49	8.3693	9.28243
ROA	18	-4.00	17.76	6.4355	5.93368
MTB	18	.42	2.89	1.2619	.75393
TobinQ	18	.59	2.30	1.1383	.40727
Valid N (listwise)	18				

Table 4 Descriptive statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
ROE	2	6.82	8.21	7.5142	.98324
ROA	2	2.97	6.52	4.7485	2.50859
MTB	2	.55	1.07	.8098	.37150
TobinQ	2	.93	.95	.9420	.01479
Valid N (listwise)	2				

In Table 4, we have only 2 observations that discontinue the CSR assurance strategy. It is noteworthy that all observations have a negative Δ ROA with a maximum of 6.52, minimum of 2.97, mean of 4.7485 and standard deviation of 2.50859. In the case of Δ ROE, we can state that a minimum of 6.82 but with a maximum of 8.21. From the market perspective, the increases in the MTB ratio and in Tobin's q act as the Δ ROA and get worsened when assurance is no longer provided. The maximum is 1.07 and a minimum of 0.55, with a mean of 0.8098 and a standard deviation of 0.37150. The Δ Tobin's q variable has a maximum of 0.95 and a minimum of 0.93, with a mean of 0.9420 and a standard deviation of 0.01479.

Therefore, we have to accept H2a and H2b so we conclude that changes in the CSR assurance strategy of companies do not have a significant impact either from an accounting perspective (ROA and ROE) or from a market perspective (MTB and Tobin's q). Nonetheless, performance from both perspectives gets worse if discontinuation of CSR assurance.

5. Conclusion

The need to use information from social responsibility accounting system is increasingly high under pressures of stakeholders. Enterprises' stakeholders are more critical about the performance of the business in the long run and should be well informed about the wide range of corporate activities including non-financial information. This is a clear demonstration of the need for a social responsibility accounting system. To do so, there should be a full legal guidance system from the Governmental bodies. There should be a formal recognition of accountability in the State legal documents. Otherwise, formal guidance such as handbooks can be developed to help businesses better access social responsibility accounting. The handbooks can be structured based on a template available such as GRI guidance or Six Sigma guidance.

This paper presents an empirical study that provides new insights on business behavior regarding CSR reporting, especially in the context of Vietnam's economic recovery. Note that CSRA can be seen as a rather new tool to increase the credibility of CSR reporting and reinforce stakeholders' trust in the company.

We focus on studying whether Vietnam's companies are using CSR reporting and the CSRA reports as a strategy in the context of Vietnam's economic recovery, in spite of its costs. Vietnam is an interesting case study is a developing country and the information environment is incomplete.

The approach of our empirical study for listed companies on Vietnam's stock market since 2012, the period of Vietnam's economic recovery. Our results show that the number of CSRA reports significantly increases after the economy recovered and grew. We conclude that the economy recovered and grew has affected the CSR reporting strategy of companies, increasing that trend indeed. However, the economy recovered and grew has not affected significantly the CSR assurance reporting strategy of companies, even though the absolute number of assurance reports keeps increasing, yet not in a significantly higher pace.

Having done that, we look into the effect of changes in the CSR reporting strategy and changes in CSRA strategy on profitability for specific companies (from an accounting or from a market perspective) and find that the changes regarding the adoption of CSR strategy significantly improve the increase in ROE as opposed to discontinuation of this policy. Regarding changes in the CSRA strategy followed by firms, our results do not provide significant results, even though discontinuation of this policy seems to worsen the performance of companies.

Therefore, our results seem to indicate that companies perceive CSR reporting and assurance as a valuable investment in spite of its costs. Hence, even in the context of the current financial crisis, this study identifies a business in a stage of expansion, not only CSR reporting but also the assurance of CSR reports. There seems to be an investment view of CSRA which can help companies differentiate their products or services from the competition and reinforce the trust from stakeholders.

6. Acknowledgements References

Acknowledgements: This study is funded by Project KX01.27/16-20

7. Reference

Adams, C. A., Heijltjes, M. G., Jack, G., Marjoribanks, T., and Powell, M. (2011). “The development of leaders able to respond to climate change and sustainability challenges: The role of business schools”. *Sustainability Accounting, Management and Policy Journal, 2(1),* 165-171.

Beaver, W. (1989). Financial Accounting: “An Accounting Revolution, Prentice Hall International". *New Jersey, NJ.*

Beltratti, A. (2005). The complementarity between corporate governance and corporate social responsibility. *Geneva Papers on Risk and Insurance, Vol. 30 No. 3*, pp. 373-389.

Branco, M. C., & Rodrigues, L. L. (2008). Factors influencing social responsibility disclosure by Portuguese companies. *Journal of Business Ethics, 83,* 685-701. http://dx.doi.org/10.1007/s10551-007-9658-z.

Carroll, A.B. (1999). Corporate social responsibility: evolution of a definitional construct. *Business and Society, 38(3)* , 268-295.

Connelly, B. L., Ketchen, D. J., & Slater, S. F. (2011). Toward a “theoretical toolbox” for sustainability research in marketing. *Journal of the Academy of Marketing Science, 39(1),* 86-100.

Coombs, J. E., & Gilley, K. M. (2005). Stakeholder management as a predictor of CEO compensation: Main effects and interactions with financial performance. *Strategic Management Journal, 26(9),* 827-840.

Cormier, D., Ledoux, M. J., & Magnan, M. (2011). The informational contribution of social and environmental disclosures for investors. *Management Decision, 49(8)* , 1276-1304.

Fernández, B.& Souto, F. (2009). Crisis and CSR: threat or opportunity? *International Journal of Economic Sciences and Applied Research, 2(1),* 36-50.

Gelb, D. S., & Strawser, J. A. (2001). Corporate social responsibility and financial disclosures: an alternative explanation for increased disclosure. *Journal of Business Ethics, 33(1),* 1-13.

Giannarakis, G., & Theotokas, I. (2011). The effect of financial crisis in corporate social responsibility performance. *International Journal of Marketing Studies, 3(1),* 2.

GRI. (2007). The GRI’s Sustainability Report. *Global Reporting Initiative July 2004 – June 2007,* https://www.globalreporting.org/resourcelibrary/GRI-Sustainability-Report-2004-2007.pdf.

Ha Xuan Thach. (2014). Oriented development of environmental management accounting in the system Vietnamese accounting system. *Conference "Accounting and Auditing in the process of reform and integration" Danang University, Vietnam*.
Hazlett, S. A., McAdam, R., & Murray, L. (2007). From quality management to socially responsible organisations: the case for CSR. *International Journal of Quality & Reliability Management, 24(7)* , 669-682.
Karaibrahimoğlu, Y.Z. (2010). Corporate social responsibility in times of financial crisis. *African Journal of Business Management, 4(4)*, 382-389.
KPMG. (2005). KPMG International Survey of Corporate responsibility reporting. *Amsterdam*.
Ngwakwe, C. C. (2011). Towards an understanding of the influence of sustainability culture on the accounting profession. *International Journal of Sustainable Development & World Ecology, 18(5)*, 442-452.
Ngwakwe, C. C. (2012). Rethinking the accounting stance on sustainable development. *Sustainable Development, 20(1)*, 28-41.
Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization studies, 24(3)* , 403-441.
Perego, P., & Kolk, A. (2012). Multinationals' accountability on sustainability: The evolution of third-party assurance of sustainability reports. *Journal of Business Ethics, 110(2)*, 173-190.
Pérez, A., & Del Bosque, I. R. (2012). The role of CSR in the corporate identity of banking service providers. *Journal of Business Ethics, 108(2)*, 145-166.
Porter, M.E. and Kramer, M.R. (2002). The Competitive Advantage of corporate Philanthropy. . *Harvard Business Review*.
Ross, S.A. (1979). Disclosure regulation in the financial markets: implications of modern finance theory and signaling theory in Edwars F.,. *Issues in Financial Regulation. New York, Mc Graw Hill*, 177-202.
Sachs, S., Maurer, M., Rühli, E., & Hoffmann, R. (2006). Corporate social responsibility from a "stakeholder view" perspective: CSR implementation by a Swiss mobile telecommunication provider. *Corporate Governance: The international journal of business in society, 6(4)*, 506-515.
Selvi, Y., Wagner, E., & Türel, A. (2010). Corporate social responsibility in the time of financial crisis-evidence from Turkey. *Annales Universitatis Apulensis Series Oeconomica, 12(1)*, 281-290.
Simpson, W. G., & Kohers, T. (2002). The link between corporate social and financial performance: Evidence from the banking industry. *Journal of business ethics, 35(2)*, 97-109.
Spence, C. (2007). Social and environmental reporting and hegemonic discourse. . *Accounting, Auditing & Accountability Journal, 20(6)*, 855-882.
The Commission of the European Communities. (2001). *Brussels 18.7.2001*, http://www.europarl.europa.eu/meetdocs/committees/deve/20020122/com(2001)366_en.pdf.
The European Union. (2009). Sustainability Report . *EUROPEAN ECONOMY 9|2009*, http://ec.europa.eu/economy_finance/publications/pages/publication15998_en.pdf.
Vieho¨ver, M.G., Tu¨ rk, V. and Vaseghi, S. (2010). "CSR assurance in practice: measuring and auditing sustainability", in Pohl, M. and Tolhurst, N. (Eds). *Responsible Business. How to Manage a CSR Strategy Successfully, Wiley, Chichester*.
Waniak-Michalak, H., & Michalak, J. (2016). Corporate and NGOs' Voluntary Disclosure on Collaboration. Evidence from Poland. *Inzinerine Ekonomika-Engineering Economics, 27(1)*, 98–108.
Waniak-Michalak, H., Macuda, M., & Krasodomskac, J. (2016). Corporate social responsibility and accounting in Poland: A literature review. *Accounting and Management Information Systems, 15(2)* , 255-303.
Zadek, S. (1999). Stalking sustainability. *Greener Management International, 26*, 21-31.

The Stimulus of Globalization on Quality of Governance: Evidence from ASEAN Countries

Darusalam Darusalam[1], Normah Omar[1], Jamaliah Said[1], Kazi Sohag[2] and Marijn Janssen[3]

[1]Accounting Research Institute, Universiti Teknologi Mara, Malaysia
[2]Ural Fedaral University, Russia
[3]Delft University of Technology, Delft, the Netherlands.

Corresponding authors, E-mail: darusalam85@gmail.com, normah645@salam.uitm.edu.my, jamaliah533@salam.uitm.edu.my, ksohag@uitm.edu.my; M.F.W.H.A.Janssen@tudelft.nl.

Abstract

Corruption is the biggest issue in developed and developing countries. It has undesirable outcomes in economics for instance; reducing private sector investments, economic growth, differing foreign direct investment, anti-poverty program, and low level of governance in the country. Globalization and corruption are objects whose entities cannot be separated because the level of the globalization may also impact the corruption level in the country. This study assesses the relationship between the Globalization on Quality Governance (QoG) in ASEAN (Association of Southeast Asian Nation). We reinforce the existing literature on the effect of Globalization on QoG. Using a panel data of ASEAN countries over the span of 1984 to 2016, this study analyzed the data utilizing Panel Autoregressive Distributed Lags (ARDL). This study affirms the presence of a quadratic (non-linear) inverted U-shaped relation between the Globalization on QoG. The findings obtained from ARDL framework is consistent with Dumitrescu-Hurlin panel Granger Causality framework. The study contributed to society for example NGOs, Policy Maker, and researcher. In the academic field, this study contributed in term of methodology how the globalization enhances the QoG.

Keywords: *Globalization, ARDL, ASEAN, Quality of Governance, Corruption*

1. Introduction

The impact of globalization has now become a hot topic in active public debate. The interest related to this topic involves improving the significance of the procedure of the globalization that is currently starting (Ezcurra, 2012). Globalization is not a new phenomenon. Actually, it began in the 19th Century. There are some questions related to globalization such as “Does globalization a good weapon to mitigating corruption?” “Do the phenomena of globalization is able to improve the quality of governance in developed and developing countries?” and “How the impact of Economic and Political globalization on developing countries?.” This study addresses the issues above related to the context of South East Asia Countries.

The process of globalization starts with the opening of the national border to a variety of flows including people, goods and services, capital, information, and idea (Clark, 2000). Although some scholars are difficult to provide a precise definition of the globalization, there was wide agreement that the globalization tends to erase the relevance of the national border, producing a complex link between many actors at a multicontinental distance (Norris, 2000; Shin, 2002). The improvement of mutual relationship has a crucial impact on some aspects of modern society such as political, economic, social, and cultural features (Ezcurra, 2012). Therefore, understanding the impact of the globalization is important for solving numerous problems posed by this process, as well as to be able to analyze who is beneficial and who is not, not only for the single country but also for many countries.

There are many studies related to how globalization can improve the institutional quality and control of corruption. The study by Nadeem, Hayat, and Nazir (2014) argue that there are some benefits of globalization. Firstly, the globalization improves trade competition and forms an interlink market system which will benefit among countries. Secondly, globalization is unavoidable, which means that countries of all level are involved in the system. Lastly, the globalization provides a positive impact in the countries of all level including the third-world economies by building free democracies, free trade, and business opportunities.

This paper, on the first note, contributes to the existing literature by examining the role of the globalization on QoG in South East Asian Countries in understanding what are the encouraging and hindering factors that may influence the development and growth of the South East Asian Countries. This study undertakes the macroeconomic approach to examine how factors such as globalization affect the QoG in each of the 8 South East Asian Countries. The rest of the paper is organized as follows. The review of literature and hypothesis development are in Section 2. Data and Methodology are presented and discussed respectively in Section 3. Research Framework is in Section 4. Result and discussion are covered in Section 5. Section 6 is the conclusion.

2. Objectives

The objective of the study is to examine the stimulus of the globalization on the quality of the governance in ASEAN Countries.

3. Materials and Methods

3.1 Review of Literature and Hypothesis Development

Nowadays, the impact of globalization is widely discussing in public (Bhagwati, 2011; Stiglitz, 2002). It is because the issue of globalization is increasing the term of the process of globalization. From the theoretical perspective, there are some opinions mentioning globalization and governance that may relate to each other (Ezcurra 2012). However, the link between globalization and governance is complex. There are many factors and mechanisms needed to take into account. In Addition, economic, political, and social globalization will influence the quality of governance (Keohane & Nye Jr, 2000).

In general, the definitions of globalization from some scholars are the enlargement of worldwide connections, a group of social life on a worldwide scope, and the improvement of worldwide mindfulness, therefore, the association of world society. Globalization is distinct to similar concepts such as internationalization, liberalization, universalization or westernization (Caselli, 2012; Scholte, 2008). The definition of internationalization as according to Scholte (2008) is the improvement on transaction and interdependence among countries. Liberalization is the process of removing officially imposed restrictions on movements of resources between countries. Universalization describes the process of dispersing (separating) various objects and experiences to people at all inhibited part of the earth. Westernization is interpreted as a universalization, in which social structures of western societies are spread across the earth.

Other definitions of globalization are stated as follow. Gygli, Haelg, and Sturm (2018) said that "The definition states that globalization describes the process of creating networks of connections among actor at intra or multi-continental distances, mediated through a variety of flows including people, information and ideas, capital, and goods. Globalization is a process that erodes national boundaries, integrates national economies, cultures, technologies, and governance, and produce complex relations of mutual interdependence" (p.5). In addition, Shahzad (2006) provided the definition of globalization as "expansion of economic activities across political activities boundaries of nations" (p1), which means the process of economic linkages and economic interdependence among the nation in the worldwide economy. Furthermore, it can be described as "Globalization can be defined as the intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa" (A. McCrew, pp.60). The famous definition provided by Keohane and Nye (1977) stated that "Globalization is a state of the world involving a network of interdependence at multicontinental distances. The linkage occurs through flows and influences of capital and goods, information and ideas, and people and forces, as well as environmentally and biologically relevant substances (such as acid rain or pathogens)" (p.2).

There are three types of globalization as according to the World Development's indicators (Group, 1978). Firstly, Economic globalization is defined as the long-distance flows of goods, capital, and services as well as information and perceptions that accompany market exchanges. It is measured by actual flows of trade and investments, and by restrictions on trade and Capital such as tariff rates. Secondly, Political globalization is measured by the number of embassies and high commissions in a country, the number of international organizations of which the country is a member, the number of UN peace missions the country has participated in, and the number of international treaties that the country has signed since 1945. Lastly, Social globalization is measured by three categories of indicators. The first is personal contacts such as telephone traffic and tourism. The second is information flows such as a number of internet users. The third is cultural proximity such as trade in books and a number of Ikea warehouses per capita. However, this study will focus on only two out of three elements of globalization, which are political globalization and economic globalization while social globalization seems extremely least discussed deeply.

3.2 Globalization and Quality of Governance

The globalization plays a certain role in explaining the quality of governance. Globalization can improve the trade, capital, information flows, and the movement of society across the borders (Lalountas, Manolas, & Vavouras, 2011). The purpose of globalization is to make homogenization, prices, products, wages, wealth, rates of interest, and profit to be similar all over the world (Waltz, 1999). Prior research discusses the link between globalization on quality governance and corruption. According to (WorldBank, 2016), there is a positive correlation between globalization and anti-corruption in the case of middle and high income. On the other hand, globalization in lower-income countries is not effects on corruption. In addition, governance states that interdependence will promote peace and limit the use of power. Simple interdependence will become complex interdependence binding the economic and tightening the political interest among the countries (Keohane & Nye, 1977). Prior research on globalization tends to focus on globalization as instrumental in fighting corruption (Asongu, 2014; Asongu, 2017; Glynn, Kobrin, & Naim, 1997; Lalountas et al., 2011; Torgler & Piatti, 2013). However, whether globalization improves the quality of governance and control of corruption in ASEAN is unknown yet.

Past studies generally agreed that globalization is a tool for fighting corruption. A journal written by (Asongu, 2014; Lalountas et al., 2011) stated that globalization can be a weapon to mitigate corruption only for middle and high-income countries but not for a developing country. Data taken from 2002-2010 consist of policy implication. The study focuses on Africa where human development and corruption are a worrying issue and reveals some problems especially on structural adjustment policies (liberalization for the most area) forced by the IMF (International Monetary Fund) and WB (World Bank) to increase the human development (Klitgaard, 1988). According to (Lalountas et al., 2011), globalization affects corruption from human development. It is because human development is a globalization road to strengthening a global commitment to carry on and speed up the pace of human development. Three types of human development index (HDI) are GDP per capita, literacy, and life expectancy (Asongu, 2014). However, according to (Asongu, 2014), globalization also threatens to build human development because it is evolving to find market victory from government and self-interest over humanity. In the same line of thought, corruption has the tendency when the states low level per capita economic prosperity, education, and life expectancy.

In addition, prior research by (Ahmad & Ghani, 2005; Blouin, Ghosal, & Mukand, 2012; Bonaglia, Braga de Macedo, & Bussolo, 2001; Kaufmann, Kraay, & Mastruzzi, 2011; Khan, 2017; Waltz, 1999) investigated how globalization is able to increase the quality of the governance. The results showed that “globalization, governance and economic performance affect each other in very mutual relationships” (p.1). For example, research by (Luo, 2005) examined how globalization affects corporate governance and accountability in MNEs (Multinational enterprises). It was also stated that “An international firm's corporate governance and accountability systems are influenced by its globalization scale, local responsiveness, foreign competition, and international experience. Normatively, the design of corporate governance and accountability should be properly aligned with these firm-level globalization characteristics” (p.1), which brings to the proposed hypothesis:

There is a positive relationship between globalization and Quality of Governance

3.3 Quality Governance

The definition of governance is “*the traditions and institutions by which authority in a country is exercised. This include (A) the process by which governments are selected, monitored and replaced; (B) the capacity of government to effectively formulate and implement sound policies; (C) the respect of citizen and* *the state for the institutions that govern economic and social interaction among them*" (Kaufmann et al., 2011, p.6). According to World Bank *"the manner in which power is exercised in the management of a country's economic and social resources for development" (Santiso, 2001, p.3).*

Instead of relying solely on Corruption perception index (CPI) by Transparency International to measure corruption, this study examines factors that influence the quality of governance and corruption. Conceptually, corruption represents a negative connotation of the offense. In contrast, this study examines anti-corruption measures in the forms of Quality of Governance and control of corruption. To check the robustness, this study utilizes two different measures of QoG from the International Country Risk Guide (ICRG) and Worldwide Governance Indicators (WGI). However, it further emphasizes the control of corruption domain of QoG under Kaufman. Table 1 respectively summarizes 12 proxies of QoG under ICRG and 6 proxies of QoG under Kaufman, WGI. In this research, we examine Globalization stimulus the quality of governance and control of corruption. this study will measure the QoG under ICRG because of the complex component measurement and long period data available under ICRG.

Table 1 Quality of Governance

	ICRG		Kaufman
No	**Component**	**No**	**Components**
1	Government Stability	1	Voice and Accountability
2	Socioeconomic Conditions	2	Political Stability / Absence of Violence
3	Investment Profile	3	Government Effectiveness
4	Internal Conflict	4	Regulatory Quality
5	External Conflict	5	Rule of Law
6	Corruption	6	Control of Corruption
7	Military in Politics		
8	Religious Tensions		
9	Law and Order		
10	Ethnic Tensions		
11	Democratic Accountability		
12	Bureaucracy Quality		

To measure the dynamic impact of globalization on QoG, we apply panel Autoregressive Distributed Lags (ARDL) approach under maximum likelihood estimation (MLE) developed by Pesaran, Shin, and Smith (1999). Panel ARDL version of Pesaran et al. (1999) has three estimators, Pooled Mean Group (PMG), Mean Group (MG) and Dynamic Fixed Effect (DFE). The PMG estimator incorporates dynamic heterogeneous panel regression into the error-correction model as follows,

$$\mathrm{lnQOGC}_{\mathrm{it}} = \mu_i + \sum_{j=1}^{p} \lambda_{\mathrm{ij}} \mathrm{GLOB}_{\mathrm{it\text{-}j}} + \sum_{j=0}^{q} \delta_{\mathrm{ij}}^{/} X_{\mathrm{it}-j} + \varepsilon_{\mathrm{it}} \quad \text{..........................(1)}$$

Where, i = 1, 2,….., N represents a cross-sectional unit, t = 1, 2, 3, …..T represents time (annual), j is the number of time lag, p is the lag of the dependent variable, and q is the lag of the independent variables. $X\square_{\mathrm{it}}$ is the vector of independent variables such as globalization, fixed capital formation, labor force, trade openness, and μ_i is the fixed effect. Equation (1) can be written through re-parameterization as follows,

$$\Delta\mathrm{QOG}_{\mathrm{it}} = \mu_i + \varphi_i \mathrm{QOG}_{\mathrm{it}-1} + \beta_i' X_{\mathrm{it}} + \sum_{j=1}^{p-1} \lambda_{\mathrm{ij}^*} \Delta QOG_{it-j} + \sum_{j=0}^{q-1} \delta'^{*}_{\mathrm{ij}} \Delta \mathrm{X}_{\mathrm{it}-j} + \varepsilon_{\mathrm{it}} \text{ ....(3)}$$

$$\text{Where, } \varphi_i = -1(1 - \textstyle\sum_{j=1}^{p} \lambda_{ij}),\ \beta_i = \textstyle\sum_{j=0}^{p} \delta_{ij},$$

$$\lambda_{ij^*} = -\sum_{m=j+1}^{p} \lambda_{im},\ j = 1,2,,\text{........},\ p-1, \text{ and}$$

$$\delta_{ij^*} = -\sum_{m=j+1}^{p} \delta_{im},\ j = 1,2,,\text{........},\ q-1.$$

Now by grouping the variables in levels further, Eq. (2) is rewritten as an error correction equation:

$$\Delta \mathrm{QOG}_{\mathrm{it}} = \mu_i + \varphi_i(\mathrm{QOG}_{\mathrm{it}-1} - \theta_i' X_{\mathrm{it}}) + \sum_{j=1}^{p-1} \lambda_{\mathrm{ij}^*} \Delta \mathrm{QOG}_{it-j}$$
$$+ \sum_{j=0}^{q-1} \delta_{\mathrm{ij}}^{*\prime} \Delta \mathrm{X}_{\mathrm{it}-j} + \varepsilon_{\mathrm{it}} \text{ ....(4)}$$

Where $\theta_i = -(\beta_i/\phi_i)$ defines the long-run or equilibrium relationship among QOG_{it} and X_{it}. In contrast, λ_{ij^*} and $\delta_{ij}^{*\prime}$ are short-run coefficients relating growth to its past values and other determinants like X_{it}. Finally, the error-correction coefficient ϕ_i measures the speed of adjustment of QOG_{it} toward its long-run equilibrium following a change in X_{it}. The condition $\phi_i<0$ ensures that a long-run relationship exists. Therefore, a significant and negative value of ϕ_i is treated as evidence of co-integration between QOG_{2it} and X_{it}. Thus, finally, the estimates are measured by:

$$\hat{\theta}_{\mathrm{PMG}} = \frac{\sum_{i=1}^{N} \tilde{\theta}_i}{N}, \hat{\beta}_{\mathrm{PMG}} = \frac{\sum_{i=1}^{N} \tilde{\beta}_i}{N};\ \hat{\lambda}_{j_{\mathrm{PMG}}} = \frac{\sum_{i=1}^{N} \tilde{\lambda}_i}{N}, \text{and } \hat{\gamma}_{j_{\mathrm{PMG}}} = \frac{\sum_{i=1}^{N} \hat{\gamma}_i}{N}$$

Where, $j = 0, \ldots\ldots\ldots q-1, \quad \hat{\theta}_{\mathrm{PMG}} = \tilde{\theta}$

Therefore, based on the above methodology presented in equation 3, the following three models have been developed. Thus the model to be estimated is:

In the equation, λ_i represents parameters to be estimated and Δ indicates differenced operator. If the respective variables are integrated order I(1), then the error term is integrated order I(0) process for all *i*. A principal feature of co-integration is that any short-run disequilibrium converges towards the long run equilibrium at the rate of φ_i. Therefore, the parameter φ_i is the error-correcting speed of adjustment term. If $\varphi_i = 0$, then there would be no evidence of a long-run relationship. This parameter is expected to be significantly negative under the prior assumption that the variables show a return to long-run equilibrium. Whether the PMG approach is valid or not, that depends on several important findings (Samargandi, Fidrmuc, & Ghosh, 2015). First, the error-correction term has to be negative and not lower than -2 to ensure the existence of a long-run relationship among the variables of interest. Secondly**,** the obtained residual from PMG estimator has to be serially uncorrelated then the explanatory variables has to be treated as exogenous determinants. But these conditions can be fulfilled by incorporating lags into an ARDL model for the dependent (p) and independent variables (q) in error-correction form. Finally, this estimator is particularly useful when there are reasons to expect that the long-run equilibrium relationships between variables to be similar across countries because they might have a similar nature in terms of economic growth.

The second method (MG) is carried out by estimating separate regression for each cross section. This method provides long run and short run parameters by taking an average of individual parameters from each country-specific regression. Therefore, MG method allows coefficient to be heterogeneous in the short run and long run. The validity of MG estimators largely depends on the large time series dimension of the data. Further, the DFE method is carried out based on a few assumptions, like 1) country-specific intercept 2) it restricts the speed of adjustment coefficient and the short-run and long-run coefficient to be identical for all cross-section. Finally, the Hausman test is applied to identify the efficiency and consistency of each estimator over others.

3.4 Data Sources

This study intends to conduct in ASEAN Economy Community. In this research, 8 countries will be selected as a scope of the study; Malaysia, Indonesia, Brunei Darussalam, Singapore, Thailand, Vietnam, Cambodia, and Philippine.

Data: panel time series (1984-2016)

Data Sources: Secondary data

- Governance data from ICRG data set and Quality of Government Institute of Gothenburg university database.
- Control of corruption data from World Governance Indicators
- Globalization data from the Quality of Government Institute of Gothenburg university database.
- Data of Socio-Economic indicators and control variables from World Development Indicators

To estimate the impact of ICT and Globalization on the quality of governance, we consider data from 8 countries in ASEAN including Brunei Darussalam, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. The availability of data is from 1984 to 2016. We use the quality of governance as the dependent variable with ten indicators including government stability, socioeconomic condition, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, a law in order, ethnic tension, democratic accountability, and bureaucracy quality. To check the robustness, we include important control variables based on the model specification and diagnosis tests, that are, government expenditure, gross domestic product constant (GDPC), and Human Capitan (HC). All other variables have been collected from WDI (World Development Indicators). Table 2 shows the descriptive statistic of our data.

Table 2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
lqog	264	1.651055	.235428	.81093	2.00513
gi	264	53.41578	18.8382	19.2355	89.56081
gove	264	23.24475	9.611947	0	69.096
lgdpc	264	8.218811	1.56023	5.251812	10.87048
hc	264	2.270301	.4391362	1.3334	3.51807

3.5 Conceptual Framework

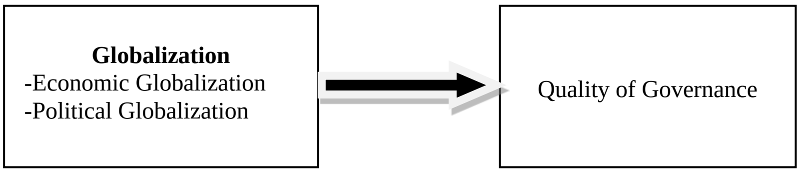

Figure 1 Conceptual Framework

Pertaining the above theory, we can develop the following empirical framework.

$QOG_{it} = \beta_0 + GLOB_{it} + \varepsilon_{it}$……………….(1)

In the equation 1, QOG denotes the quality of governance over the time and cross countries, β_0 indicates intercept, $GlOB_{it,}$ reflects Globalization over the time and cross countries; and finally, ε_{it} indicates error terms or explained observations.

4. Results and Discussion

We executed the unit root test to examine a series of interest to conclude the respective order of integration. It is also necessary to note that no variable over integration order I(1) to avoid false result Pesaran and Pesaran (1997). Furthermore, it is important to check the order of integration of the variables to choose the suitable econometric model. The results of panel unit-root tests are presented in Table 2.

According to Im, Pesaran, and Shin (2003) in Table 3 clearly shows that the test accepts the null hypothesis of the presence of unit-root in the respective variables. As a result, the variables of this study are stationary at first difference level, which authenticates the appropriated of the ARDL (p,q) approach to be applied for analyzing data.

The results found from the dynamic analysis using panel ARDL (p,q) framework are presented in Table 4. The ARDL method clarifies the authentic of the relationship between Globalization in selected ASEAN countries. We reflect three methods of ARDL framework; PMG, MG, and DFE. The coefficient in the error-correction term is required to be negative and not less than -2. Table 3 shows that this coefficient is -0,231 and statistically significant at the 1% level. In the long run, the results under PMG method indicate that ICTs has a positive and significant impact on Quality Governance. In addition, the square form of ICTs has a negative and significant impact on Quality Governance. These findings support the work of Kim, Kim, and Lee (2009). This paper (Kim et al., 2009) gave a successful example of implantations of e-government for anti-corruption in Seoul, South Korea, known as the OPEN (Online Procedures Enhancement for civil applications) system of the Seoul Metropolitan Government (SMG). ICTs Development has a potential to create transparency and to use as a tool for anti-corruption and increase the quality governance (Ali & Gasmi, 2017; Bertot, Jaeger, & Grimes, 2010; Bhatnagar, 2003a, 2003b; Fukuyama, 2001; Johnson, Kaufmann, & Zoido-Lobaton, 1998; Palvia, Baqir, & Nemati, 2017; Sassi & Ali, 2017; Tanzi & Davoodi, 1998).

Table 3 Panel Unit-root Analysis

Variables	Level	1st difference
	IPS	IPS
CPI	-1.8175	-4.4060
GI	-1.1003	-5.6760
Gove	-2.4212	-6.7721
LGDPC	0.1068	-3.9105
HC	-1.7096	-2.5844

Furthermore, Table 3 shows the error-correction in which the coefficient is -0,106 and statistically significant at the 1% level. In the long run, the findings under PMG method indicate that Globalization has a positive and significant impact on Quality Governance. Additionally, the square form of Globalization also has a positive and significant impact on Quality Governance. These findings are consistent with practical work by (Ahmad & Ghani, 2005; Blouin et al., 2012; Bonaglia et al., 2001; Kaufmann et al., 2011; Khan, 2017; Waltz, 1999) which investigated how globalization is able to increase the quality of the governance. The results showed that “globalization, governance and economic performance affect each other in very mutual relationships” (p.1). For example, research by Luo (2005) examined how globalization affects corporate governance and accountability in MNEs (Multinational enterprises). It was stated that “An international firm's corporate governance and accountability systems are influenced by its globalization scale, local responsiveness, foreign competition, and international experience. Normatively, the design of corporate governance and accountability should be properly aligned with these firm-level globalization characteristics” (p.1).

Table 4 Globalization and Quality of Governance

	PMG		MG		DFE	
Variables	Long Run	Short Run	Long Run	Short Run	Long Run	Short Run
Error Correction		-0.106***		-0.318***		-0.157***
		(0.0397)		(0.0444)		(0.0320)
D.gi		-0.0423		-0.0715		0.00581
		(0.0466)		(0.0444)		(0.00857)
D.gi2		0.000568		0.000963		-3.15e-05
		(0.000622)		(0.000739)		(7.50e-05)
gi	0.0334*		0.0219		0.00178	
	(0.0200)		(0.0777)		(0.0143)	
gi2	-0.000458**		-0.000417		-3.56e-05	
	(0.000212)		(0.000678)		(0.000139)	
Constant		0.186**		-1.948**		0.156
		(0.0934)		(0.793)		(0.105)
Observations	256	256	256	256	256	256

PMG: pooled mean group; error time (ecm) should be negative and significant, residual (error time) uncorrelated with independent variables, error time must be uncorrelated, we can take lag in dv or iv. MG; mean group. DFE: dynamic fixed effect

To check the robustness test, we used Dumitrescu-Hurlin panel Granger Causality test (see Table 5). This study employs a Granger causality test developed by Dumitrescu and Hurlin (2012) to validate the causality relationship. The coefficient result from the ARDL estimator undoubtedly significant inferences. However, the results do not provide any information regarding the causal relationship between the analyzed variables. It is necessary for stakeholders such as policy maker and society to know the director of the causality among the variables to regulate appropriate policies. Another important advantage of this test is that it can be used for panel data in the presence of cross-sectional dependence. The result from Dumitrescu-Hurlin Granger causality test indicates that there is bidirectional causality Globalization and Quality Governance and Globalization and Corruption.

Table 5 Robustness Check

Hypothesis	**W-bar**	**Z-bar**	**Probability**	**Result**	**Conclusion**
$Lgi \rightarrow LQoG$	1.4505	0.9009	0.3676	No	Lgi not impact on LQoG
$LQoG \rightarrow Lgi$	2.4423	2.8846	0.0039	Yes	LQoG impact on Lgi
$Lgi2 \rightarrow LQoG$	1.5577	1.1154	0.2647	No	Lgi2 not impact on LQoG
$LQoG \rightarrow Lgi2$	2.4175	2.8350	0.0046)	Yes	LGoQ impact on Lgi2

5. Conclusion

This paper has examined how globalization develops and impacts the quality of governance and Corruption control in ASEAN Region. By using three types of panel ARDL framework: MG, PMG, and DFE, we drew the following conclusion;

1. The findings by PMG method show that Globalization has a positive and significant while the square method shows a negative and significant impact on quality governance in the long-run.

2. The findings by MG method show that Globalization has a positive and insignificant while the square method shows a negative and insignificant impact on quality governance in the long-run.

3. The findings by DFE method show that Globalization has a positive and insignificant while the square method shows a negative and insignificant impact on quality governance in the long-run.

This paper contributes to the theory and practice of macro economy by highlighting how globalization impact on quality governance. For instance, *this study contributed to society, for example, NGOs, Policy Maker, and researcher are taken into account implementing the globalization in ASEAN Countries. In the academic field, this study contributed in terms of methodology how globalization enhances the QoG.* The authors recognize the limitations of the present study and suggest that these limitations can be viewed as opportunities for future work and reflections. First, this research only measures the ASEAN region and limits independent variables. Future studies should attempt to replicate this research in a different setting and region. The empirical findings in this research are influenced by the ASEAN region, particularly the impact of quality governance initiatives.

6. Acknowledgements

We are indebted to the Mora Scholarship 5000 Doktor, State Islamic University of Raden Fatah Palembang, Indonesia and the Accounting Research Institute (ARI,UiTM) in giving us the support needed for this project. We appreciate the reviews and comments made by academicians on earlier drafts of this paper. Many thanks to the government agencies, organizations and commissions that participated in the project.

7. References

Ahmad, N., & Ghani, E. (2005). Governance, Globalisation, and Human Development in Pakistan [with Comments]. *The Pakistan Development Review*, 585-594.

Ali, M. S. B., & Gasmi, A. (2017). Does ICT diffusion matter for corruption? An Economic Development Perspective. *Telematics and Informatics, 34*(8), 1445-1453.

Asongu, S. (2014). Globalization (fighting), corruption and development: How are these phenomena linearly and nonlinearly related in wealth effects? *Journal of Economic Studies, 41*(3), 346-369.

Asongu, S. A. (2017). Does Globalization Promote Good Governance in Africa? An Empirical Study Across 51 countries. *World Affairs, 180*(2), 105-141.

Bertot, J. C., Jaeger, P. T., & Grimes, J. M. (2010). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly, 27*(3), 264-271.

Bhagwati, J. N. (2011). Preface for Symposium on Globalization and the Brain Drain in the Journal of Development Economics, 2010.

Bhatnagar, S. (2003a). E-government and access to information. *Global Corruption Report, 2003,* 24-32.

Bhatnagar, S. (2003b). Transparency and corruption: Does e-government help? *DRAFT Paper prepared for the compilation of CHRI*.

Blouin, A., Ghosal, S., & Mukand, S. (2012). Globalization and the (mis) governance of nations.

Bonaglia, F., Braga de Macedo, J., & Bussolo, M. (2001). How globalization improves governance.

Caselli, M. (2012). *Trying to measure globalization: Experiences, critical issues and perspectives* (Vol. 4): Springer Science & Business Media.

Clark, W. C. (2000). Environmental globalization. *Governance in a globalizing world, 500*.

Dumitrescu, E.-I., & Hurlin, C. (2012). Testing for Granger non-causality in heterogeneous panels. *Economic Modelling, 29*(4), 1450-1460.

Ezcurra, R. (2012). Is there a link between globalization and governance? *Environment and Planning C: Government and Policy, 30*(5), 848-870.

Fukuyama, F. (2001). Social capital, civil society and development. *Third world quarterly, 22*(1), 7-20.

Glynn, P., Kobrin, S. J., & Naim, M. (1997). The globalization of corruption. *Corruption and the global economy, 6*, 10-17.

Group, W. B. I. E. D. D. D. (1978). *World development indicators*: World Bank.

Gygli, S., Haelg, F., & Sturm, J.-E. (2018). The KOF Globalisation Index–Revisited. *KOF Working Papers, 439*.

Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of econometrics, 115*(1), 53-74.

Johnson, S., Kaufmann, D., & Zoido-Lobaton, P. (1998). Regulatory discretion and the unofficial economy. *The American Economic Review, 88*(2), 387-392.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators: methodology and analytical issues. *Hague Journal on the Rule of Law, 3*(2), 220-246.

Keohane, R. O., & Nye Jr, J. S. (2000). Globalization: What's new? What's not?(And so what?). *Foreign policy*, 104-119.

Keohane, R. O., & Nye, J. S. (1977). *Power and interdependence*: Boston.

Khan, H. A. (2017). Globalization and the Quality of Government: an Analysis of the Relationship. *Public Organization Review, 17*(4), 509-524.

Kim, S., Kim, H. J., & Lee, H. (2009). An institutional analysis of an e-government system for anti-corruption: The case of OPEN. *Government Information Quarterly, 26*(1), 42-50.

Klitgaard, R. (1988). *Controlling corruption*: Univ of California Press.

Lalountas, D. A., Manolas, G. A., & Vavouras, I. S. (2011). Corruption, globalization and development: How are these three phenomena related? *Journal of Policy Modeling, 33*(4), 636-648.

Luo, Y. (2005). How does globalization affect corporate governance and accountability? A perspective from MNEs. *Journal of International Management, 11*(1), 19-41.

Nadeem, M., Hayat, M. A., & Nazir, R. (2014). EXPLORING INTERLINKS BETWEEN GLOBALIZATION AND GOVERNANCE A Panel Data Evidence. *Pakistan Economic and Social Review*, 187-208.

Norris, P. (2000). Global governance and cosmopolitan citizens. *Governance in a globalizing world, 156*.

Palvia, P., Baqir, N., & Nemati, H. (2017). ICT for socio-economic development: A citizens' perspective. *Information & Management*.

Pesaran, M. H., & Pesaran, B. (1997). *Working with Microfit 4.0: interactive econometric analysis;[Windows version]*: Oxford University Press.

Pesaran, M. H., Shin, Y., & Smith, R. P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association, 94*(446), 621-634.

Samargandi, N., Fidrmuc, J., & Ghosh, S. (2015). Is the relationship between financial development and economic growth monotonic? Evidence from a sample of middle-income countries. *World development, 68*, 66-81.

Santiso, C. (2001). Good governance and aid effectiveness: The World Bank and conditionality. *The Georgetown Public Policy Review, 7*(1), 1-22.

Sassi, S., & Ali, M. S. B. (2017). Corruption in Africa: What role does ICT diffusion play. *Telecommunications Policy, 41*(7-8), 662-669.

Scholte, J. A. (2008). Defining globalisation. *World Economy, 31*(11), 1471-1502.

Shahzad, A. (2006). What is Globalization-Historical BackgrounD. *Jadavpur Journal of International Relations, 10*(1), 204-212.

Shin, M. E. (2002). Measuring economic globalization: spatial hierarchies and market topologies. *Environment and Planning A: Economy and Space, 34*(3), 417-428.

Stiglitz, J. E. (2002). *Globalization and its Discontents* (Vol. 500): New York Norton.

Tanzi, V., & Davoodi, H. (1998). Corruption, public investment, and growth. In *The Welfare State, Public Investment, and Growth* (pp. 41-60): Springer.

Torgler, B., & Piatti, M. (2013). Extraordinary wealth, globalization, and corruption. *Review of income and Wealth, 59*(2), 341-359.

Waltz, K. N. (1999). Globalization and governance. *PS: Political Science and Politics, 32*(4), 693-700.

WorldBank. (2016). Anti-corruption. *http://www.worldbank.org/en/topic/governance/brief/anti-corruption*.

Integrity Climate of the Malaysian Public Sector

Afzal I. Zahari*, Jamaliah Said, and Roshayani Arshad

Accounting Research Institute, Universiti Teknologi MARA Shah Alam, Malaysia
*Corresponding author, E-mail: afzalizzaz@gmail.com

Abstract

The public sector officers play an important role in the day-to-day government operations. The people who are the main government stakeholders require that each government organisation maintain high levels of public sector integrity. This is in order to prevent actions of fraud and corruption which is also a part of integrity violations. The study analyses integrity climate relationship towards the levels of integrity violations in government employees. The objectives of the study are to observe whether honesty, conscientiousness, and principal have any effects towards the levels corruption in the public sector. The approach of the study is through analysing 251 government employees which are equivalent to executives, managers, and directors in private sector. The questionnaire contains questions on integrity climate and perceived acts of corruption. The data on fraud and corruption was based on the perception of government employees on these acts unethical behaviours in the organisation. Data was collected through online distribution to government agencies. A total sample of 251 government employees submitted their questionnaire feedback. The findings indicated that honesty and conscientiousness of integrity climate have a role in influencing the levels of corruption in an organisation. The implications of the research provide further understanding of the organisations in the Asian region towards ethical behaviours. As a contribution to the literature, the results provide evidence and support that ethical environment of integrity are associated with the levels of corruption in the organisation. The practical applications would provide improved strategies and decision-making from managers that could be used to control the levels of integrity and corruption in their organisation.

Keywords: *Conscientiousness, corruption, government, honesty, integrity, Malaysia and principle*

1. Introduction

Integrity is one of the core values in an organisation. Integrity promotes moral ethical values as making the right choice choices of decision making even above each organisations principal (Dobel, 1990). The integrity approach is to foster values in the public sector in order to prevent fraud and corruption practices (OECD, 2017). The notion here is that through having higher levels of integrity in the organisation, the actions of fraud, corruption and integrity violations can be prevented and overall be reduced (Graaf, Huberts, & Strüwer, 2017; Huberts, 1998). Public sector integrity is an important element in public governance in order for public sector employees to achieve a more transparent and effective organisational structure (Yurniwati & Rizaldi, 2015).

Integrity violations was first presented by Huberts in 1998 which was established based on observations of public sector enforcers (Huberts, 1998) of where it relates to prior and current literatures concerning fraud and corruption (Graaf et al., 2017; Huberts, Kaptein, & Lasthuizen, 2007; Karim, Said, & Bakri, 2015; Lasthuizen, Huberts, & Heres, 2011; Morehead, 2007). Huberts had initially explained nine typologies of integrity violations made by public service officers which are fraud, corruption, receiving gifts, side activities, misuse of information, discrimination, misuse of power, abuse of resources and finally actions of crime (Huberts, 1998). Prior studies had focused on specific key parts of violations such as employee deviance (Peterson, 2002), misbehaviours and unethical conduct (Treviño, Butterfield, & McCabe, 1998), misconducts (Mayer, Kuenzi, & Greenbaum, 2010), dysfunctional behaviours (Svanberg & Öhman, 2013), misdemeanours (Adawiah, 1998; Ferrell, 1998) and misdeeds (Ashforth & Anand, 2003; Paine, 1994; Pfister, 2009) are some of the approached that are utilised in examining integrity violations.

The year 2015 had also seen some high profile cases. The case of the Majlis Amanah Rakyat (MARA) incorporated company which holds assets in Australia was the limelight of 2015. The company had bought assets in Australia overpriced above the market value. The kickbacks was then transferred to interested parties who had dealings prior to the purchase amounting to 4.75 Australian dollars was laundered out of Australia (Nick McKenzie & Richard Baker, 2015). The case of the National Feedlot Corporation (NFC) in 2015 sparked some misuse in government facilities in terms of soft loans provided. The CEO of the NFC was accused of breaching trust of government loan facilities to the amount of RM 49.7 million ringgit and was later released as the accusation was then dropped by the high court of Malaysia (BERNAMA, 2015). The Selangor Chief Minister was found guilty of graft through receiving kickbacks in assets, this case was when the Chief Minister received purchase of a house below the market price to the differential amount of RM 3 million ringgit below market price (Nazlina, 2015).

Enron was the pinnacle of fraud in organisations. The company’s fraudulent behaviour had led to the development of the Sarbanes Oxley Act (2002). Enron had suffered losses up to 50 billion dollars (Free, Macintosh, & Stein, 2007; Junior & Sorking, 2001; Olagbemi, 2010). Case studies had reflected on the organisation concerning organisational behaviour and control. The CEO Jeffrey Skilling and founder Kenneth Lay had perpetrated the fraud by hiding the company losses, they were found guilty of conspiracy and fraud. Their auditor Arthur Anderson was found guilty of illegally destroying documents relevant to the fraud investigation which led to the dissolution of one of the biggest audit firm (Brown & Dugan, 2002; Edelman & Nicholson, 2005). Michael M. Lowther was the partner in charge in Arthur Andersen energy audit division. The partner had ignored the risks involved with Enron financial transactions of whereby he was charged of violation of legal practices.

1.1 Literature Review

The public sector’s mission, vision and values are the most common structure in most government organisations. They are intended to give goals to the public workers and targets to achieve in their department or organisation. The goals and achievements of the specific department can be a sign of effectiveness (Ahmad, Othman, Othman, & Jusoff, 2012; Othman, 2007). Through having an objective towards fulfilling their mission, the organisation will perceived to perform more effectively once achieving the mission. These objectives are deterred when there are actions of integrity violations in the organisation. The action of unethical behaviour prevents the employee from conducting their tasks effectively. Such behaviours promote inefficiency and would only incur more costs to the organisation (Button, 2016).

The fraud triangle theory reflects the individual reasons of why they would want to conduct any acts of corruption (Cressey, 1953). There are three components that are highlighted in the fraud theory which is pressure, rationalisation and opportunity. Each of these components provides perspectives on the reason of why a person would conduct corruption. Such behaviours in Enron had shown us that a control system does not matter when the leaders are the ones initiating the acts of corruption (Junior & Sorking, 2001). The organisational climate in the organisation had allowed for such behaviours to occur (Ashforth & Anand, 2003). The corruption activities were seen as normal and allowed, although it was wrong at the side of the law.

The integrity climate consists of honesty, conscientiousness and principle. These components comes from defining integrity through the approach of ethical climate (Cullen, Victor, & Bronson, 1993). The meaning of integrity is honesty, the foundation of integrity comes from conscientiousness, and the moral norm comes from principle (Huberts, 2018). The actions of honesty is being truthful with other people in a given society (Becker, 1998). A person with good levels of ethical behaviour can also have low levels of honesty; for instance the person could just give a dishonest opinion about another person shirt while still having high levels of ethicalness. Conscientiousness is being able to do a task willingly or with full capacity without prior judgement (Sackett & Wanek, 1996). The person when being given a task would not do it half-heartedly and finish it to the best of their capacity. This is what is meant with having conscientiousness. Principle is conforming to the rules, law and procedures of the social norm (Paine, 1994).

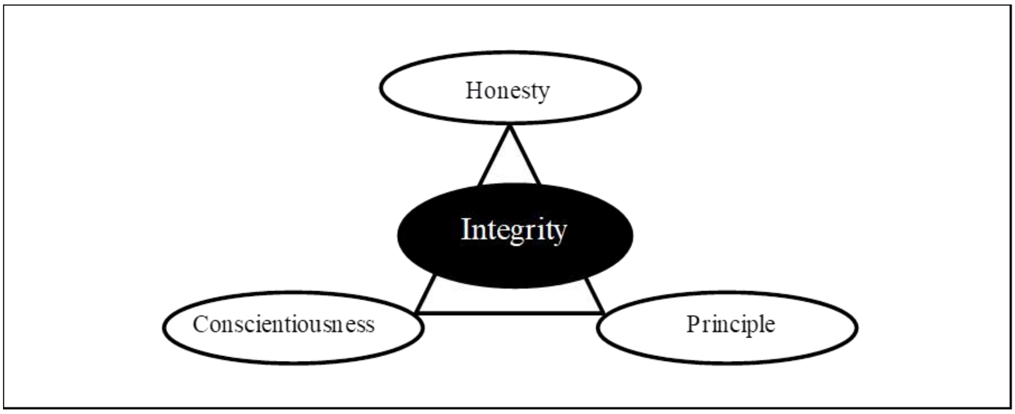

Figure 1 Integrity climate construct

Corruption is the act of conducting a dishonest action while being in power for the person's own benefit (ACFE, 2016). The act of corruption involves illicit activities and behaviours such as bribery and embezzlement. Corruption can also mean the misuse of entrusted power for personal benefits (Transparency International, 2018). These acts of bribery, embezzlement effects the organisation negatively. The company's or business reputation and business conditions can be adversely affected when such things occur. Scandals involving companies had shown that they will affect the investors which leads to the fall of market value (World-Finance, 2011). Actions such as these in government organisations also incurs high levels of costs for the country (Gee, Button, & Brooks, 2011). The costs such as in the United Kingdom had cost them billions due to these actions of corruption (Button, 2016)

2. Objectives

The integrity climate construct specific core values of honesty, conscientiousness and principle are components which could influence corruption. The study objectives is to observe and investigate whether each of these values will have an affect towards corruption.

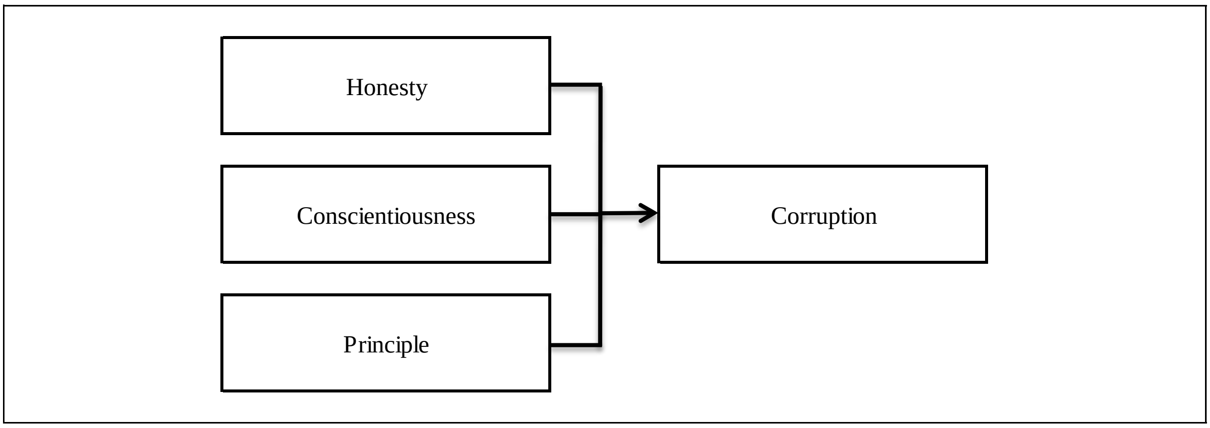

Figure 2 Conceptual Framework

3. Research Methodology

3.1 Research development

The level of honesty influences a number of organisational characteristics. The concept of going beyond honesty is what cultivates the characteristics of having integrity (Becker, 1998). The importance of having honesty in the workplace is important to generate good levels of trust amongst co-workers (Murphy, 1993). Studies indicates that when the organisation is more honest to their customers, the risks are managed more efficiently (Kraman & Hamm, 1999). This brings us to the proposed hypotheses:

H1: The level of honesty is negatively related to the level of corruption

Conscientiousness is related with giving the best with the assigned task with high levels of integrity. The value is associated with one of the Big Five Taxonomy of personality traits; Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness (Roberts, Jackson, Fayard, Edmonds, & Meints, 2009). The concept here is that the person will follow the practised social norms for actions, these actions is dependent on what is considered good in the society. Hence it is posited that:

H2: The level of conscientiousness is negatively related to the level of corruption

Principle is having the stand of following the rules, standard and law of the society. These actions are important as following rules and regulation would help negate the corruptive behaviours. Having principle in the organisations based on personal beliefs with integrity would reduce unethical behaviours (Zald, 1986). The study suggests that following rules improves efficiency. The person's tendency to follow the law based on the society's social norms are usually dependent on themselves (Posner, 1997). Having rules and laws would depend on the persons own level of ethical values. Hence, it is suggested a null hypothesis that:

H3: The levels of principle will have no impact on the levels of corruption

3.2 Survey development

The components of integrity climate are based on the three components and corruption is based on the acts of corruptive behaviour in the organisation. The acts of corruption are presented by the perceived actions of abuse of power and acts of bribery in the organisation. The following table presents the measurements used in the study.

Table 1 Measurement of variables

Component	Items
Honesty	People in the organisation report incidents of dishonest behaviour to management
	The organisation does not allow dishonest behaviour amongst the workforce
	There are sufficient reasons when a worker steals something from the organisation
	There are possibility that good people will not commit dishonest behaviour which violates their integrity
	People in the organisation views that honest behaviour as important
	People who does not have integrity will act on dishonest behaviours
Conscientiousness	The organisation has strong integrity values
	The level of integrity is high in my organisation, that is why negative behaviours does not regularly occur
	Every personnel in my organisation has a sense of duty towards performing with integrity
	Every personnel has strong responsibilities in ensuring integrity is practiced
	The people in my organisation will not risk actions which violates integrity
Principle	Everyone is expected to stick by company rules and procedures
	Successful people in this company go by the book
	People are expected to comply with the law and professional standards over and above other considerations
	In this organisation, people are expected to strictly follow legal or professional Standards
	In this company, the law or ethical code of theft profession is the major consideration
Corruption	Accepting bribes (money or favours) to do or neglect something while on duty is common in the organisation
	Offering of bribes (money or favours) to do or neglect something while on duty is common in the organisation
	Accepting bribes (money or favours) for delivering better service is common in the organisation
	Using organizational resources for personal benefit is common in my organisation

The measurement variable of corruption is based on the interpretation and experience by the employees. The knowledge and understanding are based on the employee's perceived awareness. This relates to the amount of corruption that they have saw or seen within the organisation. The knowledge of whether there have been actions of bribery or abuse of power is to present corruption.

3.3 Sample and data collection

The information is gathered through distributing questionnaires to the Malaysian government office's representatives. The sample's is from the managerial level of government workers. These government employees that have positions as directors that has the duty of deciding, direct and enforcing the laws of government (Malaysian Ministry of Human Resource, 2013). The supervisors in government divisions are workers that are qualified experts and have administrative obligations (Public Service Department of Malaysia, 2002).

The total sample collected is from 251 government employees ranging from various departments in the government. The following table presents the profile summary of the respondents of the survey:

Table 2 Demographic profile

	Gender			
	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Male	109	43.4	43.4	43.4
Female	141	56.2	56.2	100.0
Total	251	100.0	100.0	
	Age			
	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
20-30 Years	46	18.3	18.3	18.3
31-40 Years	137	54.6	54.6	72.9
41-50 Years	50	19.9	19.9	92.8
51 and above	18	7.2	7.2	100.0
Total	251	100.0	100.0	
	Education			
	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Not specified	9	3.6	3.6	3.6
SPM	19	7.6	7.6	11.2
STPM	7	2.8	2.8	14.0
Diploma	79	31.5	31.5	45.5
Degree	100	39.8	39.8	85.3
Masters	32	12.7	12.7	98.0
PhD	5	2.0	2.0	100.0
Total	251	100.0	100.0	

The total male respondents are less than half of the total sample. The majority of the respondents are aged between 31 to 40 years old. The lowest quantum age group is 51 years old and above. The majority of the respondents are degree holders and lowest are the philosophical degree holders at 5 people. SPM and STPM is the Malaysian examinations for high school and higher school learnings.

4. Analysis and results

4.1 Reliability test

Data was analysed using the Statistical Package for Social Science (SPSS). The process summary had excluded three cases as some of the values were missing. A reliability test based on the Cronbach Alpha statistic was used to test whether the data is reliable. The data was tested for internal consistency of the items from internal control systems and procrastination using Cronbach's coefficient alpha. The reliability coefficient for the scale was 0.657 that represents a moderate level of reliability (Creswell, 2003).

4.2 Kaiser-Meyer-Olkin and Barlett test

The Kaiser-Meyer-Olkin (KMO) test was done in order to determine if the data was appropriate for factor analysis. The values for KMO sample of adequacy was 0.762 and that data analysed through factor analysis will be quite informative (Hair, Anderson, Tatham, & Black, 2010). The Bartlett's test of sphericity shows that there is statistical significance of the data ($p<0.001$).

4.3 Correlation matrix

The correlation matrix of the variables in the regression model is given in Table 2. The measures of all the variables are negatively correlated with corruption. This coincides with the assumption that the values integrity deters corruption. The integrity climate dimension of conscientiousness and principle are the only ones that have significant correlation with corruption ($p<0.001$).

Table 3 Correlation matrix

Variables	**Corruption**	**Honesty**	**Conscientiousness**	**Principle**
Corruption	1	-0.107703822	-.206**	-.172**
Honesty		1	.815**	.797**
Conscientiousness			1	.828**
Principle				1

** Correlation is significant at the 0.01 level

4.4 Hypothesis testing

The following table shows the multiple regression analysis for the study with a total sample of 251 government employees. The results indicate that honesty and conscientiousness shows significant results. The other measures of integrity climate such as principle do not have a significant relationship towards corruption.

Table 4 Multiple regression analysis

	Standardized Coefficients		
	Beta	**t-value**	**p-value**
(Constant)		7.893	0.000
Honesty	0.230	1.993	0.047
Conscientiousness	-0.284	-2.275	0.024
Principle	-0.134	-1.116	0.265

a. Dependent Variable: Corruption

b. *Significant at the 0.05 level

5. Discussion and Conclusion

Through the regression analysis indicated that only honesty and conscientiousness has significant values towards corruption. The third null hypothesis was proven true as principle has not effect towards corruption. This however differs from correlations, as honesty is the only variable not significantly correlated towards corruption. The correlations indicate that when there is more honesty, conscientiousness and principle reduces the rate of corruption. Only conscientiousness and principle has significant correlations.

These two major differences may be explained through knowing that the actions of corruption could be conducted by an honest person. The circumstances may be such as the level of integrity climate in the organisation condone and support corruptive behaviours. The normalisation of corruption is one of the explanations when such behaviour is allowed in the society (Ashforth & Anand, 2003).

Being more honest and conscientiousness improves the overall integrity climate in the organisations. The knowledge practicality here is that encouraging employees especially in the public sector may help deter the rates of corruption. In terms of conscientiousness having the right rewards, goals and motivations would improve the employees tendency from behaving unethically (Alonso & Lewis, 2001). The right motivations would encourage the worker to be more conscience on their work.

The rules, standard and regulations which govern the principle of the person have their limitations. The person may retaliate when there is too much control in the organisation (Sanusi, Mohamed, Omar, & Mohd Nassir, 2015). The employees initiative to follow the rules law and regulation may be dependent on their own characteristics (Posner, 1997). The incentive of wages or penalties of not following such rules serves as a motivation on how they should behave (Grund & Fries, 2018).

5.1 Limitations and suggestions

The study was limited to public sector employees. The acts of corruption could be influenced by other factors such as mentioned in the earlier theory of fraud triangle. The motivations and pressure differs from each individual. This study only provides the overview of how such behaviours of being honest and conscientiousness can be implemented to influence organisational behaviours. Organisations that face problems with such issues should emphasise on these values in order to deter the acts of corruption.

6. Acknowledgments

We are indebted to the Malaysian Institute of Integrity (IIM) and the Accounting Research Institute (ARI,UiTM) in giving us the support needed for this project. We appreciate the reviews and comments made by academicians on earlier drafts of this paper. Many thanks to the government agencies, organisations and commissions that participated in this project.

7. References

ACFE. (2016). *Report to The Nation on Occupation Fraud and Abuse*. United States.

Adawiah, E. R. (1998). *Securities Regulation and the Prevention of Securities Fraud: A Comparative Study*.

Ahmad, H. A., Othman, R., Othman, R., & Jusoff, K. (2012). The Effectiveness of Internal Audit in Malaysian Public Sector. *Journal of Accounting and Auditing*, *5*(OCTOBER).

Alonso, P., & Lewis, G. B. (2001). Public Service Motivation and Job Performance: Evidence From the Federal Sector. *American Review of Public Administration*, *31*(4), 363. http://doi.org/10.1177/02750740122064992

Ashforth, B. E., & Anand, V. (2003). The Normalization of Corruption in Organizations. *Research in Organizational Behavior*, *25*(03), 1–52. http://doi.org/10.1016/S0191-3085(03)25001-2

Becker, T. E. (1998). Integrity in Organizations: Beyond Honesty and Conscientiousness. *The Academy of Management Review Academy of Management Review*, *23*(1), 154–161. http://doi.org/10.2307/259104

BERNAMA. (2015). Pengerusi Eksekutif NFC bebas tuduhan pecah amanah. *BERNAMA News*. Retrieved from http://www.bernama.com/bernama/v8/bm/ge/newsgeneral.php?id=1193060

Brown, K., & Dugan, I. J. (2002). Arthur Andersen's fall from grace is a sad tale of greed and miscues.*Wall Street Journal*, *7*. Retrieved from https://www.wsj.com/articles/SB1023409436545200

Button, M. (2016). Fraud costing UK economy £193bn a year. Retrieved from http://uopnews.port.ac.uk/2016/05/25/fraud-costing-uk-economy-193bn-a-year/

Cressey, D. R. (1953). *Other People's Money: A study of the social psychology of embezzlement*. Free Press. Retrieved from http://psycnet.apa.org/psycinfo/1954-06293-000

Creswell, J. W. (2003). *Research Design: Qualitative, quantitative, and mixed methods approaches.* SAGE. Retrieved from https://books.google.com.my/books?id=YcdlPWPJRBcC&printsec=frontcover&source=gbs_View

API&redir_esc=y#v=onepage&q&f=false
Cullen, J. B., Victor, B., & Bronson, J. W. (1993). The Ethical Climate Questionnaire: An assessment of its development and validity. *Psychological Reports*, *73*(2), 667–674. http://doi.org/10.2466/pr0.1993.73.2.667
Dobel, J. P. (1990). Integrity in the Public Service. *University of Washington*, (May/June), 354–366. http://doi.org/http://dx.doi.org/10.2139/
Edelman, D., & Nicholson, A. (2005). Arthur Anderson Auditors and Enron□: What happened to their Texas CPA licenses□? *Journal of Finance and Accounting*, 1–9.
Ferrell, L. (1998). The Federal Sentencing Guidelines for Organizations□: A Framework for Ethical Compliance, 353–363.
Free, C., Macintosh, N., & Stein, M. (2007). Management controls: The Organizational Fraud Triangle of Leadership, Culture and Control in Enron. *Ivey Business Journal*, *71*(August), 1–10. http://doi.org/Article
Gee, J., Button, M., & Brooks, G. (2011). The financial cost of healthcare fraud: What data from around the world shows, 1–24.
Graaf, G. de, Huberts, L., & Strüwer, T. (2017). Integrity Violations and Corruption in Western Public Governance: Empirical Evidence and Reflection from the Netherlands. *Public Integrity*, *0*(0), 1–19. http://doi.org/10.1080/10999922.2017.1350796
Grund, A., & Fries, S. (2018). Understanding Procrastination: A motivational approach. *Personality and Individual Differences*, *121*(March 2017), 120–130. http://doi.org/10.1016/j.paid.2017.09.035
Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2010). *Multivariate Data Analysis: A global perspective*. *Upper Saddle River* (7th Editio). New Jersey: Prentice Hall.
Huberts, L. (1998). What can be done against public corruption and fraud: Expert views on strategies to protect public integrity. *Crime, Law and Social Change*, *29*(188801), 209–224. http://doi.org/Doi 10.1023/A:1008348803253
Huberts, L. (2018). Integrity: What it is and Why it is Important. *Public Integrity*. http://doi.org/10.1080/10999922.2018.1477404
Huberts, L., Kaptein, M., & Lasthuizen, K. (2007). A Study of The Impact of Three Leadership Styles on Integrity Violations Committed by Police Officers. *Policing: An International Journal of Police Strategies & Management*, *30*(4), 587–607. http://doi.org/10.1108/13639510710833884
Junior, R. O., & Sorking, A. R. (2001). Enron's Collapse: The Overview. *NYTIMES*. Retrieved from http://www.nytimes.com/2001/12/03/business/enron-s-collapse-the-overview-enron-corp-files-largest-us-claim-for-bankruptcy.html
Karim, Z. A., Said, J., & Bakri, H. H. M. (2015). An Exploratory Study on the Possibility of Assets Misappropriation among Royal Malaysian Police Officials. *Procedia Economics and Finance*, *31*(15), 625–631. http://doi.org/10.1016/S2212-5671(15)01150-8
Kraman, S. S., & Hamm, G. (1999). Risk management: Extreme honesty may be the best policy. *Annals of Internal Medicine*, *131*(12), 963–967.
Lasthuizen, K., Huberts, L., & Heres, L. (2011). How to Measure Integrity Violations: Towards a Validated Typology of Unethical Behavior. *Public Management Review*, *13*(3), 383–408. http://doi.org/10.1080/14719037.2011.553267
Malaysian Ministry of Human Resource. (2013). *Malaysian Standard Classification of Occupation*. *Synthesis* (3rd ed.). Ministry of Human Resources Malaysia. Retrieved from http://www.mohr.gov.my/index.php/en/2015-05-06-04-09-30/publication/2016-03-08-02-07-00/167-masco-2013
Mayer, D. M., Kuenzi, M., & Greenbaum, R. L. (2010). Examining the Link Between Ethical Leadership and Employee Misconduct: The Mediating Role of Ethical Climate. *Journal of Business Ethics*, *95*(SUPPL. 1), 7–16. http://doi.org/10.1007/s10551-011-0794-0
Morehead, W. A. (2007). *Internal Control and Governance in Non-governmental Organizations Designed to Provide Accountability and Deter, Prevent and Detect Fraud and Corruption*. Retrieved from

http://search.proquest.com.library.capella.edu/docview/304808938?accountid=27965
Murphy, K. R. (1993). *Honesty in the workplace*. Brooks/Cole Belmont, CA.
Nazlina, M. (2015). Khir Toyo's conviction upheld by Federal Court Read more at. *Thestar.Com.My*. Retrieved from http://www.thestar.com.my/news/nation/2015/09/22/court-khir-coviction/#Zi2rr06jf0vmdqBV.99
Nick McKenzie, Richard Baker, J. G. (2015). Corrupt overseas buyers ramp up property price, burn locals. *The Age*. Retrieved from http://www.theage.com.au/national/corrupt-overseas-buyers-ramp-up-property-price-burn-locals-20150622-ghu5pn.html
OECD. (2017). Fighting corruption, boosting integrity. Retrieved March 23, 2017, from http://www.oecd.org/general/fightingcorruptionboostingintegrity.htm
Olagbemi, F. O. (2010). *The Effectiveness of federal regulations and corporate reputation in mitigating corporate accounting fraud*. Argosy University.
Othman, O. (2007). *Public Sector Accounting in Malaysia*. Thomson Learning.
Paine, L. S. (1994). Managing for Organizational Integrity. *Harvard Business Review*, *72*(2), 106–117. Retrieved from http://ezproxy.library.capella.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=9405100924&site=ehost-live&scope=site
Peterson, D. K. (2002). Deviant Workplace Behavior and the Organizations Ethical Climate. *Journal of Business and Psychology*, *17*(1), 47–61. http://doi.org/0889-3268/02/0900-0047/0
Pfister, J. (2009). *Managing Organizational Culture for Effective Internal Control*.
Posner, R. A. (1997). Social Norms and the Law: An economic approach. *The American Economic Review*, *87*(2), 365–369.
Public Service Department of Malaysia. (2002). *Laporan Penggredan Jawatan*. Malaysia. Retrieved from http://docs.jpa.gov.my/docs/pekeliling/pp02/bil04/Lampiran-B3.pdf#p1
Roberts, B. W., Jackson, J. J., Fayard, J. V, Edmonds, G., & Meints, J. (2009). *Conscientiousness*. *Handbook of Individual Differences in Social Behavior*. New York: Guilford Press.
Sackett, P. R., & Wanek, J. E. (1996). New Developments in the Use of Measures of Honesty Integrity, Conscientiousness, Dependability Trustworthiness, and Reliability for Personnel Selection. *Personnel Psychology*, *49*(4), 787–829. http://doi.org/10.1111/j.1744-6570.1996.tb02450.x
Sanusi, Z. M., Mohamed, N., Omar, N., & Mohd Nassir, M. D. (2015). Effects of Internal Controls, Fraud Motives and Experience in Assessing Likelihood of Fraud Risk. *Journal of Economics, Business and Management*, *3*(2), 194–200. http://doi.org/10.7763/JOEBM.2015.V3.179
Svanberg, J., & Öhman, P. (2013). Auditors' time pressure: does ethical culture support audit quality? *Managerial Auditing Journal*, *28*(7), 572–591. http://doi.org/10.1108/MAJ-10-2012-0761
Transparency International. (2018). Corruption Perception Index 2018. Retrieved from https://www.transparency.org/cpi2018
Treviño, L. K., Butterfield, K. D., & McCabe, D. L. (1998). The Ethical Context in Organizations: Influences on Employee Attitudes and Behaviors. *Business Ethics Quarterly*, *8*(3), 447–476. http://doi.org/10.2307/3857431
World-Finance. (2011). The Parmalat Scandal. Retrieved March 6, 2017, from http://www.worldfinance.com/special-reports/the-parmalat-scandal
Yurniwati, & Rizaldi, A. (2015). Control Environment Analysis at Government Internal Control System: Indonesia Case. *Procedia - Social and Behavioral Sciences*, *211*(September), 844–850. http://doi.org/10.1016/j.sbspro.2015.11.111
Zald, M. N. (1986). The Sociology of Enterprise, Accounting and Budget Rules: Implications for organizational theory. *Accounting, Organizations and Society*, *11*(4–5), 327–340. http://doi.org/10.1016/0361-3682(86)90004-8

The Dilemma of Morality in Financial Accounting

Tatinat Santisant, Ugyen Tashi Dorji, and Pandate Romsaitong*

Faculty of Accountancy, Rangsit University, Pathum Thani, Thailand
*Corresponding author, E-mail: Pandate.r@rsu.ac.th

Abstract

In an effort to better understand how ethics and moral judgment in financial behavior are influenced in financial reporting, it is proposed that self-awareness influences honesty. This study proposed that test subjects who sign their name before reporting financial information will be more honest and moral in their accounting practices as opposed to those who sign after these activities, or not at all. The sample included 197 different participants from twelve different universities in the United States. There was a broad spread of genders, although there were more males, and races as well, with age ranges being limited to just nineteen or twenty years old. The time period for the tests that these participants completed was one hour. The literature review itself spanned a time period of around twenty years, making it retrospective. The experiment revealed whether differing perspectives influenced the ethical nature of university students. It was found that the most honest individuals were those that were in the pre-signature group, while the post-signature and the non-signature groups had very little difference between results. Requiring a signature before a task had a major influence on self-efficacy, self-identity, and self-awareness, and encouraged ethical behavior. The results reveal that this "signature effect" in signing a document may influence honest accounting and be a way to encourage moral financial reporting. Recommendations will emphasize the ways requiring that these sorts of altruistic actions, namely, signing one's signature, will be applied, as well as implications for future research to ensure constant development on the subject.

Keywords: *self-awareness, self-identity, morality, signature-effect, ethics*

1. Introduction

While many advancements in auditing, investigation, and detection of fraudulent behavior are on the rise, financial scandals continue to be numerous. Several issues with corporate governance are causing financial professionals to find loopholes and hidden avenues for additional income. Adding to this, many types of fraudulent behavior and scandals have become an institutionalized practice. Tax avoidance is the most popular crime among popular corporations, influential politicians, and the average individual. It is even common for wealthy individuals to funnel their wealth into hidden bank accounts, untouchable by the government (or so believed). A variety of new regulations have been passed to counter these issues, which include the ones proposed by the Securities and Exchange Commission (SEC), in addition to the introduction of the Sarbanes-Oxley Act. Not to mention, stock market trade has also seen its fair share of new policies required by the government. Due to the vast number of frauds that have been exploding over the past decades, reform has taken hold of the financial system, as well as new research initiatives which may help stem some of the more popular fraudulent activities. Financial losses are the most conventional result of such scandals, in addition to the reputations of major accounting firms being entirely ruined. Auditing is a major tool for preventing scandals. However, the lack of ethics and moral judgment are an influential factor in accounting performance. The underlying factors concerning ethics and how to better improve the use of moral judgment in financial behavior, are not entirely understood and requires further research.

It is proposed in this study, utilizing Duval and Wicklund's (1972) theory of objective self-awareness, that an individual who is more aware of their intentions will react differently based upon this awareness. This study proposes that test subjects who sign their name before reporting financial information, as opposed to after, will be more honest and moral in their accounting practices. Individuals who sign their name at the beginning of a report will be more aware of their intentions, while individuals who sign at the end won't be as self-reflective. The experiment will reveal whether differing perspectives and objective self-awareness will influence the ethical and moral behavior of these individuals. Implications include the development of future tactics and solutions for encouraging morality in financial activities such as auditing and reporting.

2. Objective

The overall objective of this study is to quantify the ways that signing one's signature before reporting their financial information reflected the overall levels of honesty. These will then be compared to those of either signed their signature later or did not sign at all. The overarching objective here is to understand and quantify the ways that self-efficacy, self-identity, and self- awareness play a role in each of these concepts. It will then lead to the objective of elucidating the aforementioned "signature effect," which will help to provide an insight into some of the key components of honesty as they relate to the concept of accounting as a whole. Furthermore, the research here will attempt to elucidate some of the more in-depth and intricate of psychological factors involved in the decision-making process as a whole here, being indirectly answered by the research. Through this attempt, the research will ideally be able to examine the concepts of self-awareness, and how their intentions will impact this, both positively and negatively. In the longer term, this research will hopefully be able to positively impact the development of measures that can be taken to improve and encourage morality, although the specific impact and implications here remain elusive. There will also be an in-depth review of some of the most prominent of literature on the subject, and this will enable the layman to better understand the future direction of research on this subject, as well as the groundwork that has already been laid, and the research here will attempt to draw in-depth conclusions from this literature.

One of the most important objectives of this research, though, is that of the elucidation of what goes into some of the most prominent acts of dishonesty, such as fraud. Questions such as what, specifically, is involved in these processes from a psychological perspective will be answered. Therefore, another of these objectives is to ensure that the reader is made aware of each of these intricate psychological processes and the ways that they can positively or negatively impact those that experience them, one way or another. The overarching objective of this research is to educate the reader about a number of these components of self-awareness and honesty, as well as some of the most prominent of ways that these are undermined. Lastly, paving the way for future research is another of the key objectives of this research. This will be done through examinations of trends and generalized projections on the future of these sorts of issues. Of course, as with all issues relating to psychology in some way, it is difficult to predict these sorts of trends with any sort of concrete certainty, but even so, it is possible to at least extrapolate data and make basic predictions that will likely see at least some level of validation.

3. Literature Review

Current auditing practices may not be enough to help assuage the needs of the financial sector regarding the high level of fraudulent accounting that has exploded over recent years. Not enough research encompasses methodologies and intervention strategies to resolve this issue. Advancements in experimental studies may require the improvement of research paradigms dealing with corporate governance, new forms of research, and the expansion of existing research studies (Carcello, Hermanson, & Ye, 2011). Financial fraud is described as a deliberate fraud executed by leaders within the corporation which directly harm creditors and investors through the creation of materially misleading financial statements (Agarwal & Medury, 2014). A majority of auditing practices mainly focus on the statistical analysis of market activity data found in financial statements and organized financial ratios (Goel & Uzuner, 2016). Financial statements are often well planned, and easily concealed, where financial conditions are warped or manipulated for the benefit of those choosing to commit wrongdoing. An individual who is influential within the firm will be more likely to be knowledgeable of the financial system and will have the capability to thwart auditing mechanisms on an entirely undetectable level.

One newly introduced solution applied the use of language processing as an approach thought to help in the accurate analysis of annual reports regarding financial data. This solution utilizes natural language processing methods to identify whether any sentiment is displayed in the text, which is a form of fraud detection (Goel & Uzuner, 2016). In one study on whether this approach works on the Management and Discussion Analysis (MDA) section of analysis reports, it was revealed that it is effective. Items reviewed in the text included levels of subjectivity, intensity, and polarity, which differed across the text of fraudulent and honest MDA sections of accounting reports. Results indicated that untruthful MDAs had quadruple as many negative sentiments and thrice as much positive sentiment as compared to truthful MDAs. Researchers believed that fraudulent MDAs contained a more vivid positive and negative sentiment. Too many adjectives and other forms of subjectivity were thought to be a major indicator of fraud due to a higher level of sentiment, based on the adverb-modifying-adjective pattern.

The extraction of linguistic items from textual information could help reveal fraudulent financial activity. However, there are still some flaws with this approach. This technique requires much time and effort, and some of these decisions regarding cues could be on a whim (Dong et al., 2014). Additionally, all of the extracted text indications were based on a predefined arrangement of cues, which could make identification useless if these somehow limited potential cues tied to fraudulent activity. Such oversight could render this technique inaccurate for fraud detection.

Over the past 20 years, many firms were apprehended due to their failure to comply with financial law, and the trend is spreading. For example, in 2001 the insurance company HIH was the second largest in Australia. However, their reinsurance did not transfer risk, losses had been transferred to goodwill accounts, and the corporation under-provided for future expected claims (Jones, 2011). These caused the company to collapse completely, where all of the executives were punished for the failure of the organization's inability to properly audit their consultant work. In 2003, the European Enron, who had many fictitious sales, were not recording debts or recorded debt as equity and overstated their assets. They had also double billed, and often falsely created subsidiaries' sales. A Bank of America forged check had been issued with € 3.95 billion as well. Issues detected included one family being too influential in corporate direction, and the board of stability auditors being found ineffective while the audit committee lacked independence. Additionally, external auditors had not properly monitored corporate activities. In another case, a flourishing corporation called ENRON had misreported cash flow and established fictitious income in their off-balance financial sheets. It became the seventh largest company in the US to go bankrupt. In another recent fraud, the ExtUK European company had been taken over by GEC through a contested bid. However, while the AEI forecasted £10 million in profits, the GEC had released results of a £4.5 million loss. This caused a controversy, which prompted the creation of the UK Accounting Standards Steering Committee. In another scenario, Chinese companies that listed themselves overseas to obtain investor capital had gone public in the North American Market and were called the China Concept Stock (Dong et al., 2014). However, several companies had been implicated in fraudulent activities. These included CCME, DGW, RINO, ONP, and more, which caused the stock to fail. These companies were later permanently barred from the stock exchange. As could be seen in the previous examples, accounting fraud is found around the world no matter how great the institution or company. Other high-profile examples of fraudulent accounting include WorldCom and the Lehman Brothers.

It is believed that fraud can't occur without the right kind of personality and the right tools. These individuals are thought to be intelligent, even creative, well-seasoned individuals who understand internal flaws within an organization (Free & Murphy, 2015). Researchers believe that the potential opportunity is what allows fraud to occur, due to the rationalization and incentive which can be the result of dishonesty (Free & Murphy, 2015). An individual's influence within the institution allows him or her an opportunity which may not be open to others. Other qualities of one who might commit a fraudulent activity include being an individual who utilizes their position to gain access toa system only to exploit weaknesses within the system internally. This includes an individual with confidence, and a strong ego, who may be capable of touting charisma to stay out of sticky situations. Additionally, this individual can go to great lengths to conceal or coerce others to perform the deed for them (Wolfe & Hermanson, 2004). This individual would have the ability to lie consistently to avoid detection and also be both convincing and persuasive. Those interacting may not detect anything wrong, may turn a blind eye, or may play a part in the activity. Lastly, this individual would be able to handle a high level of stress but still have the ability to avoid detection despite the associated heightened risks.

Auditors who are successful at detecting fraud are expected to have a specific skill-set. Some data suggested that professional skepticism is required for auditors to be successful at fraud detection (He, Kothari, Xiao, & Zuo, 2018). However, this can be developed differently based upon the economic tide occurring on hire. The research revealed that there are higher degrees of professional skepticism for individuals who work during economic downturns. This may be due to the high level of instability during economic downturns which increases the difficulty of an organization's financial success. Executives may be more likely to exaggerate or understate finances during these times, where auditors have to be more skeptical of potential misstatements throughout these economic slumps (He et al., 2018). Other data revealed that many audit firms during economic downturns will incorporate additional auditing requirements, increase monitoring, create new tools, obligate additional training, and enhance their quality control. For this reason, a skeptical mindset is sharper during economic struggles, and less-so during financial blooms.

Tax avoidance, one of the most active fraudulent activities, has become a common business practice. Many big accounting firms encourage tax avoidance, where it has become institutionalized, several of which mask their activities as simply "tax planning" (Sikka & Willmott, 2013). Some researchers believed that weak internal controls were directly connected to the level of financial fraud reported by leaders in the organization (Donelson, Ege, & McInnis, 2016). Currently, it is unknown if whether strengthening control directly affects fraud risk, due to the lack of research literature. In a study which investigated this matter, it was found that the unveiling of fraud and material weakness were highly connected, where weaker controls allowed corporate leaders to commit more fraud (Donelson et al., 2016). In another study, it was revealed that the level of board director independence had a negative relationship with earnings management (Lin & Hwang, 2010). In addition to this, an audit committee's size, independence, skill level, and meeting number also had a negative relationship with earnings management. Results seem to suggest that corporate circumstances influence the level of fraud which may occur, rather than it being a natural or spontaneous personal attribute of individuals.

During this age, ethical responsibility is not always upheld. Reform will require greater transparency, and accuracy of financial reports, in addition to timely and concise reports that follow a moral code. Researchers have revealed interdependence between the role of accounting and professional morality, where the accountant's role is highly dependent upon the accounting profession ethics (Jaijairam, 2017). In a meta-analysis of the association between the audit committee independence and financial reporting quality, it was found that there were inconsistencies in these supposed correlations (Pomeroy & Thornton, 2008). This was partially due to audit committees being more adept at improving audit quality as opposed to financial statement quality. Some data shows that many inexperienced professionals are introduced into their role without a comprehensive understanding of where ethics sit within the responsibilities of a professional accountant (Michaluk, 2011). Overall data suggested that financial professionals may require additional training and coaching on morality, and in the management of difficult moral dilemmas.

4. Research Methods

In a study on the signature effect and how signing a document may influence honest reporting, several university students are separated into three groups in a study utilizing self-reported financial data. Quite typically, governments and corporations will require proof of honest intent through the use of a signature. It is thought that signing a report can prime self-identity and influence consumption-related behavior (Kettle, 2011). Students are separated into three groups, those that sign at the beginning of the self-report, those that sign at the end of self-report, and those that don't sign at all. The end result is predicted to be that students who signed at the beginning of the self-report are more likely to be honest about their finances. The following table briefly outlines the different types of signatures and their basic requirements and applications, showing that these groups have different requirements for when, specifically, to provide a signature in relation to the completion of the report.

Table 1 Definition of signature types

Group	Definition
Pre-signature	Required to provide signature*before* beginning report
Post-signature	Required to provide signature *after* completing report
Non-signature	Not required to provide signature before beginning nor after completing report

4.1 Methods

This study was split up into two separate experiments. Both of the experiments are tested within a laboratory. All of the respondents came from 12 universities, spoke fluent English, were located in the United States, and were aged 19 to 20 years of age. Announcements were posted within science, technology, engineering, and mathematics colleges within the university, where students with demanding levels of mathematical and intellectual academic work were invited. Staff also made announcements and mentioned incentives for students. There may be selection bias due to the specific students being targeted, mainly for their ability to perform mathematical calculations.

All participants were provided with an informed consent form, where students had to read and sign the document before being interviewed. In each interview, every student was introduced the same way and was informed of their confidentiality as well as the length of the study. Whether or not students were allowed to be part of the study was based upon whether they were dependable enough to show up, could perform basic math with little issue, and were able to speak and read English fluently. Students would receive $5 on entry but be required to bring their own lunch on their scheduled day of participation.

Next, the students were provided a questionnaire with 12 items in the form of a semi-structured interview that lasted 60 minutes and were conducted inside private rooms. During this time, responses were written down, although each question was based on a scale from one to seven (See Appendix A). The survey results consisted of three categories: individual-serving functions, organization-serving functions, and affective functions. The questions revolved around financial, asset misappropriation, tax fraud, and other moral dilemmas based upon material wealth. The students who scored higher on affective functions were considered more ethical while those who scored more on individual-serving functions were seen as less ethical. Those who scored higher on organization-serving functions were considered in the middle ground. High morality and low morality were highly dependent on the average of the student scores in each category. This is loosely based on the "Moral Foundations Questionnaire," created by Jesse Graham and Jonathan Haidt (Graham et al., 2013). The results would reveal the level of morality each individual had as a pre-test. The second test was provided in private consisting of 25 problem-solving tasks, and their grades were recorded.

Participants were then randomly selected and divided into three groups: students who would sign a signature at the beginning of a report (pre-signature group), students who signed at the end of a report (post-signature group), and students who didn't sign at all (non-signature group). Those that were assigned to the pre and post-signature group would be expected to read and sign a statement that requires students to examine their information and fill it out to the best of their knowledge, stating that the information is accurate. Before filling out the report, all students are given instructions on how to fill it out.

On a scheduled day, students participated in experiment 1, where each student was given a mathematical puzzle with problem-solving tasks within one room. Students had only 1 hour to complete 50 questions on the task, which required creativity and analysis. The questions were randomly chosen from old IQ exams from MENSA. For each correct answer, a student would receive $1. If all questions were correct, a student would receive $50. Answers were not revealed until students were relocated into a separate room.

In experiment 2, these students are required to perform tax reporting on their earnings. The earnings of these students are taxed at 15%. Students were taken to another room with separate private cubicles, where they would fill out a tax return similar to the IRS's standard tax return form. Answer sheets to the 50-question problem-solving task were provided in each cubicle. This is where participants were asked to sign the form if they were in the pre or post-signature group.

Table 2 Results of two different experiments

Experiment	Requirements
Experiment 1	Mathematical puzzle with problem-solving tasks 50 questions randomly chosen from MENSA Time was 1 hour $1 per correct answer, for total of $50
Experiment 2	Perform tax reporting on respective incomes; complete "tax returns" with expenses Respective earnings taxed at 15% 50 questions randomly chosen from MENSA Total of $7.50

The above table outlines the results of two experiments performed, representing accounting testing and results. These students had to self-report their income based on their performance. Additionally, expenses were credited. The expenses included “number of hours for study time missed”, “commute time to and from dorm”, and “dining costs”. Dining costs went to a maximum of $3 and commute time was charged $0.05 per minute for a total of 15 minutes if the student lived on-campus and 30 minutes if off-campus. The number of hours missed cost $0.50 per hour and only went up to 4 hours. These expenses would then be credited back to students for their final payment as a form of reimbursement (i.e. tax return) and could not exceed $7.5.

All students had the opportunity to cheat on the tax return form and the problem-solving task. The students could incorrectly state the number of answers they had correct to inflate their income, as well as overstate their expenses to avoid being taxed too much. Each of the student’s form had a triple-digit identifier for confidentiality.

The results of the interview questionnaires were calculated and placed in a hierarchy scale developed for morality for each individual student. The grades of the pre-test 25 question problem-solving task were compared to the grades of the experimental task of 50 questions to observe the likelihood that an individual was cheating. The level of cheating was compared to the morality grade. Additionally, the level of cheating was compared across all groups, and the level of credits of each of the three groups was compared to their morality grade.

All data was analyzed by a hired professional analyst who was not associated with the school on a password-secured laptop. All paperwork from the students was locked in a safe box and stored in the psychology department in a secure cupboard.

4.2 Samples

197 participants were picked from 12 different universities in the United States. Male students made up 72% of the population while females were 28%. 50% were Caucasian, 18% African American, 16% Hispanic, and 12% Asian. All individuals were between 19 to 20 years of age. For the pre-signature group, n=65, for the post-signature group, n=65, and for the non-signature group, n=67. The below chart shows the ratio of males to females within the participants of this study with the majority, 72 percent, being male. The chart following that also describes demographics, in this case, the races of the participants with Caucasians comprising around half of the participants and the rest is fairly evenly distributed between Hispanics, Asians, and African-Americans. Figure 1-5 defines the n values for each of these signature groups.

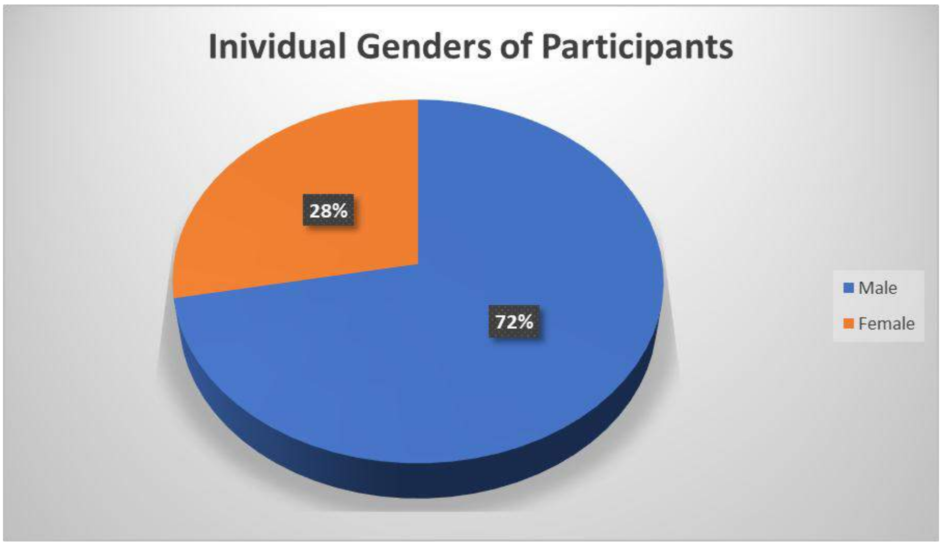

Figure 1 A pie chart representing the genders of those participating in the study

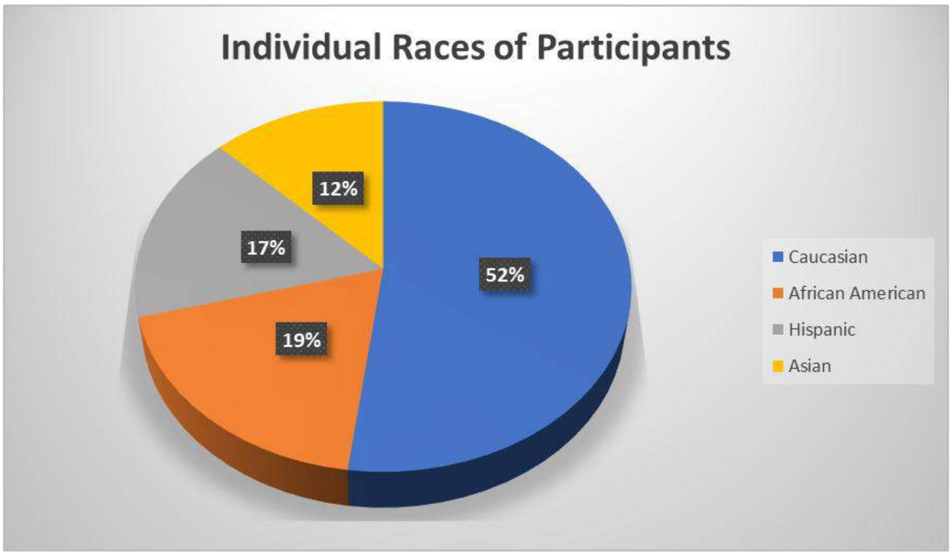

Figure 2 a pie chart that shows the races of the participants

Table 2 N correlations within each signature group

Groups	WHAT "n" STANDS FOR
Pre-signature	n=65
Post- signature	n=65
Non- signature	n=67

4.3 Designed Questionnaire

Loosely based on the "Moral Foundations Questionnaire" created by Jesse Graham and Jonathan Haidt (Graham et al., 2013), the questionnaire would reveal the level of morality each individual had. It was on a scale from 1 to 7 with 1 being least important and 7 being very important, in terms of how the question relates to the individual's decision making. The scores were based on three functions: individual-serving functions, organization-serving functions, and affective functions. Those that scored highest on the individual-serving functions were least moral, those that scored highest on the organization-serving functions were more in the middle ground, and those that scored high on affective functions were considered most moral. All scores were ranked against each other, where a scale was developed and based entirely on the responses of students.

4.4 Data Collection

The results of the pre-test interview were based on scores that reveal whether an individual is more self-serving functional bonds, organization-serving functional, or affective functional. This is compared to the level of cheating that was detected on their test. If a student deviated from their original score more than 10%, they were considered likely to have cheated. By more than 15%, they were labeled as a cheater. By more than 20%, a moderate cheater. By more than 25%, a high-level cheater. The level of expenses and tax credits were not tested for the level of cheating, only observed. However, the number of credits claimed was compared to their morality score, and whether they were flagged for cheating or not. A mediation analysis was performed for the mediated effect of the condition on the level and extent of cheating. The number of ethics-related responses was placed in a linear regression model which predicted the level of cheating on the exam. This was also compared and measured against the potential for over-reporting of tax credits. A p-test was performed in order to observe the distribution of morality scores against the exam cheating-level scores. A second one was performed to observe the distribution of morality against the number of taxes reimbursed between $.05 to $7. A z-test was performed to test whether the hypothesis had passed the significance level.

5. Results

The percentage of participants who cheated and over-claimed income for the problem-solving tasks had fewer that cheated in the pre-signature group (23%) as compared to the post-signature group (89%), P = 0.003, where there were no significant differences found in the non-signature group and the post-signature group (See Appendix B). The tax credits claimed were fewer for those in the pre-signature group (M = \$4.24, SD = 2.03) in comparison to the post-signature group (M = \$6.5, SD = 5.3; P < 0.01). The no-signature condition had no significant differences from the post-signature group (M = \$6.45, SD = 5.52; P < 0.05). The most honest individuals were found in the pre-signature group, while the least honest were found in the non-signature group with some in the post-signature group. Performances on the problem solving-task varied the most for the post-signature and the most signature groups, where most of the students had a 20% increase in their grade. There was no significant difference in the post-signature and non-signature groups regarding their test scores. The below two figures describe the percentage of tax credits claimed in one figure, as well as the over-claimed income as a percentage within the different signature groups in the other. Figure 1-6 showed that post-signature and non-signature groups maintained much higher percentages of over-claimed income than those in the pre-signature group. In figure 1-7, the figure showed that one hundred percent of all tax credits were claimed by all signature groups.

There are a number of recommendations that can be made as a result of the literature and actual research that has been conducted here. Perhaps, most importantly, forcing people to sign their signature before any sort of financial dealings or perhaps any intensive dealings at all will yield at least some tangible benefit. Another recommendation that can be made is to create other situations and mechanisms that force people in these situations to lay their credibility on the line, literally, in some cases. These pre-signature actions are so effective primarily because they force a degree of introspection and self-awareness on the part of the signee, and this is what at least partially contributes to these clearly observable benevolent thoughts and actions. It seems clear, then, that there must also be a greater amount of research that quantitatively analyzes the impact that these signatures and similar gestures have on overall attitudes and behaviors. After all, this research is but one dimension of what is clearly a much larger and more overarching concept. Future analyses will help researchers to better understand why people think this way in such a nearly universal fashion.

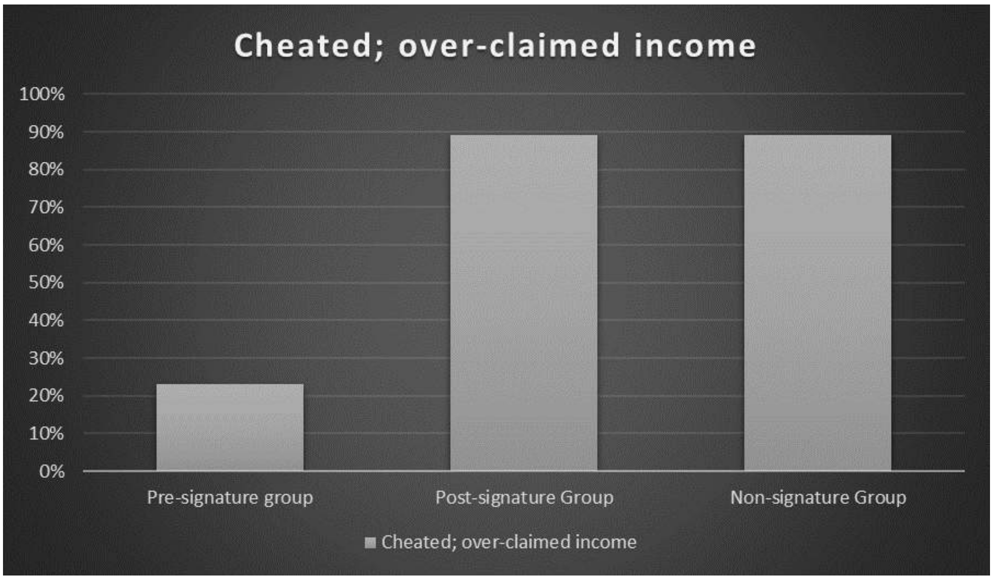

Figure 3 Comparison of signature groups relating to over-claimed income and cheating

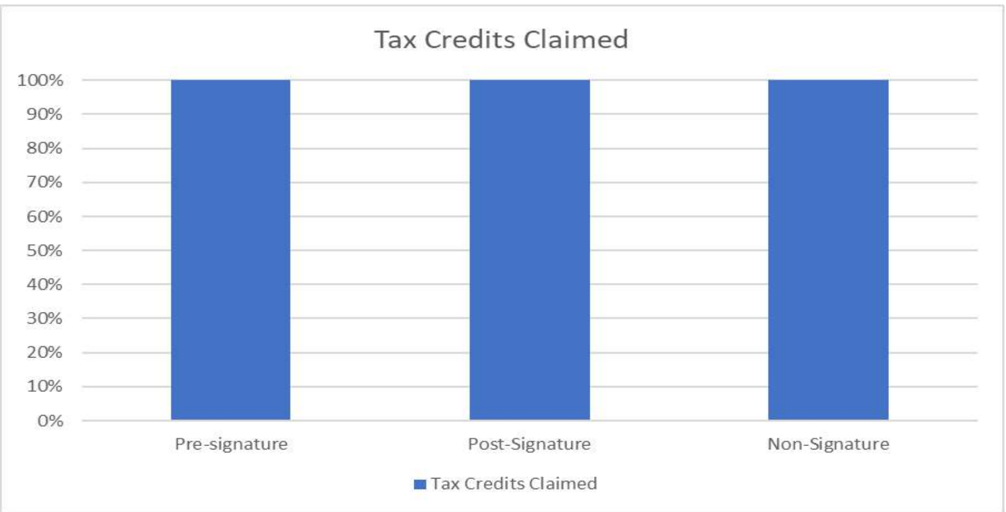

Figure 4 Another comparison of signature groups relating to the percentage of tax credits claimed for each

6. Conclusion

Participants who were more honest claimed fewer expenses, and thus, fewer tax credits, and were more likely to belong to the pre-signature group. However, it did not relate to their level of morality which varied. Those who claimed more tax credits were found mostly in the non-signature group, although they were also dense in the post-signature group. Morality was also varied in these groups. Individuals who tested high for morality were less likely to cheat, regardless of the group they were in. Additionally, individuals who tested low for morality were more likely to cheat. However, this was slightly mitigated in the pre-signature group. The post-signature and non-signature groups had very little difference between results. This seems to suggest that the signature had a major influence on self-efficacy, self-identity, and self-awareness. Data revealed that signing before the grading and reporting of income encouraged honesty while signing after these activities had little to no influence. Additionally, not signing at all was almost on par with signing afterward. The results reveal that individuals who are more aware of their intentions, and state and sign that they will have good intentions are more aware of their behavior and may act morally.

7. References

Agarwal, G. K., & Medury, Y. (2014). Internal Auditor as Accounting Fraud Buster. *IUP Journal of Accounting Research & Audit Practices*, *13*(1), 7-29.

Carcello, J. V., Hermanson, D. R., & Ye, Z. (2011). Corporate governance research in accounting and auditing: Insights, practice implications, and future research directions. *Auditing: A Journal of Practice & Theory*, *30*(3), 1-31.

Donelson, D. C., Ege, M. S., & McInnis, J. M. (2016). Internal control weaknesses and financial reporting fraud. *Auditing: A Journal of Practice & Theory*, *36*(3), 45-69.

Dong, W., Liao, S. S., Fang, B., Cheng, X., Chen, Z., & Fan, W. (2014). The Detection of Fraudulent Financial Statements: An Integrated Language Model. In *PACIS* Proceedings (p. 383).

Duval, S., & Wicklund, R. A. (1972). A theory of objective self awareness. Oxford, England: *Academic Press.*

Free, C., & Murphy, P. R. (2015). The ties that bind: The decision to co- offend in fraud. *Contemporary Accounting Research*, *32*(1), 18-54.

Goel, S., & Uzuner, O. (2016). Do sentiments matter in fraud detection? Estimating semantic orientation of annual reports. *Intelligent Systems in Accounting, Finance and Management*, *23*(3), 215-239.

Graham, J., Haidt, J., Koleva, S., Motyl, M., Iyer, R., Wojcik, S. P., & Ditto, P. H. (2013). Moral foundations theory: The pragmatic validity of moral pluralism. In *Advances in experimental social psychology* (Vol. 47, pp. 55-130). Academic Press.

He, X., Kothari, S. P., Xiao, T., & Zuo, L. (2018). Long-Term Impact of Economic Conditions on Auditors'

Judgment. *The Accounting Review*, 93(6), 203-229
Jaijairam, P. (2017). Ethics in Accounting. *Journal of Finance and Accountancy.* 23, 1-13.
Jones, M. (Ed.). (2011). *Creative accounting, fraud and international accounting scandals*. John Wiley & Sons. New Jersey, U.S.
Kettle, KL, Häubl G, (2011). The signature effect: Signing influences consumption-related behaviorby priming self-identity. *J Consum Res*, 38, 474–489.
Michaluk, C. (2011). Incorporating ethics into accounting education: A proposal for an undergraduate accounting ethics course for the University of Tennessee, Knoxville.*University of Tennessee Honors Thesis Projects.*
Lin, J. W., & Hwang, M. I. (2010). Audit quality, corporate governance, and earnings management: A meta-analysis. *International Journal of Auditing*, *14*(1), 57-77.
Pomeroy, B., & Thornton, D. B. (2008). Meta-analysis and the accounting literature: The case of audit committee independence and financial reporting quality. *European Accounting Review*, *17*(2), 305-330.
Sikka, P., & Willmott, H. (2013). The tax avoidance industry: accountancy firms on the make. *Critical perspectives on international business*, *9*(4), 415-443.
Wolfe, D. T., & Hermanson, D. R. (2004). The fraud diamond: Considering the four elements of fraud. *The CPA Journal*, *74*(12), 38-42.

Investigating the Effects Amongst Quality Dimensions in Higher Education

JongShan Fan[1] and Kriengsin Prasongsukarn[2*]

[1]Master's Degree of Business Administration, Assumption University, Bangkok, Thailand
[2]Assistant Professor, Assumption University, Bangkok, Thailand
*Corresponding author, E-mail: jongshanfan@gmail.com

Abstract

Competition within the education industry has been steadily increasing as a result of social changes and trends. With a lesser supply of students and the same amount of academic institutions, marketing has become increasingly aggressive. This, when coupled with the rapid changes and shifts within the job sphere, has changed the workings of those in the education industry. Furthermore, higher education academic institutions no longer compete only in their domestic level, they compete at least regionally. The higher ranked higher education academic institutions however, compete on a global level.

With the many dynamic changes and the different standards in each region, it is only a matter of time before an international standard certification is enforced. Similar to that in the manufacturing industry where ISO certifications for areas in Total Quality Management (TQM) are in place—the education industry too needs a form of TQM standardization. Thereby, the purpose of this research study is to be able to use pre-determined TQM quality dimensions and study the effect of each of these quality dimensions in relation to "Students' Satisfaction".

This research study is performed in Bangkok, Thailand with a distribution of a Likert Scale questionnaire that yielded 204 respondents. The results of this research study show that quality dimensions of "Customer Feedback and Improvement", followed by "Department's Commitment" and "Campus Facilities" show significant effects towards "Students' Satisfaction".

Keywords: *High education, Total quality management, Bangkok, Thailand and quality dimensions*

1. Introduction

As our world continues its advancement and evolution, the countless paradigm-like shifts taking place globally has adversely affected the future generations. According to numerous studies, an "aging population" is no longer a risk for the future but for today. This will lead to significant transitions in infinite areas like that of healthcare, education and the workforce. In accordance to data "from World Population Prospects: the 2017 Revision, the number of older persons—those aged 60 years or over, is expected to more than double by 2050 and to more than triple by 2100, rising from 962 million globally in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100. Global population aged 60 or over is growing faster than all younger age groups" (United Nations, Department of Economic and Social Affairs, Population Division, 2017).

The implications from a social issue like that of the aging population have also impacted the education sector greatly. Academic institutions are the foundation in which individuals that participate in society partake in. However, an aging population can also indicate that the supply of academic institutions will subsequently exceed the demand of current students and potential students for the future. That could also possibly result into an increased level of competitiveness from academic institutions as the potential group of their future revenue decreases. For example, a consequence of globalization that has affected the competitiveness of an individual in the workplace and changing government policies in the UK and Australia have also influenced Higher Education Academic Institutions. This has resulted into "competition at the institutional level will intensify for potential students, a market which is now declining as far as the main age cohort is concerned." That is the basis of why "the marketing of higher education is receiving more attention." and why it is also increasingly difficult for potential students to judge as to which Higher Education Academic Institute would be suitable for them (Tonks & Farr, 1995).

Another equally significant issue is the change that higher education and those relevant to higher education have had to face. With major changes within this sector, offering relevant skills that can prepare students for their place in the workforce in the future is also a cause for concern. This stems from “the combination of globalization, internationalization as well as better psychological and sociological understanding or learning processes have changed our stable playground” (Taatila, 2017). Developed countries like that of the UK, Australia and Finland no longer subsidize for higher education like they had in the past when the governmental policies included the percentage increase of higher education graduates. Fast forward to the present and “costs are not seen as a national investment anymore”, and “the constantly rising student fees” have yielded consequences of “side-tracked by “student as a customer pays” centered and “competition between institutions” based approaches” (Taatila, 2017). Aside from increased competition that may potentially occur as a result of the aging population, a clear factor that has already “increased competition through e-enhanced globalization”. In addition, higher education academic institutions have also had to tackle “requirements to produce a higher level of competence, [and] shorten the implementation periods” (Taatila, 2017). With time limitations and the drastic shifts in skills that the higher education Institutions would have to adapt and offer to potential students in preparation for their future—complex issues may arise.

Hence, with the considerations mentioned above, potential students may have a need other than rankings to adhere to and to use as a tool in their decision making. When “the customer of higher education is surely both the student and society”, there will be immense “difficulties of meeting differing expectations” (Varey, 1993). It is therefore crucial for the research and study to answer what “exactly constitutes quality in higher education”, especially in a time where “the adoption of a service quality concept from industry and commerce in educational provision has received much criticism” (Varey, 1993). Specifically, it will be insightful to examine the total quality management that higher education Institutions utilize in a market like Bangkok as the amount of “international students to Thailand increased from 4,343 in 2002 to 19,052 by 2009”. Since then the number of International Students have slowed in growth with other ASEAN countries in competition, and countries like Hong Kong, China and South Korea are “positioning itself to be an educational center” (Jaroensubphayanont, 2014).

2. Objectives

Total Quality Management has been used in organizations worldwide in order to ensure that business processes, operations and related human resources continuously improve. The main reason is attributed to the value creation by the organization in light of a competitive and dynamic environment. Total Quality Management Certifications allows consumers to compare the organizations even in different markets. This study aims to apply Total Quality Management with Higher Education Academic Institutions that are also considered as organizations and is increasingly becoming more competitive in the dynamic environment. Furthermore, it is the objective of the study to see what TQM dimensions are relevant for higher education academic institutions within the Thai market.

3. Material and Methods

3.1 Total Quality Management

“Feigenbaum believes that “quality of education” is the key factor in “invisible” competition between countries since the quality of products and services is determined by the way that “managers, teachers, workers, engineers, and economists think, and make decisions about quality”. “Education, and in particular higher education itself, is also being driven towards commercial competition imposed by economic forces.” This can allow consideration of TQM to be “the latest in a series of fads urged on higher education.” TQM here can be effectively utilized as “according to Lewis and Smith the perception of “quality of education” by many academics is increasingly becoming a problem” (Owlia & Aspinwall, 1997).

TQM and its application within the higher education field have seen a rise of different types of issues. This could stem from how the “higher education institutions differ in their approach to applying TQM.” There are also different TQM critical factors that are used to be measured. Therefore it is in the best interest for higher education academic institutions with different levels of diversity that there could possibly be a standardized criterion in terms of quality that different Higher Education Institutions globally can abide with (Owlia & Aspinwall, 1997).

"Sakthivel (2017) stated the definition of a TQM model as "an integrated system of principles, methods and best practices that will provide a framework or organizations to strive for excellence in everything they do." " Based upon "the 5C TQM Model of Academic Excellence (Sakthival *et al*., 2005)" incorporates "five dimensions" of the following: the "Faculty Commitment", "Course Delivery", "Campus Facilities", "Courtesy" and "Customer feedback and Improvement" (Ardi, Hidayatno & Zagloel, 2012). As this TQM model focuses directly on "Academic Excellence", it will provide a solid foundation to better understand TQM in Thai higher education.

3.2 Faculty Commitment

This variable "can be construed as the commitment given by the faculty and experienced by the students. This is because "leaderships [are] the predecessor of process improvement (Flumerfelt & Banachowski, 2011)". In order for TQM implementation to be entirely successful, the effectiveness is strongly correlated with the "continuous support of the top management (Sakthivel and Raju, 2006)". In addition, if "all hierarchical segments in Higher Education share the same vision of excellence to achieve effectiveness (Sakthivel, 2007)", that will include "the hierarchy in the Higher Education management include[ing] faculty feel and department [al] level" (Srikanthan & Dalrymple, 2003). As "effective implementation of strong leadership has come from the top of the organization" (Rowley, 2997; Ardi, Hidayatno & Zagloel, 2012).

3.3 Courtesy

This can be illustrated as "determinants of service quality that involve some attitudes, i.e. politeness, respect, consideration and friendliness." and "defined as "an emotive and positive attitude towards students" (Sakthivel et al., 2005)". " Furthermore, while the existence of TQM involves "positive changes in the attitudes and capabilities of staff members in problem solving, the better use of human resources", this has also resulted in clear positive outcomes that have increased in student satisfaction (Owlia & Aspinwall, 1997).

3.4 Campus Facilities

This refers to some items like that of "infrastructure (Sayeda et al., 2010), learning facilities (Ndirangu & Udoto, 2011) and facilities" (Sirvanci, 2004). The basics of the "campus facilities are" necessary and a "prerequisite for any educational institution to carry out its various activities in a smooth fashion"(Sayeda et al., 2010). However, this variable may possibly be adversely affected by the commitment of upper level management (Ardi, Hidayatno & Zagloel, 2012).

3.5 Course Delivery

This can be defined as the "teaching standard (Thakkar et al., 2006), educational quality (Duque & Weeks, 2010)" and "course organization" (Nguyen & Nguyen, 2010). This is one of the more crucial dimensions in play as "customer orientation is a more problematic principle of TQM when applied to universities" "because of the special nature of many academics whose motivation for work is often independent of market issues." This could result—or has already resulted into—a "disregarding [of] the market" that "has the danger of ignoring the real needs of consumers". Hence, this dimension and variable will indicate a large part of the quality before standardizing becomes a key issue (Owlia & Aspinwall, 1997).

3.6 Customer Feedback and Improvement

This dimension and variable helps to both wrap up and to continue the ongoing quality standardization process of TQM in higher education institutions. In fact, "the importance of this dimension has been promoted in several studies (Reid, 2010; Law & Meyer, 2011). In addition, "the works of Aldridge and Rowley (1998), Joseph et al., (1999) and Lagrosen et al. (2004)" also reinforce the significance of this dimension (Ardi, Hidayatno & Zagloel, 2012).

3.7 Students' Satisfaction

As potential students are now viewed by numerous institutions as potential customers, "student satisfaction has become an extremely important issue for universities and their management" (Douglas et al., 2006). "Higher Education's institution[s] now try to capture the students' opinion about all of [the] Higher Education's aspects in order to measure how satisfied the students are (Douglas *et al,* 2006). Customer satisfaction, which in this case is the satisfaction from the students have been shown to reduce costs with "considerable savings in time, materials, and money" when they are achieved (Owlia & Aspinwall, 1997).

This research is conducted through the distribution of 204 questionnaires that investigates the level of significant effects of quality dimensions in higher education. The quality dimensions that are investigated include ten questions for "Faculty's Commitment", ten questions for "Department's Commitment", eight questions for "Course Delivery", seven questions for "Campus Facilities", five questions for "Courtesy", five questions for "Customer Feedback and Improvement" and five questions for "Students' Satisfaction". These questionnaires were distributed in Bangkok at Assumption University's Hua Mak and City Campuses or as an online questionnaire through Google Forms to Assumption University students from October 10th, 2018 to November 10th, 2018. All questionnaires distributed to respondents were chosen at random.

A quantitative approach is taken to analyze this study with 55 questions. The first portion of the questionnaire consists of 5 screening questions, and the purpose is to understand what demographics the respondents fall under, and if they belong to the group this research is studying. It is imperative that the respondents have had prior experience in a higher education institute or are currently enrolled in one. The second portion of the questionnaire measures the different quality dimensions and the effects of the independent and dependent variables. This is a total of 50 questions that utilizes the Likert scale from Strongly Disagree at a scale of "1" to Strongly Agree at a scale of "5".

4. Research Conceptual Framework and Hypotheses

The following hypotheses will be examined in Bangkok, Thailand through a quantitative questionnaire:

H1: "Faculty's Commitment" has a significant effect on Student's Satisfaction.
H2: "Department's Commitment" has a significant effect on Student's Satisfaction.
H3: "Courtesy" has a significant effect on Student's Satisfaction.
H4: "Course Delivery" has a significant effect on Student's Satisfaction.
H5: "Campus Facilities" has a significant effect on Student's Satisfaction.
H6: "Customer Feedback and Improvement" has a significant effect on Student's Satisfaction.

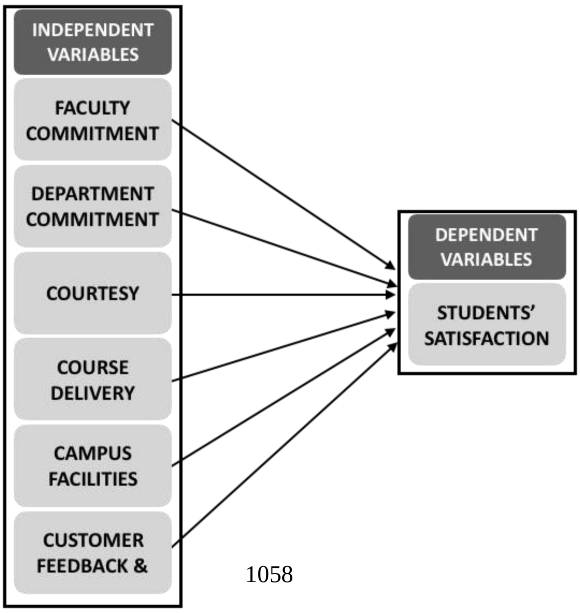

Figure 1: Conceptual Framework

5. Results and Discussion

As the locations of the distributed questionnaires were in institutions where there are higher education programs available, all 204 respondents are either currently enrolled or have graduated from a higher education academic institution in the past year. There is an equal distribution of male and female respondents with each gender making up half (50%) of the total respondents. In terms of age groups, the biggest age group interviewed is aged 23-26 years old, amounting to 39.2%. This is followed by the group aged 27-30 amounting to 32.8%. The last two aged groups are 31 and above at 19.7% and aged 18-22 at 8.3%. Of those, 55.9% have recently graduated from a Bachelor's Degree Program. This is followed by 24.5% that have recently graduated from a Master's Degree Program. Students that have graduated in the past year from a Polytechnic Diploma Program amount to 10.3% and students that are recently graduated in the past year from a High School Diploma program totals to 9.3%. Out of the same respondents, 63.2% are either currently enrolled or have recently graduated with a Master's Degree. For those that are currently enrolled or have recently graduated from a Bachelor's degree amounts to 21.1%. Last but not least, PH.D Degree students and/or graduates amount to 15.7%. This indicates that there is a distribution amongst all higher degree levels with the majority of the respondents having recently or are currently enrolled in a Master's degree program and aged 23-26 years old.

The reliability was measured with Cronbach's Alpha for each quality dimension. If the quality dimension shows α score ≥ 0.7, it will indicate good reliability. The Cronbach's Alpha reliability test on the quality dimensions resulted in values that range from 0.728 to 0.876 thereby concluding that this research is reliable.

Table 1 Reliability test with Cronbach's alpha

QUALITY DIMENSIONS	NUMBER OF ITEMS	α
Faculty's Commitment	10	0.821
Department's Commitment	10	0.876
Couse Delivery	8	0.797
Campus Facilities	7	0.78
Courtesy	5	0.746
Customer Feedback and Improvement	5	0.728
Students' Satisfaction	5	0.819

After performing the Cronbach's Alpha to determine the reliability of this research study, Multiple Linear Regression was used to analyze the data from the respondents with the results shown in Table 2-4.

Table 2 R square impact on the quality dimensions

MODEL SUMMARY				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.878*	0.771	0.764	0.34376

*. Predictors: (Constant), Department's Commitment, Customer Feedback & Improvement, Campus Facilities, Courtesy, Course Delivery, Faculty's Commitment

Furthermore, the R Square as seen in Table 2 is generated from the analysis of Multiple Linear Regression is at 0.771. This means that 77% of the 6 quality dimensions that are independent variables have a significant effect upon the dependent variable of Students' Satisfaction.

Table 3 Result of the quality dimensions MLR to students' satisfaction

		COEFFICIENTS*				
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-0.498	0.187		-2.669	0.008
	Faculty's Commitment	0.249	0.115	0.244	2.169	0.031
	Course Delivery	0.112	0.077	0.091	1.448	0.149
	Campus Facilties	0.225	0.063	0.206	3.556	0.000
	Courtesy	0.204	0.059	0.194	3.453	0.001
	Customer Feedback & Improvement	0.335	0.055	0.304	6.107	0.000
	Department's Commitment	-0.013	0.137	-0.011	-0.097	0.923

*Dependent Variable: Students' Satisfaction

The results from Table 3 shows that Customer Feedback and Improvement (β = 0.304, Significance <0.05) has the most significant variable with a positive effect towards Students' Satisfaction. Faculty's Commitment (β = 0.244, Significance <0.05), Campus Facilities (β = 0.206, Significance <0.05) and Courtesy (β = 0.194, Significance <0.05), are also significant variables that have a positive effect towards Students' Satisfaction. The remainder quality dimensions that are proven not to be significant variables that have a positive effect towards Students' Satisfaction are Course Delivery (β = 0.091, Significance <0.05) and Department's Commitment (β = -0.11, Significance <0.05). Therefore H1, H3, H5 and H6 are supported. Whereas, H2 and H4 are rejected.

Table 4 Quality dimensions that have a significant effect to students' satisfaction

		COEFFICIENTS*				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.417	0.148		-2.824	0.005
	Faculty's Commitment	0.270	0.050	0.264	5.395	0.000
	Campus Facilities	0.262	0.058	0.239	4.509	0.000
	Customer Feedback & Improvement	0.350	0.054	0.318	6.488	0.000
	Courtesy	0.216	0.059	0.205	3.686	0.000

*Dependent variable: Students' satisfaction

After re-running the multiple linear regression to reflect only the significant quality dimensions, it can be seen that the quality dimensions that have a significant effect also have increased slightly. The results from Table 4 show that Customer Feedback and Improvement (β = 0.318, Significance <0.05) has the most significant variable with a positive effect towards Students' Satisfaction. Faculty's Commitment (β = 0.264, Significance <0.05), Campus Facilities (β = 0.239, Significance <0.05) and Courtesy (β = 0.205, Significance <0.05).

Table 5: Results of hypotheses

Hypotheses	Beta	Significance	Results
H1: "Faculty's Commitment" has a significant effect on Students' Satisfaction.	0.244	0.031	Supported
H2: "Department's Commitment" has a significant effect on Student's Satisfaction.	-0.011	0.923	Rejected
H3: "Courtesy" has a significant effect on Student's Satisfaction.	0.194	0.001	Supported
H4: "Course Delivery" has a significant effect on Student's Satisfaction.	0.091	0.149	Rejected
H5: "Campus Facilities" has a significant effect on Student's Satisfaction.	0.206	0.000	Supported
H6: "Customer Feedback& Improvement" has a significant effect on Student's Satisfaction.	0.304	0.000	Supported

Table 5 exhibits the final results of the hypotheses in which H1, H3, H4, H5 are supported and H2, H4 are rejected with a lack of significance on Students' Satisfaction.

7. Discussion

Through the analysis of the Multiple Linear Regression on the sample of 204 respondents, an empirical analysis of the positive effect on the 6 Quality Dimensions to Students' Satisfaction was determined. There are a total of 6 hypotheses that correspond directly with each of the quality dimensions. These include "Faculty's Commitment", "Department's Commitment", "Courtesy", "Course Delivery", "Campus Facilities" and "Customer Feedback & Improvement". Out of these 6 quality dimensions, only "Department's Commitment" and "Course Delivery" are rejected with a lack of significance and positive effect to "Students' Satisfaction". The remainder hypotheses that pertain to the quality dimensions of "Faculty's Commitment", "Courtesy", "Campus Facilities" and "Customer Feedback and Improvement" are all supported, although the degree of the significance and positive effects are varied.

Although the findings of the previous research that took place in the engineering faculty in Indonesia also had respondents from a university campus, there is only one similarity in terms of the quality dimension that had a significant effect on Students' satisfaction. This particular quality dimension is "Customer Feedback and Improvement", and can be viewed to be important to the health of any organization. "Faculty's Commitment" was also another quality dimension that proved to be supported in the findings to have a significant effect upon "Students' Satisfaction". The only differing quality dimension is that instead of the quality of "Course Delivery" that was determined to have a significant effect on "Students' Satisfaction", "Courtesy" and "Campus Facilities" had significant effects on "Students' Satisfaction".

7.1 Implications of "Faculty's Commitment"

There is a possibility that "Faculty's Commitment" had a significant effect on "Students' Satisfaction" where and when "Department's Commitment" could have been due to a lack of understanding as to what fell under the responsibilities of Faculty or Department. As students have direct exposure to teachers, it is a possibility that there is a direct association to the level of commitment by teachers that students can observe and form an opinion about. However, students may not know what a department in an academic institute constitutes of, thereby causing the level of significance to be nonexistent. Even though "administrators of academic departments are considered by many experts to be indispensable to the effectiveness of post-secondary institutions" and are also "in a position to affect the professional quality-of-life of faculty, the learning environment of students, and the institution's continuity", it is possible they seldom have student and department staff interactions. In fact, "deans and faculty tended to see faculty-related activities of department heads as more important than did department heads", therefore it is possible that an aligned faculty and department may contribute to a better understanding of the department's commitment from students (Jones & Holdaway, 1996). Furthermore, additions of definitions for each of the quality dimension may further clarify this to the students during the questionnaire phase and may

consequently lead to a clearer understanding of their true opinion in terms of "Department's Commitment".
7.2 Implications of "Customer Feedback and Improvement"

Numerous businesses perform questionnaires and surveys on their customers in order to gain feedback and improve on their business operations and processes. This leads to "the idea of the customer experience" that has "resonated with practitioners and academics alike and many managers and service researchers now talk about the customer experience". This is important because "providing a good experience" "affects customer satisfaction". It also "provide[s] new means of competition" especially for those that are competing in an increasingly competitive education industry. A further examination of the "two perspectives on service, the service provided from the operation's point-of-view and the service received from the customer's point-of-view" can help to drive improvement on all fronts. This quality dimension may prove to be even more important in the future as services like those provided in the education sector can be ";co-created; or 'co-produced' along with the customer". The possibilities of the value that is created for the customer could be endless, and could possibly aid the academic institutions in gauging and distinguishing what type of new courses and training they should provide for their students (Johnston & Kong, 2011).

7.3 Implications of "Courtesy"

This quality dimension could possibly pertain to that of what students' view as service quality. "Consumers generally assign quality ratings to services" and that includes "attributes of the "human contact" aspect of the service encounter, such as courtesy and friendliness" that all "contribute to perceptions of service quality". As educational course delivery can possibly constitute as a service, this is where it is significant and thus has an effect on "Students' Satisfaction". Staff at academic institutions may not view themselves as staff in direct service organizations like that of restaurants, and may therefore be possibly lacking in this front. Academic institutions may need to re-evaluate the relationship between administrative staff and students as well as further training in service attributes and attitudes by the administrative staff (Goodwin & Smith, 1990).

7.4 Implications of "Campus Facilities"

In higher education academic institutions, campus facilities may be part of the customer experienced that is experienced by students. Hence, this may be possibly why the "Campus Facilities" quality dimension shows to have a significant effect. For instance, when customers "assign quality ratings to services", they do so "on the basis of such tangible attributes as on-time performance, and clean surroundings". That implies that enhancement of quality and satisfaction has to do with surroundings (Goodwin & Smith, 1990).

In addition, "student satisfaction consists of factors related to comfortable learning environment, where public spaces and campus accessibility play vital roles." There are other "factors related to the research and teaching spaces [that] have the greatest impacts". This could mean that if the campus facilities are subpar, this will compromise customer experience and hence hindering "Students' Satisfaction" as well.

6. Conclusions

As the education sector becomes increasingly competitive, quality standardization must also be used to ensure that the quality is not compromised. Due to the structure and the needs of the education industry however, it may be crucial for education related Total Quality Management standards to be created. More research and study has to be done across regions, to cover the full spectrum of possible quality dimensions that may affect the quality management of the institutions. Academic institutions also possibly need to dwell further into quality dimensions that they had not needed before. Previously, the reputation of the academic institution or faculty members alone may be sufficient to guarantee student customers as well as students' satisfaction. Present day and in the near future may require a further emphasis on quality dimensions like that of "Courtesy" and like that of "Campus Facilities". Further studies into the quality dimensions can also contribute to the accuracy of the study and determine accurately the quality dimensions needed to improve higher education academic institutions.

7. References

Goodwin, C., & Smith, K. L. (1990). Courtesy and friendliness: Conflicting goals for the service providers. *Journal of Services Marketing*, *4*(1), 5-20.

Johnston, R., & Kong, X. (2011). The customer experience: a road-map for improvement. *Managing Service Quality: An International Journal*, *21*(1), 5-24.

Jones, D. R., & Holdaway, E. A. (1996). Post-secondary department heads: expectations for academic leadership and authority. *International Journal of Educational Management*, *10*(3), 10-20.

Kärnä, S., & Julin, P. (2015). A framework for measuring student and staff satisfaction with university campus facilities. *Quality Assurance in Education*, *23*(1), 47-66.

Owlia, M. S., & Aspinwall, E. M. (1997). TQM in higher education-a review. *International Journal of Quality & Reliability Management*, *14*(5), 527-543.

Taatila, V. (2017). Paradigm shift in higher education. *On the Horizon*, 25(2), 103-108.

World Population Prospects The 2017 Revision. (2018). *New York: United Nations Department of Economic and Social Affairs/Population Division*. Retrieved from https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf [Accessed 16 Oct. 2018].

Tonks, D. G., & Farr, M. (1995). Market segments for higher education: using geodemographics. *Marketing Intelligence & Planning*, *13*(4), 24-33.

Varey, R. (1993). The Course for Higher Education. *Managing Service Quality: An International Journal*, 3(6), 45-49.

The Innovative Professional Accounting Camp

Piyachat Thongpaeng

Department of Accounting, Faculty of Business Administration and Accounting,
Sisaket Rajabhat University, Sisaket, Thailand
E-mail : piyachat.sskru@gmail.com

Abstract

The study of the innovative professional accounting camp aimed to create and integrate learning, research, and academic service of Accounting Program, Faculty of Business Administration and Accounting, Sisaket Rajabhat University. The scope of the population and sample groups were people in Por Sub-district Administration Organization, Bungbun District, Sisaket Province of 12 villages with a total amount of 948 households. The researcher used non-probability sampling method with purposive sampling or judgment sampling with 50 households of Makyang Village, Moo 16, Por Sub-district, Bungbun District, Sisaket Province. The researchers considered the community participated in household accounting training well. The instruments used in the accounting camp were depth interview and questionnaire. The descriptive statistic used in this research were percentage, mean, and standard deviation. The qualitative information was examined the triangulation before analyzing the content.

The findings of the innovative professional camp were found that this innovation was teaching and learning to develop a process in 3 aspects: 1) Learning network system and participating in the real area, 2) New learning skills, and 3) New learning system for new learners. The integrated result of education, research, and academic service of Accounting Program revealed that there were 2 types of transferring new knowledge: 1) Driving integration of research learning and academic service to support learning and new learning process and 2) Future-oriented leaning classroom systems for learner-centered learning.

Keywords: *Innovation, professional accounting camp, new learning skill, learning network system*

1. Introduction

According to the Education Act 1999, Chapter 4, Education Management Section 23, provides education management for both formal and informal education system, it must emphasize on the importance of knowledge in morality, learning process and appropriate integration for each level of education. In addition, Section 24 indicates that educational institutions and related organizations should prepare learning processes by (1) Preparing content and activities related to attention and aptitude of learners, (2) Practicing skill, thinking process, managing, confronting situation and applying knowledge to prevent and solve problem, (3) Preparing activity from real experience, reading affection, and continual knowledge seeking, (4) Integrating and balancing several knowledge as well as cultivating virtue and desirable characteristics in all subjects, (5) Promoting and supporting the instructors to be able to create atmosphere, environment, learning materials and facilities to enable learners to learn, (6) Preparing learning all the times with coordination from parents, guardian and people in community to develop learners as their potential.

Sisaket Rajabhat University has a system and mechanism to develop learning achievement towards characteristics of graduates, which surveys based on desirable graduates from the needs of graduate employers for all undergraduate programs in every period of the educational plan. Subsequently, these data will be used to improve curriculum, teaching and learning management, educational evaluation and learning achievement that promote professional skill and desirable characteristic of graduates as the employers' needs. In addition, there is also the promotion of human resource, information technology and budget that support characteristics of graduates development including the system which encourage students to participate in academic conferences or academic presentations at the inter-institutional conference, national or international conferences. Moreover, the activities to strengthen morality and ethics for undergraduates and graduates are organized by the university.

From the above system and mechanism, they conform to the strategy of the Accounting Program in order to develop the quality of educational process, service society and provide sustainable local development. Learning of the system and mechanism creates a participatory learning process of learners to create and transfer knowledge in accounting from learners to the community. The community receives knowledge and creates systematic participation which leads to a learning network (Pumdumkaew, 2008). The university obtains a systematic process to develop academic service and teaching and learning management from lessons learned process of learners, communities. There is an integration of learning Accounting courses in each semester by transferring knowledge through academic services. Students organized professional accounting camp activities through workshops. Backward Design (Wiggins, Wiggins, & McTighe, 2005) with Group Process Techniques, such as household accounting game and network building process to support the new learning process system of learner-centered learning. The practice is to allow students to join with teachers. The teachers observe the work and share their experiences. This kind of learning helps to leap from the theory to successful practices because modern teaching and learning do not only teach students but take care and build relationships with them through a problem-solving process. Therefore, the creation, development and applied additional knowledge or skill should be created to take advantage of knowledge in new situations and promoting conservation, maintaining the culture, research, producing quality academic work, developing administration system and organization management. Therefore, according to the development of knowledge to link knowledge with academic service in producing quality graduates system (Wannakham, 2009). The Accounting Program of Sisaket Rajabhat University realizes the importance of providing learners with a learning process to link with innovative professional accounting camp.

2. Objectives

To evaluate the achievement of the objectives of the new learning process creation Account Camp.

3. Materials and Methods

This research used a mixed method of both qualitative research and quantitative research, which can be summarized in Table 1 Research Concept Framework.

Table 1 Research Concept Framework

Input	Process	Output
1. Teaching methods that emphasize on learners have a role while learning.	1. Learning integration 2. Participation 3. Academic service 4. Innovation: teaching and learning management	- The study to develop area. - The increase of potential in teaching and learning management towards achievement. - The idea creation to increase network power. - The systematic future classroom for learner-centered system. - The learning network system and real area participation. - The new learning skills.

This research used a mixed method of both qualitative research and quantitative research, which can be summarized in Table 2 Processes, Methods, and Results.

Table 2 Processes, Methods and Results.

Process	Method	Performance
1. Integration of learning	Cooperating process	1. The study to develop area. 2. The increasing potential of teaching and learning management towards achievement.
2. Participation	Creating process + Transferring knowledge process	1. The process of creating ideas to increase network power.
3. Academic service	Transferring knowledge process to new learning	1. The driving of learning integration, research and academic service to support learning new learning processes. 2. The systematic future classroom for learner-centered system.
4. Innovation: teaching and learning management	Developing process	1. The learning network system and real area participation. 2. The new learning skills. 3. The creation of new learners system.

3.1 Population and Samples

This research used a mixed method of both qualitative research and quantitative research to obtain innovative professional accounting camp. The scope of population and samples used in this study were people in Por Sub-district Administrative Organization, Bueng Bun District, Sisaket Province, which consisted of 12 villages with 948 households. The researcher chose non-probability sampling by using sample purposive sampling method or judgment sampling method to select 50 households from Mak Yang Village, Moo 16, Por Sub-district, Bueng Bun District, Sisaket Province. The researcher considered that this community cooperated in household accounting training well.

3.2 Instrumentation

The instruments used in this research were in-depth interview and questionnaire survey, which consisted of 5 parts as follows:

Part 1 General information of respondent: personal information of the sample group created from research problems, purposes of the research, and conceptual frameworks of the research. The two types of questions were multiple choices of close-ended questions in the form of assessment and open-ended questions with the terminology specified definition. These questions, examined by three experts for accuracy and completeness of the content, were to edit and test the population of 30 people to calculate the reliability value of alpha coefficient = 0.95. Then, the defects were used to improve to get quality tools which divided into 5 parts as follows:

Part 1 General information of respondent
Part 2 Knowledge and understanding of household accounting
Part 3 Problem and obstacle in household accounting
Part 4 Guideline for creating innovative professional accounting camp
Part 5 Suggestion and comment

3.3 Data Collection

The researcher conducted the data collection with the research assistants. The data consisted of a lot of information that needs to be collected as the objectives. The researcher divided the data collection into 3 phases as follows:

Phase 1 was the period of starting a relationship with the community. The researcher had the opportunity to get to know the community by building a relationship without any obstacles because the community needed to develop the village. After that, the researcher collected data periodically. In the beginning, the researcher aimed to collect general information of the community, way of life, occupation, income as well as infrastructure such as temple, school, transportation, utility together with creating a community platform to gather ideas about household accounting on a knowledge-based basis in the community (Prapanpong, 2007)

Phase 2 was the period of collecting data from the population and sample groups in the community by interview and questionnaire with sample groups in the community.

Phase 3 was the period of collecting information regarding an unclear issue and checked the information obtained from the first and second phrases as well as reflected the results as a guideline for further action.

3.4 Data Analysis

In the data analyzing process, the primary data and secondary data were analyzed as follows; 1) Data classification and statistical analysis of the quantitative data which collected by questionnaires and checklist were analyzed using the frequency distribution method and percentage and presented in a bar graph format, 2) Typology and Taxonomy were a systemic data classification, 3) Content analysis and 4) Methodological Triangulation was used to confirm the validity and reliability of the findings. In addition, the results were synthesized again to cover the scope of the research.

4. Results and Discussion

4.1 Results

The researcher conducted procedures and tools for research on innovative professional accounting camp as the objectives as follows:

1. Community groups created from the systematic process of the learning process, participation process, academic service operation as well as teaching and learning process were led to system learning innovation.

2. Innovative learning creation based on innovative professional accounting camp was teaching and learning innovation in 3 development processes as follows: 1) Learning network system and participating in the real area, 2) New learning skills, and 3) New learning system for new learners.

3. Learning process from integrated learning result and academic services of Accounting Program, Faculty of Business Administration and Accounting, Sisaket Rajabhat University, was found that there were 2 types of transferring process to new leaning: 1) Driving integration of research learning and academic service to support learning and new learning process, 2) Future-oriented leaning classroom systems for learner-centered learning.

4. The performance result of the community truly led the development process in the area. The increasing potential of teaching and learning led learning network to be powerful and occurred interdisciplinary learning on the mission of Sisaket Rajabhat University. It resulted in innovative ways of increasing community participation. The increase of learning skills of learners, community people and educational institutions contributed to the development of systematic learning and a real driving mechanism.

4.2 Discussion

The researcher discussed the results of the study based on the objectives of the study with concepts, theories and the relevant literature reviews mentioned above.

Creating innovative professional accounting camp was the awareness of importance including a benefit in household accounting due to the usefulness and importance of financial planning (Phongsakcharoen, 2008). In addition, the creation of learning led to systematic awareness in a collaborative process, participation process in creating and transferring of learning. These were the new learning process in the future with reason and effect. The income, expense, and savings in the family were acknowledged. The family could reduce and avoid unnecessary expense that impacted on accounting (Kaewthong and Charoenjiratrakul, 2009). When these things were acceptable, collaborating process and participation in community development occurred.

Integrated learning on a mission-based basis: The strategy of Accounting Program to develop educational management process with quality was providing service to society and sustainable local development. Moreover, they were conservation, promotion, preservation of culture, research, production of quality academic work and development of the organization administration and management system. Therefore, in order to develop knowledge and link knowledge to academic service in the process of producing quality graduates. The learning innovation used to drive the learning integration of research and academic service to support learning and develop new learning process including a systematic future classroom for learning for learner-centered learning as well as empowering process of teaching and learning through the community could strengthen social capital resources. (Anucha Kong Trailer, 2010)

5. Conclusion

5.1 Major finding

Innovative learning creation based on innovative professional accounting camp was teaching and learning innovation in 3 development processes as follows: 1) Learning network system and participating in the real area, 2) New learning skills, and 3) New learning system for new learners. Learning process from integrated learning result and academic services of Accounting Program, Faculty of Business Administration and Accounting, Sisaket Rajabhat University found that there were 2 types of transferring process to new leaning: 1) Driving integration of research learning and academic service to support learning and new learning process and 2) Future-oriented leaning classroom systems for learner-centered learning. It resulted in innovative ways of increasing community participation. The increase of learning skills of learners, community people, and educational institutions contributed to the development of systematic learning and a real driving mechanism.

5.2 Recommendations

1. General Recommendations

From the study of innovative professional accounting camp, it was found that the community should be able to develop on its own to be a network of sufficiency economy philosophy that focuses on sufficiency based on both knowledge and morality basis (Tantivejkul,2007). by encouraging the participation process in creating community concept (Wasi, 2007). The regarding empowering concept creation that emphasizes transferring process will lead to a framework of creating readiness/prototypes to set up plan, designate committee to take responsibility, coordinate with the relevant organization, and search for the budget.

2. Recommendations for further studies

1) To study on occupation promotion to develop community and to enhance income for people.

2) To provide participatory research with local educational institutions, provincial organizations, districts and communities to join in finding an appropriate form of community.

3) Related researches should be synthesized on teaching innovation in other disciplines.

6. Acknowledgements

This research as supported by Sisaket Rajabhat University Research Fund.

7. References

Anucha Kong Trailer. (2010). *Synthesis of forms, processes and techniques for organizing social activities and Public benefit of Thailand*. Bangkok: Academic and educational standards

Kaewthong, S & Charoenjiratrakul, S. (2009). Research on Evaluation of Household Accounting Record to Reduce Debt Problems of Farmers in Yupo Sub-district, Mueang District, Yala Province. Songkhla: Songklanakharin University.

Phongsakcharoen, A. (2008). *Income Accounting - Expenditure for Farmers*. Bank for Agriculture and Agricultural Cooperatives, Lop Buri Provincial Office

Prapanpong, R. (2007). *Sufficiency Economy and New Theories*. Bangkok: Yellow Printing.

Pumdumkaew, W. (2008). Community Participation in Administration and Teaching and Learning to Enhance Public Mind under the Office of Phrae Educational Service Area 2. Independent Study M.Ed., Naresuan University, Phitsanulok.

Tantivejkul, S. (2007). *Synthesis of Sufficiency Economy Knowledge*. Bangkok: Thailand Research Fund

Wannakham, A. (2009). Participatory Management in Organizing Environment that Conducive to Learning of Phu Sang Wittayakhom School, Phu Sang District, Phayao Province

Wasi, P. (2007). *Sufficiency Economy and Civil Society*. Bangkok: Mor Chao Ban.

Wiggins, G., Wiggins, G. P., & McTighe, J. (2005). *Understanding by design*. Ascd.

Key Audit Matters in Auditor's Report as Moderate Effect on Stock Price

Wonlop Buachoom[1*], Sirikarn Sengwan[2], Supranee Sugaraserani[1], and Sasithorn Pangsirikul[3]

[1] Faculty of Accountancy, Rangsit University, Thailand
[2] Executive Internal Audit, Tanchong International Group, Thailand
[3]Director of the Business Incubation Center, Rangsit University, Thailand
*Corresponding author, E-mail: wonlop.b@rsu.ac.th

Abstract

This research aims to focus on the relationship between information of an auditor's report and stock prices of listed companies in the Stock Exchange of Thailand (SET). The information based on the opinion of the auditor and key audit matters (KAMs) which are mentioned in the report are particular issues of this research. The key financial information of 2016, the auditor's reports of 2017, and the stock prices of the 365 Thai listed companies at and after the auditor' s report date are collected. Using a three-level hierarchical regression model to prove the related hypotheses, the results show that the opinion of the auditor has a weak significant relationship with the stock price. Similarly, KAMs, which are highlighted in the report, also have a weak effect on the stock price. Interestingly, when the auditor's opinion and KAMs are considered together, it results in a strong influence on the stock price of the listed firms. Therefore, this can indicate that a mix of the auditor's opinion and KAMs provides useful information for investors in making their decision in the stock market

Keywords: *Auditor's report, opinion of auditor, key audit matters, stock prices*

1. Introduction

The International Auditing and Assurance Standards Board (IAASB) worked on and adjusted the auditing standard no.700 for the opinion of the auditor on financial statements. The standard introduced the new auditor's report in the year 2015. The main purpose of the report is to provide useful information which fit the need of the investors. In Thailand, the Thailand Federation of Accounting Profession (TFAC) also launched the auditing standard no.700 (adjusted B.E.2559). It has been enforced for the financial statements which reported since the year ended 31 December 2015 (B.E.2559) (Federation of Accounting Profession, 2016b).

The particular differences between the new auditor' s report and the previous one are that the new report will first state the opinion of the auditor, followed by the basis for the opinion. In addition, the new section, namely "Key Audit Matters: KAMs", is included. The new paragraph is the crucial data, such as corporate governance issue, significant risk, evidence that the auditor has found, leading the audit to change a strategy in the auditing process, and confirm that the going concern basis still the appropriate basis for the firm. The main purpose of the new auditor's report is to increase the assurance to financial statements, reflecting transparency of information which leads to an increase in benefits for the users or investors.

According to the new information in the new auditor's report, and as well the purpose of the report, the investigation for the real benefits to investors is the main issue. Therefore, this study tries to testify the association of information in the auditor' report, i.e. opinion of auditor and KAMs, with a stock price of listed companies in the Thai stock market. In examining, the three-level hierarchal regression model is applied as a tool for testing the hypothesis, while some data which related to decision making of investors, such as earning per share, book value of stock, firm size, audit firm size as per reports of Buachoom and Donpad, 2018; Feltham, & Olhson 1995; and Li Yutian, 2013, which are also included as control for the relationship.

2. Objectives

This study aims to examine the association of information in the auditor' report including the opinion of auditor and KAMs, with a stock price of listed companies in the Thai stock market.

3. Literature Review and Hypotheses Development

Auditing standard no.701 for audit matters communication states that auditor should identify significant audit matters and communicate them to executives who get involved in the governance of the firm to take into the account for avoiding the risk of reporting and for using the data for decision making (Federation of Accounting Profession, 2016C). Additionally, auditing standard no.315 (adjusted B.E 2557) recommends that auditor should explain each key matter which found in auditing process within the KAMs section, while audit standard no.570 (adjust B.E.2559) indicates that auditor should also report about going concern issue based of the audit evidence. (Federation of Accounting Profession, 2014; 2016a)

To support the benefit of the KAMs, Tangruenrat (2009) reports the opinion of financial statement users toward the auditor's report, indicating that they accept the original auditor report with standard sentence in the report, but they require the auditor to explain or provide more information about the issues which may benefit to financial statement users. This consists of Porter, ÓhÓgartaigh and Baskerville (2009) which state that some financial statements users want to know some information rather than standard information within the auditor's report. Furthermore, IAASB (2011) notes that financial statements users require an auditor to report audit matters which found on the auditing process, because it may help the users derived useful information about corporate governance and transparency. As per investors and analysts, they also want auditors to identify issues which affect their decision making (Ciesielski & Weirich, 2012). This evidence indicates the importance of the financial statements with transparency basis, signaling the financial statement users to get a useful source for their decision making (Dye, 1993). In a nutshell, KAMs in auditor's report help to increase the communication quality of financial statements as per signaling theory perspective (Lazarevska & Trpeska, 2016; Spence, 1973). The theory states that signal is communication any information from one source or "sender" to other persons or "receivers". The purpose of signaling is to provide better information to receivers. And then the receivers will interpret and evaluate the information by themselves (Certo, 2003). On the other hand, the sender expects the receivers to believe in their information (Chatiwong, 2017). Some previous studies, such as Herbig and Milewicz (1996), confirm that the stock market responds to the information in the market as per the signaling theory. This can be implied that KAMs in auditor's report should be a signal which is sent to investors in the stock market and affects their decision making when considering in term of stock price change (Dye, 1993).

The previous evidence, such as Dodd, Dopuch, Holthausen, & Leftwich, 1984 reveal that the auditor's opinion influences on decision making of investors, while Jones (1996) and Fleak and Wilson (1994) Chow & Rice (1982) and Dopuch, Holthausen, & Leftwich, (1986) report that rate of return on stock normally change during auditor's report announcement, e.g. when auditor provides qualified opinion on the report, it leads to a decline of stock price. This is similar to the evidence of Blay and Geiger (2001) which shows that the market negatively responds to a qualified opinion, adverse opinion, and disclaimer of the opinion of the auditor. The response of the market usually reflects from the issues in the auditor's report, for example, there is significant information is not report correctly, there is no satisfied audit evidence, and unable to predict the effect of event or issue which have no evidence to support. (Federation of Accounting Profession, 2016d). However, there is a number of prior studies, such as Elliott (1982), and Herbohn, Ragunathan and Garsden (2007) argue that there is no effect of information from auditor's report on the stock price.

Interesting perspective, Christensen, Glover, and Wolfe (2014) reveal that KAMs in auditor's report affect the decision making of investors, rather than information in the previous version of the report. Especially, Menon and Williams (2010) state that stock price dramatically declines when auditor's report mentions the going concern issue. In Thailand, Srijunpetch (2017) examine the association of KAMs and information in financial statements and respond of investors for the year 2015 to 2016. The result shows that KAMs has a significant positive effect on the volume of stock trading. According to this evidence, it indicates that opinion and KAMs in auditor's report have a relationship with the stock price as per the following hypotheses and research framework.

H1: Opinion of auditor is related to stock price
H2: Opinion of auditor is related to stock price moderated by key audit matters

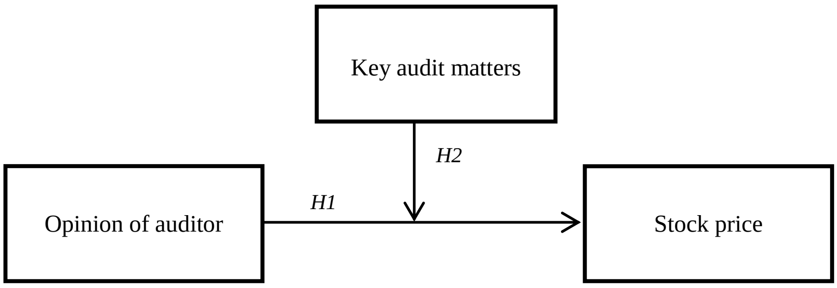

Figure 1 Research framework for the information in auditor's report and stock price relationship

4. Methodological Approach

4.1 Population and samples

There are 559 listed firms on 24 November 2017 as the population of the study. This study chooses the samples by a specific method from companies with accounting period ended on 31 December. Moreover, companies with financial distress, property fund, financial institute, and companies without significant information related to the objective of the study are excluded. Finally, there are 365 final samples for this study.

4.2 Data collection

Data which were collected in this study composed of 1) the opinion of the auditor on the auditor's report 2) KAMs, in terms of asset, liability, revenue, expense, and going concern, from the auditor' s report, 3) the closing price of stocks of the sample companies 5 days after the auditor' s report date, and 4) control variables including firm size, audit firm size, earnings per share, and book value per share. All of these data were collected from the database of the SET.

4.3 Empirical models

$$SP_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 AFS_{it} + \beta_3 EPS_{it} + \beta_4 BV_{it} + \varepsilon_{it} \quad \ldots (1)$$

$$SP_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 AFS_{it} + \beta_3 EPS_{it} + \beta_4 BV_{it} + \beta_5 KAMs_{it} + \varepsilon_{it} \quad \ldots (2)$$

$$SP_{it} = \beta_0 + \beta_1 FS_{it} + \beta_2 AFS_{it} + \beta_3 EPS_{it} + \beta_4 BV_{it} + \beta_5 Opinion_{it} + \beta_6 Opinion{*}KAMs_{it} + \varepsilon_{it} \quad \ldots (3)$$

Where; SP = stock price (5 days average after auditor's report date)

Opinion = Opinion of auditor

KAMs = Key audit matters

FS = firm size

AFS = auditing firm size

EPS = earnings per share

BV = book value per share

For testing hypotheses in according to empirical models, the three-level hierarchical regression model is applied. There are three groups of variables according to the empirical models. Firstly, the dependent variable is stock price (SP) which measured from the closing price of the stock of the sample companies for 5 days average after auditor's report date. Secondly, independent variables composed of the opinion of an auditor and KAMs. The opinion of the auditor is measured by a dummy variable, given 0 for unqualified opinion and given 1 for other cases. Meanwhile, KAMs are also measured as a dummy variable, it will be given 1 when any key audit matters reported, and value 0 if it is not the case. The last group of variables is the control variables. They are firm size (FS) which measured by natural logarithm of total assets; (AFS) audit firm size which measured by dummy value as value 1 when audit sample companies audited by one of the big 4 audit firms; earning per share (EPS) measured by total profit to total number of shares, while book value per share (BV) is measured by book value of sample compared to total shares of the firm.

5. Results of the study

5.1 Descriptive result

Table 1 illustrates descriptive data of related variables. For the stock price, the stock price of each sample companie after the auditor's report date for the year 2017 has a quite high standard deviation with closing price 5 days average after the report at 32.37 THB. When considering the opinion of the auditor on financial statements of the companies in 2016, 82.51% is unqualified opinion, and 17.49% is a modification to the opinion. When focusing on KAMs, nearly half of the samples, 47.58% is reported the KAMs, while 52.48% of auditor's reports have no information about KAMs. Earnings per share, book value per share and firm size figures show average value accounted for 1.64, 14.58 and 22.67, respectively, with low standard deviation. For audit firms of sample companies, 64.10% is big audit firms, and 35.90% are local firms.

Table 1 Summary statistics for variables characteristics

Variables	Percentage	Mean	Median	S.D.	Min	Max
Stock price 5 days average after auditor's report date		32.37	7.20	163.27	0.03	299.50
Opinion of auditor with unqualified	82.51					
Opinion of auditor with modification	17.49					
Auditor's report with KAMs	47.58					
Auditor's report without KAMs	52.42					
Earnings per share		1.64	3.64	6.65	-17.44	110.62
Book value per share		14.58	22.47	48.61	0.14	907.04
Firm size*		22.67	0.31	1.51	19.77	28.43
Big audit firm	64.10					
Local audit firm	35.90					

Note: unit of variables with * is natural logarithm

5.2 Empirical result

Table 2 indicates empirical evidence from the three-level hierarchical regression model for the relationship between information in the auditor's report and stock price of listed firms, under considering KAMs as the moderate variable. Particularly, the adjusted R-square figures increase continuously from level 1 to level 3, indicating that variables which are added to each level encourage the explanation power of the empirical models.

In level 1, the influence of control variables on stock price is determined, and the results show that earnings per share, book value per share, firm size, and audit firm size also have a significant relationship with the stock price at $p<0.001$.

For level 2, both control variables and independent variable, i.e. KAMs, are examined their effects on the price of the stock. The results indicate that KAMs have a weak negative impact on stock price of 5 days average after auditor's date, with $p<0.10$. As empirical evidence shows that KAMs results in a react to firm stock price, it means that information related to KAMs in the auditor's report can be one of the signals to the investors.

Level 3 of the three-level hierarchal regression also show evidence that auditor's opinion has a weak influence of on stock price. This implies that standard information in the auditor's report has less meaning to convince behavior of the investors in responding to the market. Hypothesis 1 is, therefore, marginally accepted with weak evidence of auditor's opinion and stock price relationship. Surprisingly, the interaction figure between auditor's opinion and KAMs revealed that it has a significant positive effect on the stock price at p<0.01, In effect, Hypothesis 2 is supported when KAMs as a moderate variable on auditor's opinion and stock price relationship can make this relationship stronger. It can be concluded that KAMs can represent the useful information which fulfils the need of the financial statement users. They may have more crucial information to support the auditor's opinion in making the decision of investors in responding to the stock market.

Table 2 Relationship between information in auditor's report and stock price

Independent variables	Dependent variable: Average Stock Price		
	Level 1	**Level 2**	**Level 3**
Constant	4.255*	4.115**	4.235**
	(1.830)	(2.301)	(2.215)
Level 1: Controls			
Earnings per share	0.324***	0.322***	0.613***
	(4.445)	(4.021)	(4.124)
Book value per share	0.084***	0.091***	-0.065***
	(2.925)	(2.454)	(-2.932)
Firm size	-0.224***	-0.422**	0.294*
	(2.673)	(1.920)	(1.653)
Big audit firm	0.434***	0.429**	0.497***
	(2.821)	(2.280)	(2.775)
Level 2: Independent			
Key Audit Matters		0.129*	0.204*
		(1.651)	(1.854)
Level 3: Hypotheses tests			
Opinion of Auditor: *H1*			0.048*
			(1.651)
Opinion of Auditor* KAMs: *H2*			0.183***
			(2.962)
R^2	0.215	0.262	0.289
Adjusted R^2	0.206	0.251	0.275
F	8.23	9.64	10.11
Number of samples	365	365	365

Note: 1) The t-statistic is reported in parentheses.
2) ***, **, and * denote significant level at <0.01, <0.05, and <0.10, respectively.

6. Conclusion and discussion

This study aims to investigate the relationship between the opinion of auditor and stock price and determine the moderate effect of KAMs on the relationship in the Thai stock market.

When auditor's opinion and KAMs have a weak effect on stock price, whereas an interactive variable between the auditor's opinion and KAMs leads to a significant effect on the stock price of the firm. Hence, KAMs are indicated as particular information which can increase the trust of financial statement users to support their making decision. This consists of the previous studies in developed countries such as

Christensen et al. (2014) who concludes that overall auditor’s report information results in the decision making of investors.

In line with the empirical results, this study encourages related market participants to pay more attention to KAMs together with the opinion of the auditor in considering trading their stock in the market. The particular KAMs could help investors make their decision to invest in the appropriate firms.

Furthermore, according to the results of this study, it can recommend two crucial points. The first point, KAMs which related to the quality of financial statement should notify the TFAC, the SET, the SEC and also listed firms in following up auditing standard no. 701 to provide significant information to the auditor, resulting in informing data to the financial statement users or investors. The second point, for the future study, KAMs in auditor’s report should be followed up that whether it can help to improve the quality of financial statements of listed firms or not.

7. References

Blay, A. D., & Geiger, M. A. (2001). Market expectations for first-time going-concern recipients. *Journal of Accounting, Auditing & Finance*, *16*(3), 209-226.

Buachoom & Donpad. (2018). Association of Earnings and Book value with Stock Price of Financial Firms in The Stock Exchange of Thailand. *Journal of Accounting Profession*, *14*(44). 55-67.

Certo, S. T. (2003). Influencing initial public offering investors with prestige: Signaling with board structures. *Academy of Management Review*, *28*(3), 432-446.

Chatiwong T. (2017). Accounting Theory Research: From the Past to the Future. *Journal of Business Administration of APHEIT*, *2*(6), 203-211.

Chow, C., & Rice, S. (1982). Qualified audit opinions and share prices-An investigation. *Auditing. Journal of Practice and Theory*, *1*(2), 35-53.

Christensen, B. E., Glover, S. M., & Wolfe, C. J. (2014). Do critical audit matter paragraphs in the audit report change nonprofessional investors' decision to invest? *Auditing Journal of Practice & Theory*, *33*(4), 71-93.

Ciesielski, J. T., & Weirich, T. R. (2012). A new audit report. *The CPA Journal*, *82*(2), 11-14.

Dodd, P., Dopuch, N., Holthausen, R., & Leftwich, R. (1984). Qualified audit opinions and stock prices: Information content, announcement dates, and concurrent disclosures. *Journal of Accounting and Economics*, *6*(1), 3-38.

Dopuch, N., Holthausen, R. W., & Leftwich, R. W. (1986). Abnormal stock returns associated with media disclosures of ‘subject to’ qualified audit opinions. *Journal of Accounting and Economics*, *8*(2), 93-117.

Dye, R. A. (1993). Auditing standards, legal liability, and auditor wealth. *Journal of political Economy*, *101*(5), 887-914.

Elliott, J. A. (1982). "Subject to" Audit Opinions and Abnormal Security Returns-Outcomes and Ambiguities. *Journal of accounting research*, *20*(2), 617-638.

Federation of Accounting Professions. (2014). International Standard on Auditing (ISA) 315 (Revised 2014): Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment. Bangkok: P.A. Living Printing.

Federation of Accounting Professions. (2016a). International Standard on Auditing (ISA) 570 (Revised 2016): Going Concern. Bangkok: P.A. Living Printing.

Federation of Accounting Professions. (2016b). International Standard on Auditing (ISA) 700 (Revised 2559): Forming an Opinion and Reporting on Financial Statements. Bangkok: P.A. Living Printing.

Federation of Accounting Professions. (2016c). International Standard on Auditing (ISA) 701: Communication Key Audit Matters in The Auditor's report. Bangkok: P.A. Living Printing.

Federation of Accounting Professions. (2016d). International Standard on Auditing (ISA) 705 (Revised 2016): Modifications to the Opinion in the Independent Auditor’s Report. Bangkok: P.A. Living Printing.

Feltham, G. A., & Ohlson, J. A. (1995). Valuation and clean surplus accounting for operating and financial activities. *Contemporary accounting research, 11*(2), 689-731.
Fleak, S. K., & Wilson, E. R. (1994). The incremental information content of the going-concern audit opinion. *Journal of Accounting, Auditing & Finance*, *9*(1), 149-166.
Herbig, P., & Milewicz, J. (1996). To be or not to be… credible that is: a model of reputation and credibility among competing firms. Corporate Communications. *International Journal*, *1*(2), 19-29.
Herbohn, K., Ragunathan, V., & Garsden, R. (2007). The horse has bolted: revisiting the market reaction to going concern modifications of audit reports. *Accounting & Finance*, *47*(3), 473-493.
International Auditing and Assurance Standards Board: IAASB. (2011). Enhancing the value of auditor reporting: Exploring options for change. Retrieved from https://www.ifac.org/system /files/publications/exposure-drafts/CP_Auditor_ Reporting-Final.pdf
Jones, F. L. (1996). The information content of the auditor's going concern evaluation. *Journal of Accounting and Public Policy*, *15*(1), 1-27.
Lazarevska, Z. B., & Trpeska, M. S. (2016). The new audit report seen through the prism of the certified auditors – research in the Republic of Macedonia. *Economic Development/Ekonomiski Razvoj, 18*(1/2), 91-113.
Li Yutian. (2013). The value relevance of eranings per share and book value per share on stock market price of the listed companies in Shenzhen Capital Market (Unpublished Master's thesis). Rangsit University, Phathumthani.
Menon, K., & Williams, D. D. (2010). Investor reaction to going concern audit reports. *The Accounting Review*, *85*(6), 2075-2105.
Porter, B, ÓhÓgartaigh, C., & Baskerville, R. (2009). Report on research conducted in the United Kingdom and New Zealand in 2008 investigating the audit expectation-performance gap and users' understanding of, and desired improvements to, the auditor's report. *Retrieved* from http://www.ifac.org/ sites/default/files/ downloads/ Porter_et_al_ Final_Report_ Combined.pdf
Spence, M. (1973). Job market signaling. *The quarterly journal of Economics*, *87*(3), 355-374.
Srijunpetch S. (2017) "Key Audit Matter [KAM]" In the auditor's report with the response of the Stock Exchange of Thailand. *Journal of Accounting Professional, 38*, 22-37.
Tangruenrat C. (2009). Communication of the auditor's report: A new auditor's report draft case. *Journal of Accounting Professional*, *13*, 31-53.

Managerial Efficiency, Innovation and Firm Value of the Pharmaceutical Industry in Indonesia

Diyah Sukanti Cahyaningsih and Grahita Chandrarin

Doctoral Program in Economics, Graduate School, University of Merdeka Malang, Malang, Indonesia
Corresponding author, E-mail: diyahsukanti@unmer.ac.id

Abstract

This study examined the effect of managerial efficiency, innovation and firm value. Managerial efficiency is reflected in optimal input and output management, while the innovation indicator is a comparison of research and development (R&D) expenditures with sales, while the firm value uses Tobin's Q. The object of this research is 9 out of 10 pharmaceutical companies listed on the Indonesia Stock Exchange, with pooling data during ten years. The results of this study indicate that, managerial efficiency has a positive effect on innovation and firm value. R&D is the main activity of the pharmaceutical industry to create patents and exclusive rights in maintaining its market. The more efficient the manager manages inputs to produce maximum output, the greater investment can be made in the R&D crowd. The higher the allocation of R&D costs will encourage the number of patents produced, to strengthen companies in the pharmaceutical market. The higher the level of sales, the greater the profit that can be generated and increase investor trust

Keywords: *Firm Value; Innovation; Managerial Efficiency; Pharmaceutical Industry; Research and Development (R&D).*

1. Introduction

Firm value reflects public trust in the firm through a process of activities for several years. Increasing firm value is an achievement, which is expected by stakeholders. Firm value is the investor's perception of the firm, can be reflected in the stock price. This research is based on stakeholder theory that focuses on stakeholders, to create shared value on a number of dimensions and firm performance (Harrison & Wicks, 2015) to increase investor trust. The concept of value in this study refers to the concept of the value of equality (Arslan & Ms, 2014). Tobin's Q is used because it is considered to have the advantage of profit Margin, ROA or financial indicators based on other historical accounting performance because it reflects market expectations so that it is relatively free from the possibility of manipulation by company management. Some previous research shows that corporate value is influenced by corporate governance mechanisms La Rocca (2007), Brooks & Oikonomou (2018). Innovation in pharmaceutical companies is the basis for growth. R&D in pharmaceutical companies will determine competitiveness in the production market that spurs profits and can increase firm value (Pérez-Rodríguez & Valcarcel, 2012)

1.1. Agency Theory and Stakeholder Theory

Discussing the value of the firm cannot be separated from the agency theory and stakeholder theory. Agency Theory examines the relationship between agent and principal (Jensen & Meckling, 1976). The principal receives agents for the benefit of the principal, including authorizing delegation of decision making from the principal to the agent. In companies whose capital consists of shares, shareholders act as principals, and Chief Executive Officer (CEO) as their agent. CEO share ownership for needs in accordance with the interests of the principal.

Stakeholder theory influences the relationship between organizations and their stakeholders. To approve and regulate this relationship, managers must provide funding to all stakeholders in the organization (Elijido-Ten, 2007). The main stakeholders consist of customers, workers, local communities, suppliers and distributors, and shareholders. In addition, other groups and individuals including stakeholders are the media, the general public, business partners, future generations, past generations (founders of an organization), academics, competitors, private organizations or activists, representatives of stakeholders who can be involved and engage in Trade, shareholders (creditors and bondholders), governments, regulators and policymakers (Elijido-Ten, 2007), (Harrison & Wicks, 2015). Stakeholder theory emphasizes important value from a managerial perspective because managers emphasize focusing on things that lead to improving performance. In addition, in the interest of the economy, stakeholders measure the value of the company to the company (Kaplan, & Norton, 1992)

1.2. Managerial Efficiency, innovation, and firm value

Cho & Lee (2017) consider the dimensions of managerial efficiency and firm value. They try to focus on efficiency that proxies optimal spending in producing maximum output for companies related to CSR. Regarding Managerial Efficiency, considering managerial wisdom as a key moderator in investing is based on the upper echelon theory (Mason & Hambrick, 1984). This theory shows that the quality and characteristics of top managers (that is, the upper echelons of an organization) determine the strategic decisions of a company. This research sees CSR activities as a combination of relatively non-economic CSR and economical CSR that are identical to R&D spending. In pharmaceutical companies, institutional change has significantly affected innovation performance, how innovation can be improved in this sector is an important policy consideration for management (Majumdar, 2012). The survival of the pharmaceutical industry is innovation (Khemka & Gautam, 2010) managerial efficiency strongly supports the availability of research and development funds to increase innovation. Regarding innovation, Sheikh (2012) tested whether CEO compensation has an effect on corporate innovation. Investigate the effectiveness of each component of the compensation incentive portfolio in driving innovation. With a system of simultaneous equations to model the interdependence between compensation incentives and innovation measures the company shows compensation results positively related to investment in R&D expenditure, although there are weaknesses in measuring the output of difficult innovations because innovation has many dimensions, including business model innovations, which do not appear in patent data.

Demerjian, Lev, & McVay (2008) quantify managerial efficiency measures, that manager efficiency in generating profits. They expect managers to be better able to understand technology and industry trends, be reliable in predicting product demand, able to create higher investments in innovation and be able to manage their employees more efficiently. The development of new products is one of the most important outcome indicators for managerial efficiency in Iranian pharmaceutical companies. Historically, the Iranian pharmaceutical industry has demonstrated its ability to develop new medicines by developing 3,095 new products from around 100 companies (Demerjian et al., 2008)(Yousefi, Mehralian, Rasekh, & Tayeba, 2016). Efficiency is indeed contrary to R&D investment. Recent studies in the accounting literature have investigated the economic consequences of the capitalization of research and development costs. R&D capitalization also impacts on the marginal costs of the company and product market competition. The company's R&D is not only strategically created but also used to convey proprietary information to competitors. This model provides a reason for a company to distort the level of R&D to get more profits and meet its revenue targets. Equilibrium results show that with high investment in R&D, it has the opportunity to get higher profits in the future and achieve revenue targets (Hsiao, Liao, Su, & Sung, 2017)

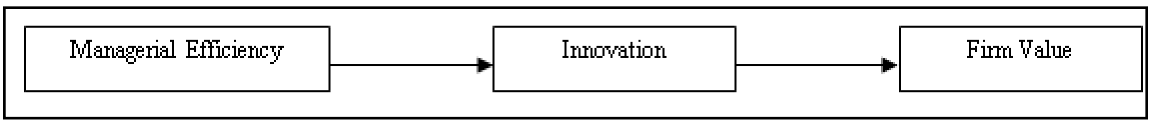

Figure 1. Theoretical Framework Effect of Managerial Efficiency, Innovation and Firm Value

Figure 1 shows managerial efficiency in managing company resources, can increase higher investment in innovation activities, which can introduce new products, open new markets, increase sales so that in the end it will make the company's value in the view of investors better.

1.3. Managerial Efficiency and Innovation

Managerial efficiency is the ability to manage managing expenses optimally. Managerial efficiency has a positive impact on spending which will focus on spending on Research and development that will increase product innovation and increase sales, thus managerial efficiency orientation is how management is able to optimize research and development expenditures (Pérez-Rodríguez & Valcarcel, 2012) Managers with a level higher efficiency will be able to manage and coordinate all resources effectively and efficiently to achieve organizational goals. Ciliberti, Carraresi, & Bröring (2016) found that managers have an effect on company choices such as acquisition or expenditure on research and development

H_1: Managerial Efficiency has a positive effect on Innovation

1.4. Managerial Efficiency and Firm Value

Specifically, in the perspective of stakeholder theory states that stakeholders expect financial performance by managers with high capabilities will provide increased investor trust. So, in addition to focusing on economic performance, investors measure a firm value in increasing investor trust in financial reports. In the perspective of stakeholder theory, Harrison & Wicks (2015) also emphasize that the process of creating the value of the firm is generally reflected in the financial reporting process. Having CFO and CEO who have good spending efficiency will increase profits, thus increase investor's trust. Thats means increase firm value. Based on the brief explanation above, the following hypothesis is formulated :

H_2: Managerial Efficiency have a positive influence on firm value.

1.5. Innovation and Firm Value

Innovation greatly determines a company's competitiveness. Some studies have found a positive relationship between innovation and performance, which focuses on export values (Azar & Ciabuschi, 2017), focusing on organizational efficiency (Shanker, Bhanugopan, van der Heijden, & Farrell, 2017) and on corporate financial performance (Shanker et al., 2017). By innovating, companies have a greater possibility of creating value, creating intellectual property (Verwaal, 2017). Innovation is a company breakthrough for increasing normal profits and company value which can have an impact on market reaction (Pérez-Rodríguez & Valcarcel, 2012). Therefore, the following hypothesis can be formulated:

H_3: There is significant influence between innovation and firm value

2. Objectives

The purpose of this study is to examine the effect of managerial efficiency, innovation and firm value. Managerial efficiency is reflected in the input and output used for the company's operations by separating R&D expenditure as an indicator of the innovation variable.

3. Materials and Methods

3.1. Population and Samples

In accordance with its objectives, this research is explanatory, to explain the relationship (causality) between managerial efficiency, innovation, and company value variables through hypothesis testing. The research population is all pharmaceutical companies listed on the Indonesia Stock Exchange in the period 2008 - 2017. There are 9 out of 10 pharmaceutical companies that meet the reporting criteria (purposive sampling) which in that period published complete financial report data which became the research variable, 1 company does not report complete financial data. Data collection is done by the method of documentation through the Indonesia Capital Market Directory (ICMD).

3.2. Variable definition

A. Managerial Efficiency

Managerial efficiency is the ability to manage company spending to produce optimal output. The greater the estimated value obtained from managerial efficiency will give an idea of achieving better company efficiency. Observation values greater than 1 indicate that companies use inputs efficiently and values less than 1 indicate that companies need to reduce costs or increase their income to achieve efficiency (Demerjian et al., 2008) calculated by the formula as follows:

$$Max\ V\theta = \frac{Sales}{CoGS + SG\&A + PPE + OpsLease + Goodwill + other\ Intan} \quad \text{.......... (1)}$$

This study uses a DEA (Data Envelopment Analysis) that calculates efficiency by means of weighted outputs on weighted inputs. DEA is an optimization program to determine the company's optimal weight at input and output. The optimal weight of this company will describe the efficiency of the company based on its input and output (Demerjian et al., 2008)
The company's total efficiency is estimated using sales and six inputs : Costs of Goods Sold (CoGS), Sales General and Administration expenses (SG& A), Property plant and Equipment (PPE), OpsLease, Goodwill and Other Intangible assets). By separating R&D in the intangible of assets, there is an indicator of innovation.
The most successful companies are those that produce maximum sales at the lowest cost. The greater the value of $MaxV\theta$, the better the manager's ability to manage inputs to produce output. Use of these six inputs with the consideration that each company operational activity is a strategy and policy taken by the manager. Every policy taken by a manager is expected to influence sales. To achieve maximum value from sales managers must be able to control and use resources optimally.

B. Innovation
Innovation is the company's activities in developing products and markets, which in this study are calculated from Expenditures for R&D as a percentage of the company's total sales (Irina Berzkalne & Zelgalve, 2013)

C. Firm Value
Firm value is defined as the ratio of market value to the value of the replacement of a company's assets. A value higher than one indicates that the company has good value. Firm value is measured using Tobin’s Q Tobin-Q value as a ratio of the market value of equity of a firm to the book value of its assets in accordance with the research of Leung & Cheng, (2013), Y. Li, Gong, Zhang, & Koh, (2018)

3.3. Analysis Techniques
This research was analyzed using path analysis, by forming the following equations:

I = f(ME)..(3)
FV = f(ME,I)...(4)
I = $\alpha0 + \alpha1ME + \mu1$..(3.1)
FV = $\beta0 + \beta1ME + \beta2I + \mu2$...(4.1)

Notes:
ME = Managerial Efficiency
I = Innovation
FV = Firm Value
$\alpha0$, $\beta0$ = Konstanta
$\mu1$, $\mu2$ = Error Term

4. Results and Discussion

The population used in this research are all pharmaceutical companies listed on the Indonesia Stock Exchange (IDX) from 2008 to 2017 consisting of 10 companies. The company was selected by purposive sampling method to produce as many as 9 companies with 90 observation samples and had passed the testing process of various model assumptions (Goodness-of-Fit Model) to produce 90 observation samples tested using simple regression analysis.

4.1. Testing for Normality

Multivariate testing in this study requires the fulfillment of the assumption of normality. This test was carried out when the AMOS operation was running. There are two tests of normality, namely univariate normality, and multivariate normality. Data distribution can be said to be normal if the value of C.R skewness and the value of C.R kurtosis is smaller than the critical value of the table + 1.96 with a significance level of 0.05 (p-value of 5%). The following table is the result of testing univariate and multivariate normality with the AMOS version 24 program.

Table 1. Normality Test Results

Variable	min	max	skew	c.r.	kurtosis	c.r.
Managerial efficiency	0.691	1.062	-0.098	-1.016	0.628	3.269
Innovation	0.382	1.341	-0.180	-1.848	1.809	9.395
Firm Value	0.178	4.102	1.238	12.698	1.239	6.398
Multivariate					-0.076	-0.097

Table 1 shows a univariate analysis which states that there are still variables that have a C.R value. skewness and kurtosis are greater than the critical value of the table + 1.96. Thus it can be concluded that univariate data distribution is abnormal at the 0.05 level of significance (p-value 5%). But if the test is analyzed multivariate, it is known that C.R. kurtosis of -0.098 is smaller than the critical value of table + 1.96. So it can be concluded that multivariate data distribution is normal. While multivariate testing is normal then univariate is also normal. While testing all abnormal univariate variables does not guarantee that multivariate testing is also abnormal (Hinson & Utke, 2016) Thus, it can be concluded that the data in this study are normally distributed, because although abnormal distributed univariate but normally distributed multivariate, therefore the assumption of normality in this study has been fulfilled.

4.2. Descriptive statistics

Descriptive statistical analysis is used to determine the description of research variables, that the magnitude of Managerial Effectiveness, Innovation and Firm Value (FV). The values seen from descriptive statistics are the maximum, minimum, average (mean) and standard deviation values.

Table 2. Descriptive Statistics

Variable	min	max	mean	Std deviation
Managerial efficiency	0.691	1.062	0.849	0.057
Innovation	0.382	1.341	0.578	0.697
Firm Value	0.178	4.102	1.362	0.692

Managerial efficiency shows a minimum value of 0.691 and a maximum value of 1.062 with an average of 0.849 and a standard deviation of 0.057. This illustrates that managers are able to manage inputs or resources efficiently and effectively in producing output for the company. The standard deviation value of 0.058 <mean 0.849 illustrates that the spread of data for managerial efficiency variables is quite normal.

Innovation shows a minimum value of 0.382 and a maximum value of 1.341 with an average of 0.578 and a standard deviation of 0.697. Indicates that the composition of research and development spending is smaller than other expenses. A small ratio means more efficient spending on innovation in generating profits. to produce sustainable profits in the future (Namazi & Rezaei, 2016). The average value of 0.578 indicates that research and development expenditures tend to have a small portion and cash outflow from operations. This means that the company does not consider the importance of research and development, especially in pharmaceutical companies. The standard deviation value of 0.697> mean value 0.578 gives an indication that the spread of data for innovation variables tends to be abnormal.

The company value shows a minimum value of 0.178 and a maximum value of 4.102 with an average of 1.362 and a standard deviation of 0.692. Faller & Zu Knyphausen-Aufseß (2018), (Ghosh, 2018), Xia (2008) Li, Yang, & Xiao (2014) provide empirical results that if the value of a company is greater than 1, it has been able to increase value in its operations for years. The average value of 1.362 indicates that the average pharmaceutical company found on the Indonesia Stock Exchange has been well managed so that value is created for the company's stakeholders. The standard deviation value of 0.692 <mean value 1.362 gives an indication that the spread of data for firm value variables tends to be normally distributed.

4.3. Path Analysis

After the Goodness-of-Fit Model is conducted, testing hypotheses can be done by using a regression model in path analysis to predict the relationship between exogenous variables and endogenous variables.

Table 3. Standardized Value Path Coefficient

Variable	**Coef. Est**	**S.E**	**p**
Managerial Efficiency to Innovation	0.078	0.205	0.015*
Managerial Efficiency to Firm Value	0.149	0.698	0.000*
Innovation to Firm Value	0.088	0.335	0.020*

* statistically significant level of $\alpha = 0.05$

1. Managerial efficiency has a positive and significant influence on innovation. managerial efficiency focuses on how to manage inputs optimally to obtain maximum output. When production costs and other expenses can be reduced, it's can increase investment in R&D, so as to encourage the creation of patents or other things that support innovation. The pharmaceutical industry continues to improve drug discovery and development for customer satisfaction
2. Managerial efficiency has a positive and significant influence on firm value. This indicates that efficient management within the company is able to encourage profit increases. Managerial efficiency is measured by the compatibility between actual economic performance and performance that can be achieved with existing conditions. Managerial efficiency considers the calculation of operational costs and the time needed to achieve results. Managerial efficiency is a key factor in improving the financial and economic performance of the company. Return on investment will be higher, so that investor trust will be greater, its reflected in the increase in stock market prices.
3. Innovation has a positive influence on firm value. Innovation is seen from the large amount of R&D spending. R&D costs encourage product quality improvement, new patents, which are the main assets of pharmaceutical companies, are expanding market share, which has led to increased profits. This shows that the level of innovation has an impact on increasing customer satisfaction, achieving new markets and being able to increase sales. So that the company is able to increase profits and investor trust. Innovation and company value are closely related. The pharmaceutical industry basically relies on R&D to achieve production innovations to create value by providing greater customer benefits. In addition, sustainable growth and value creation depend on stable R&D productivity with positive ROI to drive future income that can be reinvested into R&D.

Calculation of the Significance Value of the Effect of Mediation (Sobel Test) Based on the results of the Sobel test, it is explained that the indirect effect of managerial efficiency on firm value has a p-value (two-tailed probability) Sobel test of 0.211> alpha 0.05. Thus the variable innovation in this study is the type of No Mediation.

4.4. Effect of Managerial Efficiency on Innovation

The standardized beta coefficient value of the direct effect of managerial efficiency on innovation is 0.078 with a p-value of 0.015 < alpha 0.05. This shows that managerial efficiency has a positive and significant influence on innovation. Thus Hypothesis 1 (H_1) states that managerial efficiency has a direct influence on accepted innovation. In line with the research of Azar & Ciabuschi (2017), Pérez-Rodríguez & Valcarcel (2012), Ale, Chiotti, & Galli (2005). Managerial efficiency shows the ability of resource management to increase company income in the future by using the lowest input. In addition, every manager needs to evaluate spending in managing product inputs by considering innovations that can provide future cash inflows for the company.

4.5. Effect of Managerial Efficiency on Firm Values

The standardized beta coefficient value of the direct effect of managerial efficiency on firm value is equal to 0.149 with a p-value of 0.000 <alpha 0.05. This shows that managerial efficiency has a positive and significant influence on firm value. Thus Hypothesis 2 (H_2) which states that managerial efficiency has a direct influence on accepted firm value. This study shows that managerial efficiency has a positive and significant impact on firm value. The results of this study are in line with (Cho & Lee, 2017), (Aksoylu & Aykan, 2013)

4.6. Effect of Innovation on Firm Values

Investor interest to company's policy in managing funds invested by investors. Fund management can show in the company's innovation activities. Therefore, the more innovative a company is, the investor's response will be higher. The high response will have an impact on increasing firm value. The standardized beta coefficient value of the direct effect of innovation on firm value is 0.088 with a p-value of 0.020 < alpha 0.05. This shows that innovation has an influence on company value. Thus Hypothesis 3 (H_3) which states that innovation has an influence on the value of the company received. Innovation has an influence on corporate values in line with Azar & Ciabuschi (2017), Guimarães, Severo, Dorion, Coallier, & Olea (2016), Pérez-Rodríguez & Valcarcel (2012). With research and development pharmaceutical companies are able to survive in business competition and develop new markets that have a positive impact on investor confidence in the company. In some studies measuring firm value with ROE (Cuong & Canh, 2012), combine Tobbin Q and ROA (Prihatiningtias, 2012) may be able to show different results

The study also found that there is no mediating role of innovation variables that connect between exogenous variables of managerial efficiency, and endogenous variables of firm value.

5. Conclusion

Managerial efficiency reflected in the inputs and outputs used for company operations has a positive influence on R&D expenditure as an indicator of innovation. Companies prefer to invest in R&D rather than, marketing or other expenses. Managerial efficiency has a positive and significant influence on firm value. This shows that managerial efficiency reflects the ability of investment and financial decision making will have a positive effect on investor confidence in the company. Innovation has an influence on firm value. This shows that companies with high innovation can maintain investor confidence. Sobel test found that there is no mediating role of innovation variables that connect managerial efficiency with firm value.

The limitation of this study, is the determination of samples taken only from the Indonesia Stock Exchange (from 208 pharmaceutical industries only 10 are listed on the Indonesian stock exchange). Due to research time limitations, it is not possible to obtain data from the company directly. Further research will be added to samples from outside pharmaceutical companies listed on the Indonesian stock exchange by getting data directly from a pharmaceutical company that is on the list of pharmaceutical companies in the health department.

6. References

Aksoylu, S., & Aykan, E. (2013). Effects of Strategic Management Accounting Techniques on Perceived Performance of Businesses. *Journal of US-China Public Administration*, *10*(10), 1004–1017.

Ale, M. a., Chiotti, O., & Galli, M. R. (2005). A Distributed Knowledge Management Conceptual Model for Knowledge Organizations. *ICFAI Journal of Knowledge Management*, *3*(4), 27–39.

Arslan, M., & Ms, M. P. (2014). Impact of Firm Size on Capital Budgeting Techniques□: An Empirical Study of Textile Firms in Pakistan, *4*(18), 95–101. https://doi.org/10.2139/ssrn.2515073

Azar, G., & Ciabuschi, F. (2017). Organizational innovation, technological innovation, and export performance: The effects of innovation radicalness and extensiveness. *International Business Review*, *26*(2), 324–336. https://doi.org/10.1016/j.ibusrev.2016.09.002

Brooks, C., & Oikonomou, I. (2018). The effects of environmental, social and governance disclosures and performance on firm value: A review of the literature in accounting and finance. *British Accounting Review*, *50*(1), 1–15. https://doi.org/10.1016/j.bar.2017.11.005

Cho, S. Y., & Lee, C. (2017). Managerial Efficiency, Corporate Social Performance, and Corporate Financial Performance. *Journal of Business Ethics*, 1–20. https://doi.org/10.1007/s10551-017-3760-7

Ciliberti, S., Carraresi, L., & Bröring, S. (2016). Drivers of innovation in Italy: food versus pharmaceutical industry. *British Food Journal*, *118*(6), 1292–1316. https://doi.org/10.1108/BFJ-10-2015-0405

Cuong, N. T., & Canh, N. T. (2012). The Effect of Capital Structure on Firm Value for Vietnam's.pdf. *International Research Journal of Finance and Economics*, (89), 221–233.

Demerjian, P. R., Lev, B., & McVay, S. E. (2008). Quantifying Managerial Ability: A New Measure and Validity Tests. *Ssrn*, (November 2018). https://doi.org/10.2139/ssrn.1266974

Elijido- Ten, E. (2007). Applying stakeholder theory to analyze corporate environmental performance. *Asian Review of Accounting*, *15*(2), 164–184. https://doi.org/10.1108/13217340710823378

Faller, C. M., & zu Knyphausen-Aufseß, D. (2018). Does Equity Ownership Matter for Corporate Social Responsibility? A Literature Review of Theories and Recent Empirical Findings. *Journal of Business Ethics*, *150*(1), 15–40. https://doi.org/10.1007/s10551-016-3122-x

Ghosh, S. (2018). Capital structure, ownership and crisis: evidence from Middle East and North African banks. *Accounting Research Journal*, *31*(2), 284–300. https://doi.org/10.1108/ARJ-09-2015-0121

Guimarães, J. C. F. de, Severo, E. A., Dorion, E. C. H., Coallier, F., & Olea, P. M. (2016). The use of organisational resources for product innovation and organisational performance: A survey of the Brazilian furniture industry. *International Journal of Production Economics*, *180*, 135–147. https://doi.org/10.1016/j.ijpe.2016.07.018

Harrison, J. S., & Wicks, A. C. (2015). Stakeholder Theory , Value , and Firm Performance, (April). https://doi.org/10.5840/beq20132314

Hinson, L. A., & Utke, S. (2016). Structural Equation Modeling in Archival Accounting Research: An Application to Disclosure and Cost of Capital Lisa A. Hinson, (352).

Hsiao, H.-F., Liao, S.-L., Su, C.-W., & Sung, H.-C. (2017). Product market competition, R&D investment choice, and real earnings management. *International Journal of Accounting & Information Management*, *25*(3), 296–312. https://doi.org/10.1108/IJAIM-06-2016-0067

Irina Berzkalne, I., & Zelgalve, E. (2013). Innovation and Company Value□: Evidence From The Baltic Countries. *Regional Formation and Development Studies*, *3*(3), 39–51. Retrieved from http://journals.ku.lt/index.php/RFDS/article/viewFile/608/pdf

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Kaplan, R. S., Norton, D. P., Kaplan, R. S., & Norton, D. P. (1992). The Balanced Scorecard – Measures that Drive Performance The Balanced Scorecard — Measures. *Harvard Business Review*.

Khemka, M., & Gautam, V. (2010). Innovation in the pharmaceutical industry: study of select parameters. *Journal of Advances in Management Research*, *7*(1), 127–138.

https://doi.org/10.1108/09727981011042892
La Rocca, M. (2007). The influence of corporate governance on the relation between capital structure and value. *Corporate Governance: The International Journal of Business in Society*, *7*(3), 312–325. https://doi.org/10.1108/14720700710756580
Leung, N. W., & Cheng, M. (2013). Corporate governance and firm value : Evidence from Chinese state-controlled listed firms. *China Journal of Accounting Research*, *6*(2), 89–112. https://doi.org/10.1016/j.cjar.2013.03.002
Li, L., Yang, E., & Xiao, T. (2014). Firm-specific information , analysts ' superiority and investment value, *7*, 277–299. https://doi.org/10.1016/j.cjar.2014.10.002
Li, Y., Gong, M., Zhang, X. Y., & Koh, L. (2018). The impact of environmental, social, and governance disclosure on firm value: The role of CEO power. *British Accounting Review*, *50*(1), 60–75. https://doi.org/10.1016/j.bar.2017.09.007
Majumdar, S. K. (2012). Legal Regime Change and Innovation: Foreign Exchange Regulations and Pharmaceutical Sector R&D in India. In *Research in Law and Economics* (pp. 75–103). https://doi.org/10.1108/S0193-5895(2012)0000025008
Mason, P. A., & Hambrick, D. C. (1984). Upper Echelons: The Organization as a Reflection of its Top Managers. *Academy of Management Review*, *9*(2), 193–206. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1504456
Namazi, M., & Rezaei, G. (2016). The Effects of Earnings Quality Criteria on the Agency Costs: (Evidence from Tehran Stock Exchange Market). *Procedia - Social and Behavioral Sciences*, *230*(May), 67–75. https://doi.org/10.1016/j.sbspro.2016.09.009
Pérez-Rodríguez, J. V., & Valcarcel, B. G. L. (2012). Do product innovation and news about the R&D process produce large price changes and overreaction? The case of pharmaceutical stock prices. *Applied Economics*, *44*(17), 2217–2229. https://doi.org/10.1080/00036846.2011.562172
Prihatiningtias, Y. W. (2012). Gender diversity in the boardroom and firm performance : evidence from indonesian publicly- listed financial firms a thesis submitted to the university of canberra for the degree of doctor of business administration, 1–275. Retrieved from http://www.canberra.edu.au/researchrepository/file/a669fbb3-5a71-e95b-ac65-7fc71b83691c/1/full_text.pdf
Shanker, R., Bhanugopan, R., van der Heijden, B. I. J. M., & Farrell, M. (2017). Organizational climate for innovation and organizational performance: The mediating effect of innovative work behavior. *Journal of Vocational Behavior*, *100*, 67–77. https://doi.org/10.1016/j.jvb.2017.02.004
Sheikh, S. (2012). Do CEO compensation incentives affect firm innovation? *Review of Accounting and Finance*, *11*(1), 4–39. https://doi.org/10.1108/14757701211201803
Verwaal, E. (2017). Global outsourcing, explorative innovation and firm financial performance: A knowledge-exchange based perspective. *Journal of World Business*, *52*(1), 17–27. https://doi.org/10.1016/j.jwb.2016.10.004
Xia, L. (2008). Founder Control , Ownership Structure and Firm Value : Evidence from Entrepreneurial Listed Firms in China 1. *China Journal of Accounting Research*, *1*(1), 31–49. https://doi.org/10.1016/S1755-3091(13)60004-0
Yousefi, N., Mehralian, G., Rasekh, H. R., & Tayeba, H. (2016). Pharmaceutical innovation and market share: evidence from a generic market. *International Journal of Pharmaceutical and Healthcare Marketing*, *10*(4), 376–389. https://doi.org/10.1108/IJPHM-06-2015-0028

The Value Relevance of Financial Performance on Stock Price of Thai Listed Company: Evidence from High Dividend Group

Yodsawinkarn Kobkanjanapeud* and Ittidej Seangpuang

Faculty of Accountancy, Rangsit University, Pathum Thani, Thailand
*Corresponding author, E-mail: Yodsawinkarn.k@rsu.ac.th

Abstract

This research aims to explore the relationships between stock price and earning per share, book value per share, dividend paid rate, and net cash flow from operating activities among the listed Thai company with high dividend (SET high dividend group: SETHD). Data used in this research has been collected from 81 firm-year through the Stock Exchange of Thailand's database from 2012 to 2015. In addition, the interviews have been performed with 20 investors by specific randomly selected interview. Pieces of information used for the quantitative analytical process are earning per share, book value per share, dividend payout ratio, and net cash flow from operating activities by Correlation Analysis and Multiple Regression Analysis at the 95% confidence interval and qualitative analysis method from in-depth personal interviews. The results from this research reveal that earning per share, book value per share, dividend payout ratio, and net cash flows from operating activities have a relationship with the stock price at the 95% confidence interval. These results imply that earning per share, book value per share, dividend payout ratio, and net cash flow from operating activities together can explain the stock price of the companies listed in SET High Dividend 30 Index which is a group of companies that have the highest dividend payout.

Keywords: *SETHD, Financial Performance, Stock Price*

1. Introduction

Financial performance is the crucial financial information that every company listed in the stock exchange must announce to the public, especially to the investors, at the end of each accounting period. This information can signal investors about the efficiency and effectiveness of business management. Financial performance can be derived from financial ratios such as liquidity ratio, debt ability ratio, asset management ability ratio, earning ability ratio, and market value ratio. Out of these financial ratios, investors also interested in other financial information. According to the works of Ball and Brown (1968), Keorath (1996), Sumritpradit (2002), Rattapradid (2009), Vachirasrisuntra (2011), Visedsun (2012), Visedsun (2014), and Sathapanaratkul (2015) confirmed that most of the investors usually employ financial information to assist their investment decision such as earning per share, book value per share, dividend payout ratio, and net cash flows from operating activities. The investors usually use earning per share and book value per share because investors will focus mainly on company performance due to the company's stability. In the other hand, for companies with high risk, investors usually employ net cash flows from operating activities according to the Capital Asset Pricing Model (CAPM) which help the investors to estimate their return from expected cash flows with the consideration of risk. Therefore, investors use different financial information in different circumstances. Investors can be classified into two groups which are short-term investors and long-term investors. Short-term investors focus on the company's earnings because earning announcement will affect the stock price according to Effective Market Hypothesis; therefore, focusing on the company's earning is crucial for speculation. Long-term investors, on the other hand, expect for the high dividend paid; therefore, long-term investors are interesting in the company with high dividend payout. According to this logic, the dividend paid and dividend announcement will affect the stock price.

In a present day, Stock Exchange of Thailand (SET) developed SET High Dividend 30 Index (SETHD) to reflect the change in high market capitalization, high liquidity, high consistency, and high dividend payout stocks. This index has established since July 4, 2011 (Stock Exchange of Thailand, 2015). Therefore, SET High Dividend 30 Index is another option that the Stock Exchange of Thailand facilitates long-term investors who focus on the long-term investment in the companies with the high dividend paid rather than speculation purpose.

Proceedings of RSU Research Conference (2019)

There are many pieces of research in the past indicated that financial information from financial reports affects investors 'decision and stock price. For example, Keorath (1996) found that the profit announcement of listed companies positively affects the stock price. Besides, Sumritpradit (2002) discovered that earning performance and book value together could explain the stock price. Furthermore, Kumyim (2008) revealed that accounting conservatism affects the earning ability to explain the stock price both positive and negative ways. Lastly, Vachirasrisuntra (2011) found that dividend payment announcement leads to the decrease in stock price both negative and positive directions.

According to all backgrounds previously explained, the authors are interested in studying financial information of the companies listed in SET High Dividend 30 Index (SETHD) and focus on the relevance in investment decision of this group of companies that have a high market price, high liquidity, and high sensitivity with economic conditions. This interest led to the research question of how investors place importance on financial performance information for investment decision making in companies listed in SET High Dividend 30 Index.

2. Objectives

2.1 This research aims to examine the relationship between earning per share and the stock price from the listed companies in SETHD index.

2.2 This research aims to examine the relationship between dividend payout rate, operating cash flows per share, and the stock price from the listed companies in SETHD index.

2.3 This research aims to analyze the size of the relationship between earning per share, book value per share, dividend payout rate, and net operating cash flow per share and the stock price from the listed companies in SETHD index.

3. Methods

3.1 Population and Samples

The population of this research consists of 30 listed companies in the stock exchange of Thailand with the highest dividend payout (SET High Dividend 30 Index). The data are collected between 2012 - 2015. 81 samples are specifically random, email and telephone interviews have been conducted with 20 investors who are investors from Thai investment funds and private investors.

3.2 Data Collection

The data employed in this study are primary and secondary data. The secondary data are collected from the database of listed companies in the Stock Exchange of Thailand (SET). Besides, the data are collected on a financial date between 2012-2015 from company's 56-1 and annual financial reports. The stock prices are also collected between 2012-2015 from the database from Maruay library and www.setsmart.com. The primary data are derived from investor interview from email, telephone, and personal interviews by appointment.

3.3 Variables and Measurement

The variables in this research consist of;

Earning per share is the basic net profit and loss per share presented in the statement of comprehensive income of the top 30 listed companies in SETHD index.

Book Value per Share is the average equity per share at net profit announcement date of the top 30 listed companies in SETHD index.

Dividend payout rate is the dividend payout per share at the net profit announcement date of the top 30 listed companies in SETHD index.

Net operating cash flow per share is an average operating cash flow per common share at the net profit announcement date of the 30 listed companies in SETHD index.

Stock price is the market value of each stock of the 30 listed companies in SETHD index at the net profit announcement date.

3.4 Research Hypothesis

Hypothesis 1: Earning per share has a relationship with the stock price of listed companies in SETHD index

Hypothesis 2: Book value per share has a relationship with the stock price of listed companies in SETHD index

Hypothesis 3: Dividend payout ratio has a relationship with the stock price of listed companies in SETHD index

Hypothesis 4: Net operating cash flows per share has a relationship with the stock price of listed companies in SETHD index

3.5 Data Analysis

This research employs both quantitative analysis and qualitative analysis. The data used in this study come from primary sources which are email, telephone, and personal interviews while secondary sources are investor library and www.setsmart.com. For quantitative analysis, this research employs a descriptive statistic to describe the characteristics of the sample groups. Correlation analysis and multiple regression are used for establishing the relevance test model that is able to predict the value of the dependent variable which is stock price (P) from 4 independent variables which are earning per share (EPS), book value per share (BPS), dividend payout ratio (DPR), and net cash flow from operating activities (CFO) at the 95% confidence level.

For qualitative analysis, the primary data are collected from investors through unconstructed interviews via email, telephone, and personal interviews. The investors' interviews aim to explore the use of financial information in decision making; the financial information in the interviews includes earning per share, book value per share, dividend payout ratio, and net operating cash flow of top 30 listed companies in SETHD index at the profit announcement date.

3.6 Research Models

$P_{it} = \beta_0 + \beta_1 EPS_{it} + \varepsilon_{it}$ ____(1)

$P_{it} = \beta_0 + \beta_1 BPS_{it} + \varepsilon_{it}$ ____(2)

$P_{it} = \beta_0 + \beta_1 DPR_{it} + \varepsilon_{it}$ ____(3)

$P_{it} = \beta_0 + \beta_1 CFO_{it} + \varepsilon_{it}$ ____(4)

$P_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 BPS_{it} + \varepsilon_{it}$ ____(5)

$P_{it} = \beta_0 + \beta_1 DPR_{it} + \beta_2 CFO_{it} + \varepsilon_{it}$ ____(6)

$P_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 BPS_{it} + \beta_3 DPR_{it} + \beta_4 CFO_{it} + \varepsilon_{it}$ ____(7)

Where

P_{it} Stock price at the profit announcement date of company i of year t from 30 listed companies in SETHD index

EPS_{it} Earning per share of company i of year t from 30 listed companies in SETHD index

BPS_{it} Book value per share of company i of year t from top 30 listed companies in SETHD index

DPR_{it} Dividend payout ratio of company i of year t from top 30 listed companies in SETHD index

CFO_{it} Net cash flows from operating activities per share of company i of year t from top 30 listed companies in SETHD index

ε_{it} Error

4. Results and Discussions

4.1 Sample Group

The number of sample group are shown in table 1

Table 1 Sample group categorized by industries

Industry	Number	Percentage
Natural resources	29	35.80
Construction and real estate	29	35.80
Technology	10	12.35
Food and agriculture	8	9.88
Services	3	3.70
Industrial Products	2	2.47
Total	81	100.00

According to Table 1, the total samples in this research are 81 companies including 29 companies from natural resources industry (35.80%), 29 companies from construction and real estate industry (35.80%), 10 companies from technology industry (12.35%), 8 companies from food and agriculture industry (9.88%), 3 companies from service industry (3.70%), and 2 companies from industrial products industry (2.47%).

4.2 Descriptive Statistics

Descriptive statistics from five variables are shown in table 2

Table 2 Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
P	2.12	554.00	86.23	127.73
EPS	-8.24	37.83	6.06	9.60
BPS	1.68	285.29	45.39	65.99
DPR	2.02	8.33	4.19	1.25
CFO	-8.01	79.94	8.26	17.57

As stated in Table 2, mean of stock price (P) is 86.23 and the standard deviation is 127.73, these numbers imply that the sample companies have different company's value. Earning per share (EPS) has a mean at 6.06 and standard deviation at 9.60 which could imply that the sample companies have a slightly difference in earning per share. For book value per share (BPS), mean is 45.39 and the standard deviation is 65.99 which imply that the sample companies have different capital structure. For dividend payout ratio, mean is 4.19 and the standard deviation is 1.25 which mean that the dividend payout ratio of sample companies is slightly different in accordance with earning per share (EPS). Finally, for net cash flows from operating activities (CFO), mean is 8.26 and standard deviation id 17.57 which imply that net cash flows from operating activities of the sample companies are slightly different comparing with stock price (P) and book value per share (BPS).

4.3 Correlation Analysis

The results from correlation analysis are presented in table 3

Table 3 Correlation Analysis

Pearson Correlation		Price	EPS	BPS	DPR	CFO
P	Pearson Correlation	1				
	(Sig.)					
EPS	Pearson Correlation	.776**	1			
	(Sig.)	(.000)				
BPS	Pearson Correlation	.779**	.800**	1		
	(Sig.)	(.000)	(.000)			
DPR	Pearson Correlation	.646**	.963**	.802**	1	
	(Sig.)	(.000)	(.000)	(.000)		
CFO	Pearson Correlation	.568**	.422**	.629**	.404**	1
	(Sig.)	(.000)	(.000)	(.000)	(.000)	

**. Correlation is significant at the 0.01 level

According to the results of correlation analysis as shown in Table 3, earning per share (EPS), book value per share (BPS), dividend payout ratio (DPR), and net cash flow from operating activities (CFO) form a relationship with stock price (P) of the 30 listed companies in SETHD index at the 0.01 significant level. The results from the Pearson Correlation Coefficient reveal that dependent and independent variables form a relationship with each other; therefore, these variables will be further analyzed using multiple regressions.

4.4 Multiple Regression Analysis

For multiple regression analysis, stock price (P) is determined as a dependent variable and earning per share (EPS), book value per share (BPS), dividend payout ratio (DPR), and net cash flow from operating activities (CFO) are determined as independent variables. These variables are analyzed using multiple regression equations as follows;

Table 4 Multiple Regression Analysis of Equation 1 and 2

Variable	**Equation 1** $P_{it} = \beta_0 + \beta_1 EPS_{it} + \varepsilon_{it}$			**Equation 2** $P_{it} = \beta_0 + \beta_1 BPS_{it} + \varepsilon_{it}$		
	Coefficients	**t**	**Sig.**	**Coefficients**	**t**	**Sig.**
Constant	23.661	2.218	.029	17.824	1.635	.106
EPS	10.329	10.94**	.000	-	-	-
BPS	-	-	-	1.507	11.029**	.000
	F = 119.746**	Sig. = .000		F = 121.627**	Sig. = .000	
	R^2 = 0.603	Adjusted R^2 = 0.597		R^2 = 0.606	Adjusted R^2 = 0.601	

** Significant at .01 level

The results from Table 4 reveal that by having a Sig. value at 0.000, it could be interpreted that the dependent variable in equation 1 which is earning per share (EPS) and independent variable in equation 2 which is book value per share (BPS) have a relationship with stock price (P) at 0.01 significant level. These independent variables are able to describe the changes in stock price. Moreover, the adjusted R^2 is 0.597 and 0.601 respectively which means these equations accept research hypothesis 1 and 2.

Table 5 Multiple Regression Analysis of Equation 3 and 4

Variable	**Equation 3** $P_{it} = \beta_0 + \beta_1 DPR_{it} + \varepsilon_{it}$			**Equation 4** $P_{it} = \beta_0 + \beta_1 CFO_{it} + \varepsilon_{it}$		
	Coefficients	**t**	**Sig.**	**Coefficients**	**t**	**Sig.**
Constant	36.543	2.867	.005	52.133	4.008	.000
DPR	2.176	7.521**	.000	-	-	-
CFO	-	-	-	4.127	6.129**	.000
	F = 56.569**	Sig. = .000		F = 37.568**	Sig. = .000	
	R^2 = 0.417	Adjusted R^2 = 0.410		R^2 = 0.322	Adjusted R^2 = 0.314	

** Significant at .01 level

According to the multiple regression analysis of equation 3 and 4, the Sig. value is 0.000 which reveals that the independent variable in equation 3 (dividend payout ratio, DPR) and the independent variable in equation 4 (net cash flows from operating activities, CFO) form a relationship with stock price (P) at 0.01 significant level, meaning that independent variables from equation 3 and 4 are able to explain the changes in stock price (P). In addition, the values of adjusted R^2 in this analysis are 0.410 and 0.314 respectively; therefore, these equations accept research hypothesis 3 and 4.

Table 6 Multiple Regression Analysis of Equation 5 and 6

Variable	**Equation 5** $P_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 BPS_{it} + \varepsilon_{it}$				**Equation 6** $P_{it} = \beta_0 + \beta_1 DPR_{it} + \beta_2 CFO_{it} + \varepsilon_{it}$			
	Coefficients	**t**	**Sig.**	**VIF**	**Coefficients**	**t**	**Sig.**	**VIF**
Constant	13.446	1.334	.186	-	25.901	2.198	.310	-
EPS	5.666	3.931**	.000	2.784	-	-	-	-
BPS	0.847	4.042**	.000	2.784	-	-	-	-
DPR	-	-	-	-	1.677	5.868**	.000	1.195
CFO	-	-	-	-	2.666	4.322**	.000	1.195
	F = 79.671**	Sig. = .000			F = 43.853**	Sig. = .000		
	R^2 = 0.671	Adjusted R^2 = 0.663			R^2 = 0.530	Adjusted R^2 = 0.518		

** Significant at .01 level

The results from Table 6 show that a Sig. value of equation 5 and 6 is 0.000 which means that independent variables in equation 5, which are earning per share (EPS) and book value per share (BPS), and independent variables in equation 6, which are dividend payout ratio (DPR) and net cash flow from operating activities (CFO), form a relationship with stock price (P) at 0.01 significant level. It can imply that the four independent variables are able to explain the changes in stock price (P) with adjusted R^2 values of 0.663 and 0.518, respectively. For the analysis of β, the values of β_1 and β_2 in the equation are significant at .01 level, this could imply that earning per share (EPS) and book value per share (BPS) can explain the changes in stock price (P). In equation 6, the values of β_1 and β_2 are also significant at .01 level as in equation 5; this could also imply that dividend payout ratio (DPR) and net cash flow from operating activities (CFO) are able to explain the changes in stock price (P) as well. Therefore, research hypothesis 1-4 are accepted by the results from equation 5 and 6. Moreover, VIF value from this analysis is close to 1 and not greater than 10; therefore, multicollinearity does not exist in this case.

Table 7 Multiple Regression Analysis of equation 7

Variable	**Equation 7** $P_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 BPS_{it} + \beta_3 DPR_{it} + \beta_4 CFO_{it} + \varepsilon_{it}$			
	Coefficients	**t**	**Sig.**	**VIF**
Constant	8.180	1.273	.207	-
EPS	25.245	12.151**	.000	3.266
BPS	0.940	5.793**	.000	4.219
DPR	5.447	10.227**	.000	1.138
CFO	0.829	2.098*	.039	1.718
	F = 128.068**		Sig. = .000	
	R^2 = 0.871		Adjusted R^2 = 0.864	

** Significant at .01 Level
* Significant at .05 level

According to Table 7, the multiple regression analysis shows that the Sig. value is 0.000 which means that earning per share (EPS), book value per share (BPS), Dividend payout ratio (DPR), and net cash flow from operating activities (CFO) form a relationship with stock price (P) at 0.01 significant level. Hence, these independent variables are able to explain the changes in stock price. Furthermore, the adjusted R^2 value from this table is 0.864. For analysis of β, the results show that β_1, β_2, and β_3 are significant at .01 level while β_4 is significant at .05 level. These results confirm that earning per share, book value per share, dividend payout ratio, and net cash flow from operating activities can explain the changes in stock price. In additional, VIF value from this analysis is close to 1 and not more than 10; therefore, multicollinearity does not exist in this case as well.

4.5 Comparison of Relationship

The results from multiple regression analysis of equation 1-7 show that adjusted R^2 equal to 0.597, 0.601, 0.410, 0.314, 0.663, 0.518, and 0.864, respectively. The interpretation from these values is equation 1-7 that are able to determine the stock price at 597%, 60.1%, 41.0%, 31.4%, 66.3%, 51.8%, and 86.4%, respectively. The left-over portions of each percentage represent other several factors that affect stock price. Furthermore, equation 7 is the best equation for determining stock price because its adjusted R^2 is 0.864 or 86.4%, which is the highest value as compared to those of other equations.

After considering each dependent variable from equation 1-4, the results reveal that book value per share has the highest ability to determine stock price (at 60.1%), followed by earning per share (59.7%), dividend payout ratio (41.0%), and net cash flow from operating activities (31.4%), respectively.

4.6 Results from Qualitative Analysis

As mentioned in the methodology section, this research collected both secondary data and primary data. The secondary data are collected and analyzed by statistic procedures while the primary data are collected by investors' interviews through email, telephone, and in person. This section described the results from qualitative analysis with primary data.

Information from investors' interviews reveal that, to determine stock, most of the investors choose earning per share while the rest employ dividend payout ratio, book value per share, and net operating cash flow, respectively. The reason why most of the investors employ earning per share is that they believe that earning per share is an indicator of the company performance as a whole. Besides, investors believe that dividend payout ratio can be used for predicting a long-term investment return while book value per share can be used for evaluating the company's financial status because this information is derived from the net asset of the company. Finally, investors use net cash flow from operating activities because this information reflects the company's cash status; however, this information is least used because it considers on cash basis only.

4.7 Discussions

According to the results, this study reveals that earning per share, book value per share, dividend payout ratio, and net cash flow from operating activities per share have a significant relationship with the stock price. Therefore, these figures are able to explain the stock price of the stock listed in SETHD index. These results comply with the works of Ball and Brown (1968), Keawrath (1996), Sumritpradit (2002), Rattapradid (2009), Vachirasrisuntra (2011), Visedsun (2012), Visedsun (2014), and Sathapanaratkul (2015). According to the results from this research and previous research, the financial performances affect the determination of stock price, and investors can seek benefits from the research for determining stock price or other investment purposes. Moreover, the results also show that book value per share is the best figure to explain the stock price in the SETHD index. However, the interviews from investors in SETHD index show some contradictions that the majority of the investors usually use earning per share to make investment decisions because earning per share is the most essential tool to evaluate the company's performance in the sense of the investors.

5. Conclusion

According to the results from this study, most of the companies listed in SETHD index between 2012-2015 are the companies from the natural resources industry and real estate and construction industry. The results from the Pearson correlation coefficient reveal that earning per share, book value per share, dividend payout ratio, and net operating cash flow form a positive relationship with the stock price at 95% confidence level.

Moreover, the results from multiple regression analysis show that earning per share, book value per share, dividend payout ratio, and net cash flow from operating activities have a relationship with the stock price at 95% confidence level. Besides, the results also demonstrate the ability of earning per share, book value per share, dividend payout ratio, and net cash flow from operating activities to explain the stock price of the companies listed in the SETHD index.

In addition, the analysis of the relationship between earning per share, book value per share, dividend payout ratio, and net cash flow from operating activities with the stock price shows that book value per share affects the stock price determination the most, followed by earning per share, dividend payout ratio, and net cash flow from operating activities, respectively.

In qualitative aspects, most investors who invest in 30 companies listed in SETHD index select earning per shares, followed by dividend payout ratio, book value per share, and net cash flow from operating activities respectively to assist their investment decisions.

Finally, as a suggestion for the future study, the researcher may include more dependent variables such as financial size, gross domestic product, and inflation rate. Further research may consider listed companies in each industry.

6. Acknowledgements

This research could not complete without supports from Rangsit University who is the major supporter for this research, moreover, Assistance Professor Doctor Nimnuan Visedsun who spent a lot of her precious time to be a coach for this research.

7. References

Ball, R., & Brown, P. (1968). An empirical evaluation of accounting income numbers. *Journal of accounting research*, 3(1), 159-178.

Keorath, N. (1996). *The effects of dividend declaration to the stock price of listed company in Stock Exchange of Thailand: The case of difference in information readiness***.** Chulalongkorn University, Thailand.

Kumyim, T. (2008). The Impact of Accounting Conservatism on the Valuation Properties of Earnings and Book Value: Evidence from the Stock Exchange of Thailand. Chulalongkorn University, Thailand

Rattapradid, W. (2009). *The relationship between dividend yield and financial ratios of media sector in the Stock Exchange of Thailand***.** Kasetsart University, Thailand.

Sathapanaratkul, P. (2015). *The relationship between cash flow and profitability on the stock market price of the listed companies on The Thailand Market for Alternative Investment Group***.** Rangsit University, Thailand.

Stock Exchange of Thailand. (2015*). SET High Dividend 30 Index Rule (SETHD) Price Index Dividend 30 Index.* Retrieved November, 11, 2015 , form https://www.set.or.th/th/products/index/files/2013-01-SETHD-IndexRule-TH.pdf.

Sumritpradit, P. (2002). *A Study of Factors Influencing Value-Relevance of Earnings and Book Value in the Stock Exchange of Thailand***.** Chulalongkorn University, Thailand

Vachirasrisuntra, C. (2011). *The information content of dividend announcements of the listed companies in the Stock Exchange of Thailand*. Silpakorn University, Thailand.

Visedsun, N. (2012). *The Value Relevance of Accounting Earning in Stock Pricing of Listed Companies in The Stock Exchange of Thailand: A Cash of Accounting Change According to Thai Accounting Standard No.44 (Revised 2007)*. Research Institute of Rangsit University, Thailand.

Visedsun, N. (2014). The relationship between stock price and earning per share of Thai registered companies: after changing from equity method to cost method. *Business Administration and Economics Review*, 10(2), 69-86.

The Impact of Firm factors on Management Accounting Practices in The Context of Large Manufacturing Firms in Thailand

Angsana Sriprasert[1*], Nimnual Viesdsun[1], and Udon Tonthiprapakan[2]

[1]Faculty of Accountancy, Rangsit University, Pathum Thani, Thailand
[2]Office of Accounting, Rangsit University, Pathum Thani, Thailand
[*]Corresponding author, E-mail: Angsana.s@rsu.ac.th

Abstract

This research aimed to explain the differences in the use of management accounting practices in large manufacturing firms with total assets, as of December 31, 2016, larger than 500 million baht. In particular, we focused on the contextual factors of the firm, such as the business structure, main business strategy, and the causes for different practices. It is the extension of the previous study (Terdpaopong, Visedsun, Nitirojntanad, & Sandhu, 2018) that explored the progress in management accounting practices and found the different progress levels in them. The 1,500 postal questionnaire surveys were sent to companies. The 205 of useable complete responses were returned or 13.67 % of response rate. The descriptive statistical analysis and analysis of variance were used to describe the different management accounting usage progress. The results showed that the business structure and main business strategy are the contextual factors of firms that resulting in the differences in the use of management accounting practices.

Keywords: *Management accounting practices, manufacturing firm, Thailand*

1. Introduction

After IFAC (1998) issued the IFAC's concept, which described the management evolution in four different stages (see Figure 1 below); Stage 1 – cost determination and financial control (pre-1950); Stage 2 – n information for management planning and control (by 1965); Stage 3 – reduction of resource waste in business processes (by 1985); Stage 4 – creation of value through effective resource use (by 1995), We have found great studies on the management accounting practices (MA practices hereafter) advancement, not only in other countries but also in Thailand, such as, activity-based accounting and management balance scores card, just in time, target costing, (Phadoongsitthi, 2003; Komaratat and Boonyanet, 2008; Chongruksut 2009; Yongvanich and Guthrie 2009; Shutibhinyo, 2011; Sumkaew and McLaren, 2012; Shoommuangpak, 2014; Wajeetongratana, 2016; Terdpaopong and Visedsun 2014). The results showed that new MA practices have been mostly used in listed manufactured companies. In the present day, the research on the differences in the use of MA are very limited. Under the current business environment and economic, there are many uncertain factors that can significantly influence the firm's chances of goals achievement. (Gul and Chai, 1994; Chenhall and Langfield-Smith, 1998; Kaplan and Norton, 2001). The managers must be very demanding in their management in order to anticipate the business environment and manage its uncertainties. Therefore, they are forced to decide on the management of an accounting system that is compatible with the situation to deal with competitiveness. To be able to generalize about the differences of using MA practices, we need more information regarding the stages of MA evolution and the firm's factors, such as business structure and business strategies to explain their impact on MA practices in company. In this research, we categories MA practices into 5 groups: a costing system; budgeting ; performance evaluation; information for decision making; strategic analysis, the same as Alleyne & Weekes-Marshall (2011), and classified each MA practice by the stages of MA evolution, to be used to compare differences of MA practices in the company .

The ability of executives to quickly change strategies in order to keep up with the needs of the market or customers that change rapidly is an indicator of business success and survival. These are depended on the internal organization's environment, such as business structure, business goals, and the role of managerial accountants other than external organization's environment (Ayadi and Affes, 2014).

They are called contingency factors that make MA practices different in each organization. This study has examined the impact of the nature and characteristics of organizations on management accounting practices.

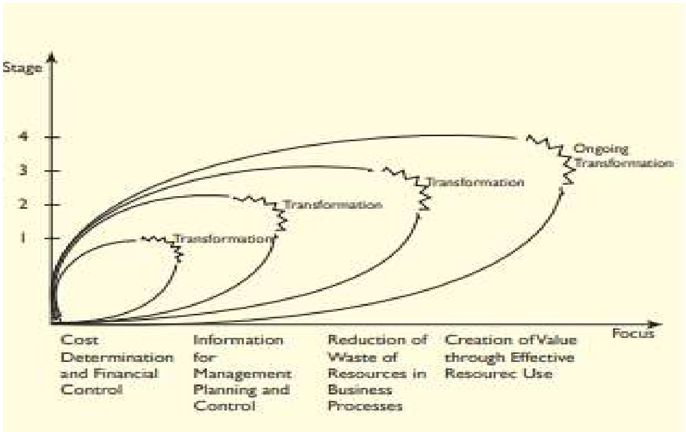

Figure 1 Evolution of management accounting
Note: From “Evolution of the focus of management accounting” by IFAC (1998)

2. Objectives

1. To investigate the management accounting practices in Thai large manufacturing firms.
2. To examine the impact of firm factors on management accounting practices in Thai large manufacturing firms.

3. Materials and Methods

3.1 The research conceptual framework

The advancement of MA practices usage in the company was up to the external environment and the contextual factors of the company. Ayadi and Affes (2014) found the contextual factors such as the firm size, organizational structure, and strategy of cost domination, impact on the new MA practices. They argued the variables "organizational structure" and "generic strategy of cost domination" have only little influence on "the use of new management accounting practices," meanwhile other studies showed the strategic priorities need to be supported by an appropriate control and accounting management systems (Chenhall and Langfield-Smith, 1998; Jermias and Gani, 2004). In addition, there is a summary of other findings that were consistent with the impact of factors on differences in use of MA practices, such as Cadez and Guilding (2008) found the strategic management accounting usage was positively associated with firm size. And Kamilah (2012) concluded that the Malaysian SMEs make more use of MA practices when their firms face environmental complexity either internally or externally or when the owner/manager is committed to their use. So the research conceptual framework is as follow.

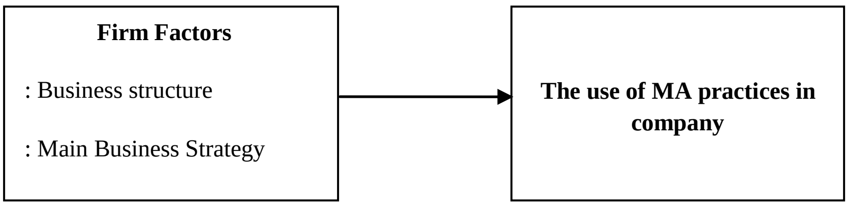

Figure 2 The research conceptual framework

3.2 Target population and Samples

We used the large manufacturing companies with total assets as of December 31, 2016, larger than 500 million baht from the Business Data Warehouse, Department of Business Development, Ministry of Commerce to be our population group, from 15 provinces in the manufacturing sector located in Ayutthaya, Ang Thong, Bangkok, Chachoengsao, Kanchanaburi, Nakhon Nayok, Nakhon Pathom, Pathumthani, Ratchaburi, Rayong, Saraburi, Samut Prakan, Samut Songkhram, and Suphan Buri provinces. There were 2,848 companies in total and by using a quota sampling, we have 1,500 companies selected as our sample group.

3.3 Data collection

The questionnaire used in collecting data, was modified from the questionnaires that are widely used in prior management accounting studies (for example, Alleyne & Weekes-Marshall, 2011; Ahmad & Leftesi, 2014; Ayadi and Affes, 2014) in order to meet the purpose of this research. A total of 1,500 of postal questionnaires were sent to the executive of the company in the sample group, 205 of them were mailed back and usable. (13.67 % response rate).

3.4 The research hypothesis

With the contingency theory, many studies stated that the differences in the use of MA practices were the results from the business's environment (Gul and Chia, 1994; Moores and Chenhall, 1991; Kamilah, 2012; Ayadi and Affes, 2014; Zainun, Mat, & Smith, 2014). However, our research focused on the internal business's environment. Particularly, these factors are business structure and business strategy. To what the literature review has shown, brings us to form the hypothesis: *The use of MA practices is different between companies with different business structures, Business strategy, and business goals*.

3.5 Research methodology

All companies in the sample group were separated into the subsample group based on the category of business structure and main business strategy in order to compare the difference in the MA usage. For the business structure, they were either the parent company which have subsidiaries in the country (1), or in the foreign country (2), the subsidiary company which is under controlled by parent company in the country (3), or the foreign country (4), venture capital or joint venture (5), and others (6). For the business strategy, they were either cost leadership strategy (1), differentiation strategy (2), and focus strategy (3). Lastly, we used the IFAC's concept of MA evolution to classify MA practices into each stage.

Table 1 The number of companies in each subsample groups

Business structure						**Business strategy**		
P with ST (1)	**P with SF (2)**	**S with PT (3)**	**S with PF (4)**	**VC/JV (5)**	**Other (6)**	**Cost leadership (1)**	**Differentiation (2)**	**Focus (3)**
51	13	48	62	17	14	132	76	97
24.9%	6.3%	23.4%	30.2%	8.3%	6.8%	64.4%	37.1%	47.3%

3.6 Data analysis

The inference statistics: Analysis of variance were used to test the difference in the use of MA practices in companies among subsample groups, at 95% of the confidence interval.

4. Results and Discussion

The classification of MA practices in each evolution stage was the year that each concept of MA practices has been established and became adopted. In addition, they can be classified as a set of MA practices according to the purpose of use (Alleyne and Weekes-Marshall, 2011). As shown in Table 2, the use of MA practices in each group of company, which was separated by the business structure and business strategy, was different. In particular, we found the low adoption of MA practices in stages 3.

Table 2 Summary of the number of the company that used MA practices

Evolution Stage	Management Accounting practices	Business structure Group						Business strategy Group		
		1	2	3	4	5	6	1	2	3
Stage1 1760-1950	Job-process or Job-order Techniques	29	9	34	23	4	4	60	44	54
	Product cost: variable cost, incremental costs & fixed costs	33	11	23	44	13	10	99	62	55
	Use of plant- wide overhead rate or Department or multiple plant-wide overhead rates)	28	9	15	39	10	10	79	54	51
	Standard costing and cost variance analysis	33	9	20	37	10	8	89	54	49
	Budgeting for product cost controlling	39	11	44	50	14	8	112	63	78
	Budgeting for cash flow planning	34	11	43	54	12	10	109	61	78
	Performa Financial Statement	27	8	35	41	14	8	87	55	67
	Flexible budget	23	6	11	26	4	4	49	39	34
	Financial measurements	30	11	41	39	12	9	92	57	72
	Profitability analysis	39	12	43	53	9	9	109	65	81
Stage2 1950-1965	Sensitivity analysis of cost	23	6	9	25	6	2	55	36	35
	Break Even Point Analysis	37	12	21	44	11	9	99	43	57
	Stock control models	33	8	12	33	6	9	78	45	37
	Evaluation of capital investments based on payback period and/or accounting rate of return	33	11	39	34	11	8	91	54	66
	Sensitivity analysis of cost model	25	6	11	27	7	4	63	36	35
	Incremental analysis	27	9	17	30	8	5	76	44	40
	Profit analysis of product	38	9	22	53	12	9	106	67	59
	Transfer Prices Technique	18	4	7	20	6	0	45	29	28
	Long-range forecasting	24	8	34	35	9	7	74	40	64
Stage3 1965-1985	Activity based costing	18	6	10	22	8	6	56	34	36
	Quality cost analysis	24	7	8	26	8	6	61	31	36
	Learning curve technique	12	4	6	11	3	4	31	18	20
	Activity- based budgeting	23	5	9	28	7	6	59	34	36
	Zero-based budgeting	14	3	7	14	3	2	31	20	19
	Residual income	24	7	17	31	6	8	68	42	40
	Economic value added	19	6	10	26	5	4	56	28	33
	Evaluation of major capital investment based on discounted cash flow method	33	8	21	47	13	8	99	58	53
	Product life cycle analysis	24	6	9	22	7	2	55	36	32
	Just in time	33	7	13	40	10	6	87	47	41

Table 2 Summary of the number of company that used MA practices (Cont.)

Evolution Stage	Management Accounting practices	Business structure Group						Business strategy Group		
		1	2	3	4	5	6	1	2	3
Stage4 1985-2000	Balanced scorecard	22	4	12	23	4	7	57	32	30
	Non-financial measurements related to customers – customer satisfaction	28	11	20	35	9	10	86	54	46
	Non-financial measurements related to operation and innovation such as patent, certificates, awards	22	6	34	27	8	8	64	39	56
	Non- financial measurements related to employees such as employee satisfaction, staff – turnover	19	9	15	28	9	5	65	39	37
	Benchmarking	27	9	14	33	10	6	78	48	40
	Customer profitability analysis	24	6	9	29	7	4	61	38	36
	Value chain analysis	18	4	6	17	6	1	43	27	26
	Shareholder value analysis	20	5	30	20	6	3	48	29	52
	Industry analysis	28	8	15	30	9	2	68	44	41
	Analysis of competitive position	32	9	20	29	9	3	78	53	48
	The possibilities of integration with suppliers and/or customers value chains	19	6	8	16	3	1	42	28	23
	Analysis of competitors strengths and weaknesses	32	10	19	31	6	6	77	53	46
	Activity based management	23	5	10	20	6	4	56	33	29
	Total quality management	33	10	20	40	13	7	89	58	56
	Target Costing Management	37	9	22	38	13	7	98	53	52
	Lean Management	40	13	20	46	13	6	104	60	58

From the previous research about the advancement of MA practices in Thailand of Terdpaopong et al. (2018), they found the empirical results that showed that the large Thai manufacturing still uses traditional MA which falls into stage 1-stage 2 for their cost determination and financial control, while some used it for management planning and control. There were 60% of companies that used MA practices which falls in stage 3 (for example: discounted cash flows, JIT, and quality cost analysis) and stage 4 using Lean, Target costing and Total quality management.

The difference in using such MA practices may be a result of different business environment factors, which our research focused on the internal environment factors. Table 3 and 4 showed the results of different testing that came from different business structure

Table 3 The difference of the use of MA practices in companies which have difference business structure

		Sum of Squares	df	Mean Square	F	Sig.
MA stage 1	Between Groups	28.277	5	5.655	1.013	.411
	Within Groups	1110.680	199	5.581		
	Total	1138.956	204			
MA stage 2	Between Groups	126.094	5	25.219	2.374	.040
	Within Groups	2113.984	199	10.623		
	Total	2240.078	204			
MA stage 3	Between Groups	134.339	5	26.868	3.742	.003
	Within Groups	1428.949	199	7.181		
	Total	1563.288	204			
MA stage 4	Between Groups	295.626	5	59.125	2.625	.025
	Within Groups	4459.369	198	22.522		
	Total	4754.995	203			

Table 4 The result of comparison of differences between groups in pairs

Dependent Variable	(I) business structure	(J) business structure	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
MA stage 2	S with PT (3)	P with SF(2)	-2.492*	1.019	.015	-4.50	-.48
		P with ST(1)	-1.822*	.655	.006	-3.11	-.53
		S with PF(4)	-1.597*	.627	.012	-2.83	-.36
MA stage 3	S with PT (3)	P with SF(2)	-2.063*	.838	.015	-3.71	-.41
		P with ST(1)	-1.984*	.539	.000	-3.05	-.92
		S with PF(4)	-1.869*	.515	.000	-2.88	-.85
		JV JC(5)	-1.827*	.756	.017	-3.32	-.34
MA stage 4	S with PT (3)	P with SF(2)	-3.830*	1.484	.011	-6.76	-.90
		P with ST(1)	-2.772*	.959	.004	-4.66	-.88

MA practices which fall in stage 2-4 were different uses significantly. The result of the comparison of the difference between groups in pairs using the Post Hoc method (Table 2) showed that the use of MA practices in stages 2 through stage 4 are different between the subsidiary companies that have parent companies in the country and in abroad and the parent companies that have subsidiaries located in the country and in abroad.

We compared the differences of using the MA practices between companies with different main business strategies by classifying companies into used strategy and non-used strategy group. The results show in Table 5. The use of MA practices in stages 2 through 4 of companies between cost leadership strategies group and non-cost leadership strategies group were significantly different. For the differentiation strategy, the result showed that the use of MA practices in stages 1 through 4 of the company between differentiation strategy group and non-differentiation strategy group were significantly different. For the focus strategy, the result showed a significant difference in the use of MA practices between the focus strategy group and non-focus strategy group only in stage 4.

Table 5 The difference of the use of MA practices in company with different main strategy

Cost leadership strategy		Levene's Test of variance F	Levene's Test of variance Sig.	t-test for Equality of Means t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper
MA stage 1	Equal variances assumed	.56	.46	-1.77	203.00	.08	-.61	.34	-1.28	.07
	Equal variances not assumed			-1.75	144.35	.08	-.61	.34	-1.29	.08
MA stage 2	Equal variances assumed	.32	.57	-5.03	203.00	.00	-2.29	.46	-3.20	-1.40
	Equal variances not assumed			-5.10	154.37	.00	-2.29	.45	-3.20	-1.40
MA stage 3	Equal variances assumed	3.36	.07	-5.16	203.00	.00	-1.97	.38	-2.72	-1.21
	Equal variances not assumed			-5.33	163.04	.00	-1.965	.37	-2.69	-1.24
MA stage 4	Equal variances assumed	.00	.97	-4.90	202.00	.00	-3.29	.67	-4.61	-1.96
	Equal variances not assumed			-4.97	154.82	.00	-3.29	.66	-4.59	-1.98
Differentiation strategy										
MA stage 1	Equal variances assumed	1.10	.30	-3.66	203.00	.00	-1.22	.33	-1.87	-.56
	Equal variances not assumed			-3.76	170.65	.00	-1.22	.32	-1.85	-.58
MA stage 2	Equal variances assumed	2.05	.15	-3.41	203.00	.00	-1.59	.47	-2.52	-.67
	Equal variances not assumed			-3.52	172.37	.00	-1.59	.45	-2.49	-.70
MA stage 3	Equal variances assumed	.15	.70	-2.68	203	.00	-1.06	.39	-1.84	-.28
	Equal variances not assumed			-2.70	160.65	.00	-1.06	.39	-1.83	-.28
MA stage 4	Equal variances assumed	.89	.35	-4.07	202.00	.00	-2.75	.68	-4.08	-1.42
	Equal variances not assumed			-4.12	164.19	.00	-2.75	.67	-4.06	-1.43

Table 5 The difference of the use of MA practices in company with different main strategy (Cont.)

Cost leadership strategy		Levene's Test of variance F	Sig.	t-test for Equality of Means t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
Focus strategy										
MA stage 1	Equal variances assumed	.93	.30	-0.35	203	.72	12.00	.33	-0.77	0.54
	Equal variances not assumed			-0.35	202.38	.72	12.00	.33	-0.77	0.53
MA stage 2	Equal variances assumed	1.11	.29	1.30	203.00	.19	.60	.46	-0.31	1.52
	Equal variances not assumed			1.29	196.04	.20	.60	.47	-0.31	1.52
MA stage 3	Equal variances assumed	6.02	.02	1.01	203.00	.31	.39	.39	-0.37	1.16
	Equal variances not assumed			1.00	188.84	.32	.39	.39	-0.38	1.16
MA stage 4	Equal variances assumed	.89	.35	-4.07	202.00	.00	-2.75	.68	-4.08	-1.42
	Equal variances not assumed			-4.12	164.19	.00	-2.75	.67	-4.06	-1.43

From the results, it is possible to say that the uses of MA practices in Thai large manufacturing firm are different, based on the context of the business structure and the main business strategy of the company. The results have also confirmed us that they are in agreement with the previous results done by many researchers such as Wallace (1990), Yazdifar, Askarany, and Askary (2008), James (2012), Ayadi and Affes (2014), Šiška (2016). These researchers said that the contingency factors, which came from the business environment and the contextual inside of organization such as related company, have an impact on the use of MA practices in the company.

5. Conclusion

In the context of Thai large manufacturing companies, the business structure and the main business strategy are the impact factors to the different practicalities of accounting management which may be different from other countries. By nature of the production base for foreign industries, causing many companies in the manufacturing sector were mostly a group of business. The use of MA practices varies depending on the business structure that means to group or separate company, and main business strategy, as we mentioned above. This finding can enhance the MA practices understanding and extending the knowledge gained from previous studies.

6. Acknowledgements

This research can be done completely with financial support from Rangsit Research Institute, Rangsit University and the respondent from all companies which provided us with the information. We would like to thank all of them with my pleasure.

7. References

Ahmad, N. S. M., & Leftesi, A. (2014). An Exploratory Study of the Level of Sophistication of Management Accounting Practices in Libyan Manufacturing Companies International *Journal of Business and Management Vol. 2 (2),*1-10.

Alleyne, P., & Weekes-Marshall, D. (2011). An Exploratory Study of Management Accounting Practices in Manufacturing Companies in Barbados. *International Journal of Business and Social Science. Vol. 2*, 49-58.

Ayadi, F., & Affes, H. (2014). Contextual factors impact on the use of new management accounting practices: An empirical analysis in the Tunisian context. *Journal of Research in International Business and Management (ISSN: 2251-0028) Vol. 4*(3), 45-55.

Cadez, S. and Guilding, C. (2008). An exploratory investigation of an integrated contingency model of strategic management accounting. *Accounting, Organizations and Society, 33,* 836-863.

Chenhall, R., & Langfield-Smith, K., (1998). Adoption and benefits of management accounting practices: An Australian study. *Management Accounting Research, 9* (1):1-19.

Chongruksut, W., (2009), Organizational Culture and the Use of Management Accounting Innovations in Thailand, *RU. International Journal, 3*(1), 2009.

Gul, F.A. & Chia, Y.M. (1994). The effects of management accounting systems, perceived environmental uncertainty and decentralization on managerial performance : A test of three-way interaction**.** In: *Accounting, Organizations and Society Journal. Vol. 19*(4-5), 413-426

IFAC. (1998). *International Management Accounting Practice Statement: Management Accounting Concepts*, New York.

Jermias, J., & Gani, L. (2004). Integrating business strategy, organizational configurations and MAS with Business Unit effectiveness: a fitness landscape approach. *Management Accounting Research. 15*, 179-200.

Kamilah, A., (2012). Factors Explaining the Extent of Use of management Accounting Practices in Malaysian Medium Firms. Proceedings of Asean Enterpreneurship Conference 2012, Kuala Lumpur, Malaysia, 5-6 November, 2012.

Kaplan, R. S., & Norton, D. (2001). Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part II. *American Accounting Association Accounting Horizons Vol. 15*(2), 147–160.

Komaratat, D. & Boonyanet, W., (2008), Diversification of Management Accounting Practices in the Thai Listed Companeis, *Chulalongkorn Business Review, 30*, 115-116.

James, P. C. (2012). The Application of Innovative Management Accounting Principles for Enhancing Profitability and Competitiveness: An Exploratory Study of Jamaican Manufacturers. *International Journal of Business and Social Research (IJBSR), 2*(6), 47-60.

Moores, K. & H. Chenhall, Robert. (1991). Organizational contexts and management accounting systems: an evaluation of contingency frameworks. School of Business Discussion Papers. Retrieved January 10, 2019, from http//www.daniellemire.com/blog/rules-to-write-a-good-research-paper.

Phadoongsitthi, M. (2003). The Role of Managerial Accounting in Emerging Economies: An Empirical Study of Thailand (Dissertation Chair: Professor Lawrence A. Gordon, Ph.D.).

Šiška, L. (2016). The Contingency Factors Affecting Management Accounting in Czench Companies. *ACTA Univeritatis Agriculturae et Silviculturae Mendelianae Brunensis, 64*(1), 1383-1392. Retrieved June 12, 2001, from http://dx.doi.org/10.11118/actaun201664041383.

Shutibhinyo, W., (2011), An Exploratory Study of Balanced Scorecard Practices: Preliminary Evidence from Thailand, *Asia-Pacific Management Accounting Journal, 7*(1), 1-28.

Shoommuangpak, P., (2014), Management Accounting Implementation of Industry Group in Thai-Listed Firms, *Chulalongkorn Business Review, 36* (139), 46 – 61.

Sumkaew, L. & McLaren (2012), Management Accounting Practices in Thailand, Management Accounting Research Group Conference at Aston Business School, 21 and 22 November 2013.

Terdpaopong, K., & Visedsun, N., (2014), Target Costing in Manufacturing Firms in Thailand, *Rangsit Journal of Social Sciences and Humanities, 1*(2), 29 - 39.

Terdpaopong, K.,Visedsun, N., Nitirojntanad, K., & Sandhu, K., (2018). The Advancement of Management Accounting Practices of the Large Thai Manufacturing Companies. Proceedings of Asia-Pacific Management Accounting Association (APMAA) Conference 2018, Waseda University, Tokyo, Japan, 29 October- 1 November 2018.

Wajeetongratana, P., (2016), World Academy of Science, *Engineering and Technology International Journal of Economics and Management Engineering, 3*(3), 2016.

Wallace, R.S.O. (1990). Accounting in developing countries, *Research in Third World Accounting, 1*, 3-54.

Yazdifar, H., Askarany, D., & Askary, S. (2008). Management Accountants' Role in Dependent and Independent Companies: Does Ownership Matter? *Journal of Accounting – Business & Management, 15*(2), 1–21.

Yongvanich, K., & Guthrie, J., (2009), Balanced Scorecard practices amongst Thai companies: performance effects, *Pacific Accounting Review, 21*(2), 132 – 149.

Zainun, T., Mat, T., and Smith, M (2014). The Impact of Changes in Environment and AMT on Management Accounting Practices and Organizational Strategy, Structure and Performance. *The Journal of Applied Management Accounting Research, 12*(1), 55-82.

Applications of Big data in Vietnamese Banks

Hang D. Thu* and Nga N. T. Thanh

Department of Transportation Economics, University of Transportation Technology, Hanoi, Vietnam
* Corresponding author, E-mail: hang.utt@gmail.com

Abstract

Banking as a data intensive subject has been progressing continuously under the promoting influences of the era of big data. In order to provide sound direction for future research and development, a comprehensive and most up-to-date review of the current research status of big data in banking will be extremely beneficial.

Vietnamese banking industry has grown greatly in the last decade from providing services. As banks increasingly expand services, utilities, or apply technology in order to attract more customers, they must build an infrastructure system which collects data to find solutions for improving business efficiency. Some experts predict that the number of data will increase seven times by 2020 (compared to 2016). Big data is a big step for the development of the banking industry.

Depending on each organization's purpose, structure, resources, and capabilities, there will be many different Big Data applications. This paper aims to present the application of big data implementations in Vietnamese banks.

Keywords: *Big data, banking*

1. Introduction

The era of big data came along with both big opportunities and challenges, as almost all science subjects are experiencing overflowing information at unpredictable volume and speeds (Mayer-Schonberger & Cukier, 2013). As a data intensive subject, banking has been a popular implementation field for researchers over the past decades of the information science revolution. Banks have acknowledged that knowledge instead of financial resources is the new biggest asset (Kharote & Kshirsagar, 2014). Moreover, the development and popularization of e-banking and mobile banking adds to the exponential growth of real time banking information. These continuous developments and the rapidly increasing availability of big data make mastering relevant big data analytics tools one of the most crucial tasks for the banking sector.

Today, most Banking, financial services and insurance organizations (BFSI) are making efforts to adopt a new approach towards data mining to develop and innovate their services. Like most other industries, big data analytics will be an important big change in the battle between the same industries.

Although many BFSI organizations are changing the way of exploiting data through collecting a huge amount of data and analysing them, these are just general steps, individual steps at each stage in big data exploitation process. To successfully deploy big data in the banking sector, there must be a comprehensive strategy using professional teams who have deep understanding of both finance and technology, said Kim Anh Nguyen, Deputy Governor of State Bank of Vietnam (Viet Nam News, 2017).

The current data analysis simplifies the process of monitoring and evaluating customers of banks and financial institutions, based on a large volume of data such as personal information and other confidential information. The deputy governor also said that the specificity of banking is creating a huge amount of data from structured data such as transaction histories and customer records to unstructured data such as customer activities on Internet and mobile banking application. "Applying big data to exploit the data will bring significant competitive advantages and efficiency for the banking and finance sectors," he added (Viet Nam News, 2017).

In addition, Tuan Anh Pham, director of Vietcombank's tech modernisation department, said that data in the banking system and those collected from the outside include many types. These include structured data, semi-structured data, and unstructured data." The current banking data is unstructured, which meets all big data standards in volume, movement and diversity," Pham emphasized (Viet Nam News, 2017).

Having summarized the recent applications, big data in banking have been exploited for improving customer satisfaction, marketing and optimizing strategic management. Specifically, the recent applications collected in this paper targeted mainly six topics: analyze customer spending habits, customer segmentation and review loan portfolios, additional services (cross-selling service), personalized marketing, detecting and preventing frauds (fraud identification), participate in controlling and improving employee performance.

2. Objectives

The purpose of this article is to report findings from a study on big data in Vietnamese banks. Specifically, the authors describe Vietnamese banking systems and report findings from a study on the applications of big data in Vietnamese banks.

3. Methodology

This study uses qualitative research methods. Ten interviews were conducted with managers and analysts staffs at banks that use big data in Ha Noi. The interview locations were selected by the interviewees. When conducting the interview, some bank leaders and bank staff were not ready to be recorded for different reasons. Therefore, the content of these interviews was fully documented.

4. Results and Discussion

4.1 Overview of the Vietnamese banking system

As of end - 2018, the Vietnam's banking system included 01 totally state-owned bank, 03 banks with state holdings of above 50%, 03 compulsorily acquired commercial banks, 28 joint- stock commercial banks, 02 policy banks, 01 Cooperative Bank, 09 100% foreign bank branches, 47 representative offices (Annual report - SBV).

Assessing the operation of the Vietnam's banking system in 2018, the report of the National Financial Supervisory Commission said, total system assets increased by 11.5% compared to the end of 2017; in which, total credit is estimated to increase about 14-15%. In 2018, the mobilized capital from organizations and residents increased by 15% compared to 2017. The after-tax profit of banks is estimated to increase about 40% compared to 2017. The average capital adequacy ratio (CAR) is 11.1%.

Demand for banking products and services has increased rapidly in 2018 and is expected to continue growing faster next year. Forecasting in 2019, 77.6% of banks expect customers' demand for banking services to increase as compared to 2018. In which, the demand for loans is expected to increase sharply by most banks (80,7% of banks), followed by demand for deposits (66%) and payment services (64%). Nonperforming loan (NPL) ratio of 2018 decreased by 2.4% compared to the end of 2017 and tends to decrease in 2019. Deposit interest rates and lending rates are expected to maintain a stable trend in 2019.

4.2 Big data in context

Big data means really big data; it is a collection of large datasets that cannot be processed using traditional computing techniques. Big data is not merely data; rather it has become a complete subject, which involves various tools, techniques and frameworks.

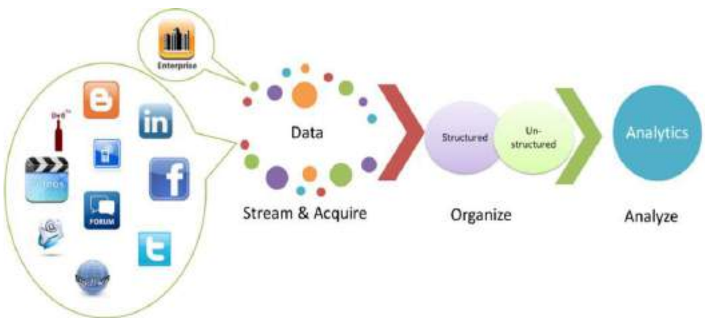

Figure 1 Data generation sources to analytics

Figure 1 clearly explains that the presence on so many channels will generate so much more data of so many types such as transaction details, preferences, tweets, uploaded images, comments, emails, page views, recommendations apart from the usual sales and purchase data. Now this huge amount of data from a number of sources has storage and analysis requirements of an altogether different nature. For large organizations this data may go into zillions of bytes (Pulakkazhy & Balan, 2013). It is estimated that Walmart collects more than 2.5 petabytes of data every hour from its customer transactions. A petabyte is one quadrillion bytes, or the equivalent of about 20 million filing cabinets‟ worth of text (McAfee, Brynjolfsson, Davenport, Patil & Barton, 2012).

The concept of "big" in financial industry context is different from what it is in scientific or detail contexts. In retail businesses, for example, the analysis of profiling of customers mainly involves analysis of unstructured data from social media sources. However, financial markets primarily deal with structured data collected from a limited set of sources, such as exchanges and data vendors. Although unstructured data sets have been used with firms for sentiment analysis and trading, these have not traditionally been the data sets of primary importance to the business. In financial markets, big data problems are not considered as being represented by any of the three V's alone. Regarding the volume, technologies that are good at handling the high volume of tick data, which has always been the biggest data set, have already been deployed in a structured manner for years. Although not perfect, these technologies have been able to scale up to meet increased electronic flows of data resulting from increased market activities.

Big data challenges in financial context are usually referred to projects that involve multiple factors, such as high volumes of complex data that must be cross-referenced in a specific timeframe. Although not necessarily required to be performed in real time, current tasks are tend to be consolidating different data sets from various sources, structured and unstructured, from heterogeneous asset class and risk information, deploying complex data aggregations for ad hoc regulatory reports, credit analysis, trading signal generation or risk management for instances, while reducing the latencies of data aggregation and increasing the effectiveness of data management.

Today, real-time streaming data is widely available. The proliferation of data is significantly changing business models in financial firms, whether in market making or long-term portfolio management. Even long-only portfolio managers nowadays add screens of data-driven signals to their portfolio selection models in order to abstract volatility and noise, and realize pure returns for their investors. On the other hand, portfolio managers ignoring or under-studying the multitude of available data are adding a considerable risk to their investment portfolios.

4.3 Applications of Big Data in Vietnamese Banks

Banking operations create a huge amount of data: structured data such as transaction history, customer records and unstructured data such as customer operations on websites, mobile banking applications or on social networks. Big Data application if exploited effectively will bring great advantages and efficiency in the banking sector.

4.3.1 Customer spending habits analyzing

Banks have the ability to directly access rich information and historical data related to their customers' habits and behaviors. Banks also have information about how much a customer is paid, for example, a specific salary in a month, how much money is deposited into a savings account, how much money has been paid to utilities provider (power companies, internet service providers, etc.), time of customers using banking services, etc. This provides the basis and opportunities for banks to access and deeply analyse data. Applying filter functions such as when filtering out the time of holidays or macroeconomic conditions (e.g. inflation, unemployment rate, etc.), Bank staff can understand the cause of the increase or decrease in customer salaries and how customers' spending changes. This is one of the fundamental factors for the process of risk evaluation, screening, appraising loans, assessing mortgage and providing other cross-selling financial products to customers.

Banks benefit greatly from knowing that customers want to withdraw cash - all the money earned on the payday - or they want to keep the money on their credit card / debit card. Taking advantage of that, banks can approach their customers, expand services with proposals, attract customers to invest in short-term loans with high payment rates and appropriate interest rates, etc.

Many banks have also adopted technology to assess customer behaviors, forecast revenue and market demand, and alert risk. Several banks have initially shifted their operations, sales and services towards digitalization, such as TPBank with Livebank, VPBank with Timo, VietcomBank with DigitalBank, VietinBank with new generation CoreBank and Enterprise Data Warehouse (EDW), MB with ChatBot, a virtual assistant application on social networks (Pham, 2018).

4.3.2 Customer segmentation and review loan portfolios

Once finishing the initial analysis of the client's spending habits and identifying the types of services and preferred channels of the customer (for example, whether customers want to save or invest in loans), the bank will have the database to segment, classify customers appropriately. Banks will know which customers spend easily and comfortably, which investors are cautious, which customers pay the debts quickly, which customers are starting to pay back when the debts are about to mature, customer's using bank services time to measure their loyalty ... Knowing the personal profile of all customers helps the bank evaluate their customers' expected spending and income, and make detailed plans to ensure profit for the organization itself and benefits for their customers (The State Bank of Viet Nam, 2017).

Big Data will provide banks with in-depth knowledge of customer spending patterns and habits, simplifying defining customers' needs and desires task. By tracking each customer transaction, banks will be able to classify customers based on different parameters, including services normally used by customers, time of service usage, and their spending habits when using a credit card or even the net worth (net worth - income plus the value of customer assets minus their debts).

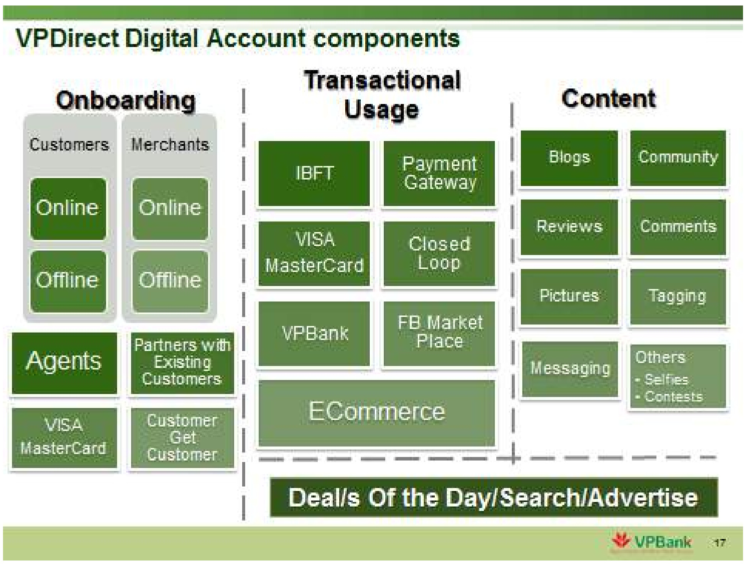

Figure 2 VPDirect digital account components (*Source:* VPbank)

Figure 2 shows the VPDirect Digital Account components according to the criteria. The benefit that the customer segment offers is that it allows VPbank to target customers better with relevant marketing campaigns designed to accurately meet customers' needs.

Analyzing Big Data increases the ability for BFSI organizations to understand customer insights, therefore creating a customer segment. However, the collection and evaluation of customer information requires investment in the infrastructure of the organization as well as investment in the interconnection network between all departments of the organization with advanced technology and software.

4.3.3 Product cross-selling

In recent years, retail has become the core strategy of most joint-stock commercial banks in Vietnam. However, most individual customers use only from 1 to 2 products and services of the bank.

According to an analysts of Wells Fargo'experts, the cost of selling to existing customers is five times less than selling to new customers and a 5% increase in sales can bring 25-100% increase in profit. More importantly, it helps increase the satisfaction and promotes customer engagement. A survey of Bancography (a consulting company in US) is also worth considered: if a customer uses only 1 product - he/she stays in the bank in 18 months; uses 2 products - the average sticking time will increase to 4 years; and uses 3 products – the customer will stay for nearly 7 years.

Commonly, customers have only one loan at a bank and have payment deposits and other transactions remaining at the others. In that case, the bank loses its revenue and suffers higher risk at the same time. Therefore, for borrowers, it is necessary to sell more accounts, payment services, Internet and sms banking, POS, card, insurance, savings ... In fact, when being introduced to new services, customers are willing to use. Consequently, instead of selling a single product, bank staff should try to offer a package (4-5 products or more).

Accurately analyzing customers, banks can sell more efficient services and attract more customers. For example, the bank may introduces attractive investments to customers with idle money or investors who always cautiously considering investments. Or banks propose short-term loans to customers who have a "comfortable" spending habit for their daily consumption needs or those who are having difficulty paying old debts.

One of the very successful cross-selling products in Vietnamese banks recently is insurance. Customers, insurance enterprises and banks are all beneficiaries of this bank and insurance cooperation (also called bancassurance). Banks either work with experienced insurance companies or set up their own insurance companies. For example, HDBank cooperates with Dai-ichi Life, Saigon Commercial Bank (SCB) and Techcombank with Manulife, National Bank (NCB) with Bao Viet Insurance Corporation, Dong A Commercial Joint Stock Bank (DongABank) with the AIA Insurance. The banks that set up subsidiaries or joint-venture insurance companies are: MBB currently has 2 subsidiaries: MB Ageas Life Insurance Company, Military Insurance Corporation (MIC); Bank for Investment and Development of Vietnam (BIDV) has BIDV Insurance Corporation, Lao Viet Insurance Joint Venture Company or BIDV Metlife Life Insurance Company Limited.

4.3.4 Personalized marketing

The benefits of personalized marketing are increasing investment efficiency; enhancing the ability to attract potential customers; and increasing customer satisfaction.

After acquiring the customer segments, banks need to leverage personal marketing to target customers based on their personal spending habits. In addition to collect the transaction history of customers, financial services companies or banks can also combine unstructured data - a form of Big Data - obtained from social network or social media to get a more complete picture of customer needs based on psychological analysis, customers' expectation analysis. On the other hand, besides usual appraisal, customer data in social media or other smart social applications will help the bank analyze potential risks and consider whether to provide loans or not.

After analyzing and understanding the specific needs of each customer, banks should continue to further segment and provide appropriate marketing solutions from which to gain more feedback from customer. For example, VPbank use e-mail marketing tools to send customers the latest information on short-term lending services with moderate interest rates, or savings with attractive interest rates,... Creating products and services for each customer segment, or even specific customers will help banks build brand image and a good relationship with customers.

4.3.5 Detecting and preventing frauds

Risk management faces new demands and challenges. In response to the crisis, regulators are requiring more detailed data and increasingly sophisticated reports (Veldhoen & De Prins, 2014). One of the biggest problems of banking industry is is fraud and credit crimes. Nowadays, e-payment and mobile banking services are developed strongly, opportunities for fraud are endless. Therefore, the need for instant detection of fraudulent transactions (very small compared to millions of legitimate transactions) as well as prevention of fake bank warnings is huge. For example, a customer living in Hanoi, traveling to Da Nang by plane, checks-in on Facebook at visiting places in Da Nang, but the credit card of this customer is swiped to buy goods in Ho Chi Minh City. If the bank has full customer information as well as collecting data from Facebook social network, from the airline, the bank can immediately discover that the credit card of that customer is stolen and be bought in Ho Chi Minh City. Therefore, the bank immediately notifies the customer and prevents subsequent fraudulent transactions. At the same time, based on the collected data, the bank identifies the customer who is actually in Da Nang so as not to give fake warnings, refusing customers to make valid legal transactions in Da Nang.

Banks are experts in manipulating the rows and columns of numbers captured from past transactions and stored in vast data warehouses. On a daily or even intra-day basis, banks package these facts in the form of reports for credit or finance officers to review for trends and outliers (The Economist Intelligence Unit, 2014). Therefore, the bank will be able to alert if something unusual happens during the operation. For example, if an investor or customer often pays for their daily living expenses or leaves the money in the savings account to get interest, but in a day try to withdraw all the money from his account ATMs. This means the card may have been stolen and used by the thieves themselves. Bank staff will call the account holder or notify the customer in any way to verify that transaction more clearly: legal transactions of customers or illegal transactions by criminals? Thus, the analysis of historical transaction data is a basis for checking the legality and security of current transactions, minimize possible violations of law.

Banks and financial institutions exploit big data to distinguish the transactions are offenses with the legitimate transactions by applying data analytics algorithms and machines learning. Analysis systems will automatically detect, extract illegal transactions in real time and suggest immediate actions, such as blocking unusual transactions, preventing fraudulent behavior.

4.3.6 Participate in controlling and improving employee performance

Too focused on increasing profits, many banks often forget a potential application of big data that can have a huge impact on the business development process. That is to improve employee productivity. Big data systems support collecting, analyzing, evaluating, and transmitting data about employee performance. The analytical results will help leaders get a glimpse into the current working situation of their employees, such as those who are performing best, who do not meet their targets, and especially considering the level of employee satisfaction with the working environment, welfare, ... Big Data's tools exploit all data in real time, so when the solution is launched, it will be highly feasible, and make rapid changes.

In addition, banks can measure many things not only for individual performance, but also for teamwork, interactions between departments and the overall culture of the company. Employees will reduce the time spent on manual work including complex processes by relying on the Big Data system with pre-programmed software to handle those tasks quickly and exactly. Since then employees spend a lot of time for jobs, more difficult and urgent tasks from higher levels.

4.3.7 Implication

Research showed that banks that apply analytics to customer data have a four-percentage point lead in market share over banks that do not. The future growth of big data as a strategy in the industry relies on the continued education of internal staffs about its uses and advantages. Most of the banks using big data tend to hire experts in order to grow their internal knowledge base. However, this will open up to key person risk if the big data knowledge and skills are not disseminated wider among internal staffs.

Plus same as other technologies, after initiative, big data needs constant refinement and evolvement to adapt the dynamic market conditions. Banks also need to invest continually in training their analytics staff on new techniques and their business personnel to enhance decision-making. The continued in-house education will be a key to future successful deployments and maintenance of big data strategies and technologies over time.

5. Conclusion

Doing the things in the old way is too risky nowadays. Companies must evolve and grasp new technologies if they want to succeed. Adopting the Big Data analytics and imbuing it into the existing banking sector workflows is one of key to surviving and prevailing in the rapidly evolving business environment of the digital millennium. Big data will expand the banking industry's work in a way that will allow them to both increase profits and reduce costs.

By updating, applying not only big data but also emerging global trends such as AI (artificial intelligence) or Machine Learning, BFSI organizations will understand customer needs and the internal operational objectives of the organization better to provide improved services in a timely manner with optimal operating costs to customers, or offer solutions to improve employee productivity.

6. References

Kharote, M., & Kshirsagar, V. P. (2014). V.P. Data mining model for money laundering detection in financial domain. *International Journal of Computer Applications, 85,* 61–64.

Mayer-Schönberger, V., & Cukier, K. (2013). *Big Data: A Revolution that Will Transform How We Live, Work, and Think*. Houghton Mifflin Harcourt: New York, NY, USA.

McAfee, A., Brynjolfsson, E., Davenport, T. H., Patil, D. J., & Barton, D. (2012). Big data: the management revolution. *Harvard Business Review*, *90*(10), 60-68.

Pham, A. (2018). *VN banks face new wave of technology*. Retrieved from https://vietnaminsider.vn

Pulakkazhy, S. & Balan, R.V.S. (2013). Data mining in banking and its applications—A review. *Journal Computer Science, 9*, 1252–1259.

The Economist Intelligence Unit. (2014). *Retail banks and big data: big data as the key to better risk management.* Retrieved from https://eiuperspectives.economist.com.

The State Bank of Viet Nam. (2017). *Benefits of big data analytics in banking and business.* Retrieved from https://www.sbv.gov.vn.

Veldhoen, A., & De Prins, S. (2014). *Applying big data to risk management: transforming risk management practices within the financial services industry*. Retrieved from https://www.reply.com.

Viet Nam News. (2017). *VN banks look to tap into big data.* Retrieved from https://vietnamnews.vn.

Management Accounting Practices in Vietnamese Services Enterprises: The Current Evolutionary Stages

Nguyen Thi Phuong Dung* and Nguyen Thi Hai Ha

University of Economics and Business-Vietnam National University, Hanoi, Vietnam
* Corresponding author, E-mail: phuongdung2311@gmail.com

Abstract

The aim of this study is to examine the current evolutionary stages of management accounting practices in Vietnamese services enterprises which refer to the management accounting evolution model proposed by IFAC (1998). We employ a questionnaire survey to study the extent to which Vietnamese services enterprises have adopted traditional and modern management accounting practices. We sent the questionnaires to 200 Vietnamese services enterprises and received 77 answers which are equivalent to 38.5% response rate. Our findings show empirical evidence of current evolutionary stage and management accounting practices which are widely adopted in Vietnamese services enterprises. We found that approximately 60% of the Vietnamese services enterprises are in the initial stages of the IFAC model. 36% of the services enterprises (28 enterprises) reached Stage 3 of the IFAC model which is a significant point in this research. There are 2 (4%) of the enterprises in Stage 4 of the IFAC model. We also found that the widely adopted management accounting practices in the Vietnamese services enterprises are budgeting for product cost controlling and budgeting for revenue, using financial ratios analysis and non-financial measurements related to customers, and profitability ratio analysis.

Keywords: *Management accounting practices, IFAC model, Vietnamese services enterprises*

1. Introduction

Vietnam is a developing country located in Southeast Asia. Since the mid of the 1980s, Vietnam has carried out economic reforms to transfer from a centrally planned economy to a socialist-oriented market economy. At present, Vietnam has been integrated into the global economy. The markets in Vietnam have become more competitive than before. Therefore, Vietnamese enterprises need to apply management accounting practices to enhance their strengths to survive in severe market competition.

There is a severe lack of research on the current evolutionary stages of management accounting practices in Vietnamese enterprises, especially in the services field in Vietnam as compared to other countries in the world. Therefore, we need to study the current stages of management accounting practices in Vietnamese enterprises to find out the strengths and weaknesses to develop the application of modern management accounting practices.

We use the management accounting evolution model proposed by IFAC (1998) and employ a questionnaire survey to identify the evolutionary stages of management accounting practices and the most widely adopted management accounting practices in the Vietnamese enterprises.

The remainder of this article is structured as follows. In the next section, we describe the IFAC management accounting evolution model, review prior studies using this model in other countries, and examine the previous studies on management accounting practices in Vietnam. In section 3, we explain the research method. We examine the data collected from the Vietnamese enterprises in section 4. This section reveals empirical evidence on the evolutionary stages of management accounting practices and widely adopted management accounting practices in Vietnamese enterprises. We summarize the results, clarify the limitation of our research, and state the future research in the final section.

2. Objectives

The general aim of this study is to grasp the current stage of management accounting practices in Vietnamese services enterprises. In this article, we would like to answer the following research questions:

RQ1: What is the current evolutionary stage of management accounting practices in Vietnamese services enterprises?

RQ2: What are the most widely adopted management accounting practices in Vietnamese services enterprises?

3. Literature review and Research methodology

3.1 International Federation of Accountants (IFAC) model

In March 1998, the International Federation of Accountants (IFAC) released a framework to explain the historical development of management accounting. As shown in Figure 1, IFAC describes the history of management accounting as a four-stage evolution framework. Management accounting first appeared in the United States during the nineteenth century and then diffused to other developed countries (Johnson and Kaplan, 1987). Based on this fact, the IFAC model concentrates on explaining the evolution of management accounting in the United States and European countries. The model, therefore, is also considered as a Western or Anglo-American approach by researchers (Abdel-Kader and Luther, 2006a).

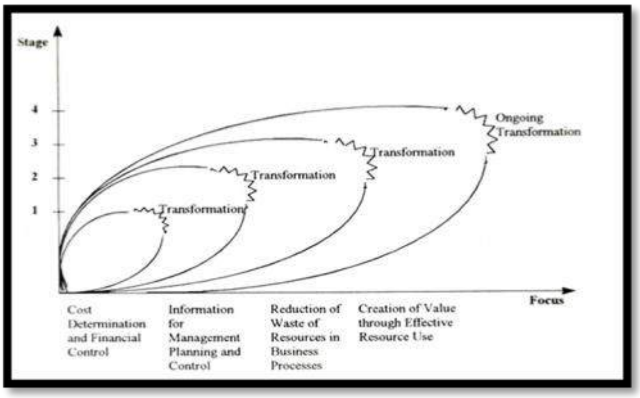

Figure 1 The Evolution of Management Accounting (IFAC, 1998)

According to IFAC model, management accounting in the first stage (prior to 1950) primarily focused on the determination of product cost and internal financial control. In the second stage from 1960 to 1965, the focus of management accounting was the provision of information for planning and control purposes. In the third stage from 1965 to 1985, management accounting focused on a waste reduction of using business resources. The fourth stage or the current evolutionary stage of management accounting had been developed by 1995. In this period, the focus of management accounting moved toward a value creation through the effective use of resources and technologies.

It is necessary to state that the four stages in the IFAC model are not mutually exclusive. Each stage successively includes the concepts of the previous stages and complements additional characteristics that occurred due to the new requirements of business management. For instance, the focus of management accounting on providing information in stage 2 still remains the same and is paraphrased in stage 3 and stage 4 where information becomes an increasingly critical resource along with other resources in enterprises. However, the difference between Stage 2 and Stage 3 is characterized by "waste reduction" and the difference between Stage 3 and Stage 4 is characterized by "value creation." In other words, there is a clearer focus on the reduction of waste in stage 3 and on the creation of value in stage 4 (Abdel-Kader and Luther, 2006a). Therefore, management accounting in stage 4 is regarded as "an integral part of the management process" and it concentrates on the use of resources to create value for organizations.

3.2 Prior research on the evolution of management accounting practices in developed and developing countries

Chenhall and Langfield-Smith (1998) create a list of 42 traditional and contemporary management accounting practices to examine which of them are adopted and the benefits of adopted practices in

Australian large manufacturing firms. They attempt to explore which one, traditional or modern management accounting practices is more widely adopted and will be emphasized in firms in the future. Specifically, Chenhall and Langfield-Smith (1998) classify the 42 practices into five groups based on their functions: product costing, budgeting, decision support, performance evaluation, and strategic analysis. They conduct a questionnaire survey and relevant analysis. They find that the adoption rates and perceived benefits of traditional management accounting practices are higher than the contemporary practices in the enterprises. They also obtain evidence that Australian manufacturing firms have intentions to adopt management accounting practices focusing on non-financial information and strategy in the future. Although Chenhall and Langfield-Smith (1998) do not directly use IFAC or Nishimura models, they describe the evolution of Australian management accounting practices appropriately. Their contribution is that they created a new research approach by investigating the widely adopted management accounting practices to clarify the sophistication degree of management accounting in Australian manufacturing companies. Much research has employed this approach to investigate the adoption rates and perceived benefits of management accounting practices in other developed and developing countries such as India (Joshi, 2001), the United Kingdom (Abdel-Kader and Luther, 2006b), China (Wu, Boateng and Drury, 2007), Vietnam (Doan, Nguyen, and Lockman, 2011).

Abdel-Kader and Luther (2006a, 2006b) employ a questionnaire survey and face to face interviews to study the evolution of management accounting practices in the British food and drinks industry. They find that traditional management accounting practices such as Cost-Volume-Profit analysis (CVP analysis), direct costing, conventional budgets, and product profitability analysis are widely adopted in enterprises. Innovative management accounting practices such as activity-based costing (ABC), product life cycle analysis, non-financial performance measures and so forth are supposed to be important, but rarely used in the enterprises. Based on the IFAC model, they identify the evolutionary stages of management accounting practices in the British food and drinks enterprises.

Sunarni (2015) also uses a questionnaire survey to study Management Accounting Practices at Hospitality Business in Yogyakarta, Indonesia based on the IFAC model. The questionnaire consists of 30 questions on management accounting, dividing into three parts, the first part covered the general information of sample companies, the second part asked about whether each management accounting practices is adopted or not adopted, the last part asked about the benefit of each management accounting practice in 5 Likert-scale. The detailed description of the questionnaire is as follows; 4 questions on product costing, 8 questions on Budgeting, 9 questions on performance evaluation, 4 questions on decision making and 5 questions on strategic analysis. The result drawn from surveying 61 stars hotels indicated that management accounting practices in the hospitality business are still dominated by “traditional practices”. Referring to the IFAC model, the management accounting practices in hospitality business were in stage 1 and 2. The study also showed that there is no difference among stars hotels in costing and planning and control, performance evaluation, decision making, and strategic analysis.

3.3 Prior research on the evolution of management accounting practices in Vietnam

At present, domestic research in Vietnam mainly focuses on management accounting for a specific sector or application of a specific type of management accounting practice such as Activity-based costing to enterprises (Dao, 2015; Nguyen, 2012). The study conducted by Doan, Nguyen, and Lockman (2011) reported that the application rates of modern management accounting techniques in Vietnamese enterprises were generally low. Doan (2012) studied the factors affecting the application of strategic management accounting in Vietnamese enterprises. His sample includes 220 medium and large enterprises. The author analyzes three relationships: competition, decentralization and business performance with strategic management accounting. The statistical modeling results show that these three factors are positively correlated with the use of strategic management accounting.

Nguyen and Aoki (2014) studied the evolutionary stages of management accounting practices in Vietnamese food and beverage enterprises based on the Nishimura Model. This study found that among the 54 surveyed enterprises, the majority of small and medium enterprises were at Stage 1 and 2 of the

Nishimura models, which are the lowest levels of the model. There are some large enterprises adopting modern methods of Stage 3 and 4 in the Nishimura model. In general, the adoption rates of modern accounting management methods at these Vietnamese enterprises are rather low. The authors also point out some barriers affecting the level of management accounting development in the food and beverage enterprises such as the size of the business, the age of the enterprise, the characteristics some modern management accounting practices considered not suitable for the Vietnamese enterprises.

In summary, there is still a lack of the macro level research that assesses the overall evolutionary stages of Vietnamese services enterprises based on an international measure such as IFAC model. Also, the numbers of research on the widely adopted management accounting practices in Vietnam are rather low in comparison to other countries.

3.4. Research methodology

This study employs a questionnaire survey after conducting preliminary interviews and a pilot survey with some enterprises in Hanoi, one of the two biggest centers of Vietnam. The enterprises are selected from the following sources: Vietnamese General Statistics Office, the list of enterprises listed in Hanoi stock market and Ho Chi Minh stock market, and the List of the Vietnam top 500 largest enterprises[1] ranked by revenue published by Vietnam Report Joint Stock Company.

We would like to explain the criteria for selecting enterprises in our survey. First, the enterprises listed in stock markets or the enterprises which have not listed in the stock market but have large revenues are in priority of the selection. Second, every answer must be authorized by enterprises to assure the reliability of data. We select 700 enterprises from 3 cities based on these criteria, which are Hanoi, Ho Chi Minh City, and Danang which are considered as the biggest economic centers in Vietnam. Of these 700 enterprises, there are 200 services enterprises.

Our survey consists of two parts, namely general information (Part I) and management accounting system (Part II). Part I comprises questions about general characteristics of the enterprises. It includes the manufacturing field, the kind of enterprise, the year of establishment, total number of employees, total assets, sales revenue, and current accounting practices. Part II consists of questions concerning enterprises' management accounting practices such as accounting units, information technology (IT) application in accounting works, specific management accounting practices, barriers to applying management accounting practices, and factors influencing the application. Regarding important information, we used questions of various kinds, namely, closed-ended, open-ended, and Likert scale questions to ensure the accuracy of responses.

A pilot survey was implemented with three enterprises at the beginning of May 2018 in Hanoi. Then, the initial questionnaires were revised according to the feedback of this pilot survey. Finally, we sent the google link survey through emails to the selected enterprises in the middle of May 2018. Reminders by email or fax were sent three weeks later to the first mailing of non-response enterprises. At the end of June, we collected 77 answers from the services enterprises which are equivalent to the usable response rate of 38.5%.

4. Results and discussions

4.1 Overview of the sample

Most respondents (76.9%) are from the accounting and finance departments. We regard this information as a significant point to evaluate the quality of the responses.

[1]List of the Vietnam top 500 largest enterprises is available at this URL: http://vnr500.com.vn/bang-xep-hang?ref=vnr500-top-500-doanh-nghiep-lon-nhat-viet-nam

According to Decree 56/2009/ND-CP[2] issued by the Government of Vietnam in supporting small and medium enterprises (SMEs), total assets are considered as the prioritized criterion to identify the size of enterprises. Therefore, we classify the size of enterprises in this sample based on their total assets as shown in Table 1 More than half of the respondents are large enterprises (55.8%), which is regarded as a significant point of this study. The rates of medium and small enterprises respectively are 13.0 % and 31.2%.

Table 1 Size of the enterprises

Size	Numbers	Rate (%)
Small enterprises	24	31.2
Medium enterprises	10	13.0
Large enterprises	43	55.8
Total	**77**	**100**

Note: A small enterprise has total asset equal to or less than 20 billion VND (approximately 1 million USD). A medium enterprise has total asset in the range of 20 billion VND to 100 billion VND (the range of approximately 1 million USD to 5 million USD). A large enterprise has total asset equal to or over 100 billion VND (approximately 5 million USD). These exchanges from VND to USD are referred to the exchange rate of 20.803 VND/USD at 31/12/2011.

In our sample, there are 25 listed enterprises (32.5%) in the Hanoi stock market, the Ho Chi Minh stock market, or UpCom of Vietnam and the rest (67.5%). Besides, there are 52 non-listed enterprises (67.5%), much more than listed enterprises.

We asked the enterprises whether they have management accounting units or not. Table 2 illustrates the result. The rate of enterprises with an accounting unit combined both financial accounting and management accounting is highest, at 46.7%, the following is the rate of enterprises with only a financial accounting unit at 40.3%. The lowest rate is at 13.0%, of the enterprises with a management accounting unit separated from the financial accounting unit. In total, 87% of the enterprises have the management accounting works in their accounting system, which is a key point to evaluate the development of management accounting practices in the Vietnamese Services Enterprises.

Table 2 Classification of accounting unit

Classification of accounting unit	Numbers	Rate (%)
A management accounting unit separated from financial accounting unit	10	13.0
An accounting unit combined both financial accounting and management accounting	36	46.7
There is only a financial accounting unit	31	40.3
Total	**77**	**100.0**

Regarding the type of business strategy, among the surveyed service enterprises, there is no large difference between the rate of enterprises with cost leadership strategy and enterprises with focus strategy, respectively at 37.7% and 36.4%. The lowest rate is at 25.9%, of enterprises with differentiation strategy (As shown in Table 3)

[2]Decree 56/2009/ND-CP was issued by the Government of Vietnam on 30th June 2009. This decree has taken effect from 20th August 2009. It prescribes the definition, criteria to identify small and medium enterprises as well as policies to support the development of these enterprises.

Table 3 Types of business strategy

	Cost leadership	Differentiation strategy	Focus strategy	**Total**
Numbers	29	20	28	**77**
Rate (%)	37.7	25.9	36.4	**100**

4.2 The evolutionary stages of management accounting practices in the Vietnamese services enterprises

To identify the evolutionary stages of management accounting practices in the Vietnamese enterprises, we first summarize the adoption rates of management accounting practices adopted by the enterprises as shown in Table 4 Then we examine these practices on IFAC model by using Cluster analysis.

The question for investigating the adoption rates of management accounting practices in the Vietnamese enterprises is constructed based on a 5 level Likert scale where 1 means Never; 2 – Almost Never; 3 – Occasionally; 4 – Often; 5 – Always. The practices are classified based on the study of Chenhall and Langfield-Smith (1998) and Abdel-Kader and Luther (2008) where five classifications are distinguished - i) costing system, ii) budgeting, iii) performance evaluation, iv) information for decision making, and v) strategic management accounting.

Regarding costing system, in general, the adoption rate of managing accounting practices is quite low and there is no significant difference among practices, in particular, the highest and lowest adoption rates respectively are Classifying costs based on cost behavior (mean equals to 2,688) and Variable costing (mean equals to 2.247). Comparing to manufacturing enterprises in the research of Nguyen (2018), the most widely adopted practices in the Vietnamese manufacturing enterprises respectively are ‘Standard Costing’ (mean equals to 3.62) and ‘Absorption costing’ (mean equals to 3.207), the lowest adoption rate is ‘Activity based-costing’ (mean equals to 2.337) and ‘Target costing’ (mean equals to 2.196). For the commercial enterprises, the most widely adopted practices respectively are ‘Classifying costs based on cost behavior’ (mean equals to 2.259), “Standard costing, and ‘Using of predetermined overhead rate’ (Nguyen, 2018). These results show that the costing system in manufacturing enterprises still plays a more important role than that in service and commercial enterprises.

Regarding the budgeting system, the highest adoption rates practices respectively are Budgeting for product cost controlling and budgeting for revenue. These adoption rates (means are more than 4) are much higher than the above costing practices. This finding is the same in comparison with the manufacturing and commercial enterprises in Vietnam and shows the fact that the management accounting systems of the Vietnamese enterprises focus on planning and controlling practices. Terdpaopong, Visedsun. Nitirojntanad. & Sandhu. (2018) also found that Budgeting for product cost controlling is the most widely adopted among the budgeting practices in the Thai companies. Moreover, budgeting for cash flow planning and budgeting of financial statements are also popular in Vietnamese service enterprises. The lowest adoption rates are flexible budgeting and sensitivity analysis.

With regards to the performance evaluation methods, using financial ratios analysis and non-financial measurements related to customers – customer satisfaction – are the most widely adopted practices (means respectively equal to 3.740 and 3.221). While, non-financial measurements related to operation and innovation such as patent, certificates, and awards are adopted at the lowest rates in the service enterprises (mean equals to 2.416). However, the modern practices such as Balanced scorecard, benchmarking and non-financial measurements are adopted at rather higher rates in these enterprises compared to both manufacturing and commercial ones.

Regarding the information for decision-making methods, Profitability ratio analysis is the most widely adopted method (mean = 3.442) in the service enterprises. This finding is the same for the manufacturing enterprises (mean = 3.609), while the highest adoption rate practice for commercial enterprises is profit analysis of product (mean = 3.123). More than half of these methods have a Mean greater than 3.0, which means that these methods are widely adopted in the service enterprise.

On the topic of strategic accounting management practices, like costing system generally, the adoption rate of managing accounting practices is quite low and there is no significant difference among practices. Among these methods, the highest and lowest adoption rates respectively are Target Costing Management (mean equals to 2.701) and Just-in-time: JIT (mean equals to 2.169). The adoption rates of these practices are lower than the above budgeting, performance evaluation, information for decision-making practices. However, they are slightly higher than those in the manufacturing and commercial enterprises, in which respectively, Target Costing Management is the most widely adopted with mean = 2.25 and long-range forecasting is the most widely adopted method with mean = 1.930.

Table 4 The adoption rates of management accounting practices in the Vietnamese services enterprises

Costing system	Mean	Std. Deviation
1.1. Absorption costing	2.597	1.558
1.2. Standard costing	2.532	1.586
1.3. Variable costing	2.247	1.434
1.4. Activity based-costing	2.364	1.432
1.5. Use of predetermined overhead rate	2.623	1.405
1.6. Target costing	2.273	1.411
1.7. Quality cost analysis	2.364	1.317
1.8. Classifying costs based on cost behavior	2.688	1.435
Budgeting	Mean	Std. Deviation
2.1. Budgeting for revenue/ sales	4.221	0.620
2.2. Budgeting for product cost controlling	4.234	0.686
2.3. Budgeting for cash flow planning	3.909	0.906
2.4. Budgeting of Financial Statements	3.831	0.938
2.5. Flexible budget	2.870	1.196
2.6 Sensitivity analysis	2.597	1.350
Performance Evaluation	Mean	Std. Deviation
3.1. Balanced scorecard	2.377	1.469
3.2. Financial ratios analysis	3.740	0.979
3.3. Non-financial measurements related to customers – customer satisfaction	3.221	1.177
3.4. Non-financial measurements related to operation and innovation such as patent, certificates, awards	2.416	1.196
3.5. Non- financial measurements related to employees such as employee satisfaction, staff – turnover	2.987	1.118
3.6. Benchmarking	2.922	1.133
3.7. Residual income	2.987	1.230
Information for decision making	Mean	Std. Deviation
4.1. Break Even Point Analysis	2.896	1.438
4.2. Cost – volume – profit Analysis	3.312	1.161
4.3. Evaluation of major capital investment based on discounted cash flow method	3.000	1.235
4.4. Evaluation of capital investments based on payback period and/or accounting rate of return	2.844	1.225
4.5. Profitability ratio analysis	3.442	1.082
4.6. Profit analysis of product	3.351	1.144
4.7. Customer profitability analysis	3.195	1.214
4.8. Use KPI for all company and/or each division	2.714	1.413
4.9. Stock control models	2.494	1.363

Table 4 The adoption rates of management accounting practices in the Vietnamese services enterprises (Cont)

Strategic accounting management	Mean	Std. Deviation
5.1. Value chain analysis	2.221	1.314
5.2. Shareholder value analysis	2.377	1.278
5.3. Life cycle analysis	2.390	1.216
5.4. Target Costing Management	2.701	1.396
5.5. Environmental management accounting-EMA	2.299	1.136
5.6. Total quality management	2.286	1.326
5.7. Just-in-time: JIT	2.169	1.229
5.8. The possibilities of integration with suppliers and/or customers value chains	2.377	1.257
5.9. Lean accounting	2.312	1.249
5.10. Long-range forecasting	2.442	1.262

In the next step, we apply the cluster analysis technique to classify the Vietnamese enterprises into groups which are equivalent to the four evolutionary stages of the IFAC model. The method combined the enterprises into four clusters, then considered each cluster as a representative of each stage of evolution (Abdel-Kader and Luther, 2006a). As shown in Table 5, Clusters 4 can be considered as Stage 4, the enterprises in Cluster 3 belong to Stage 1, Cluster 1 representing Stage 3, and Cluster 2 representing Stage 2 in the IFAC model. In summary, we have 30 enterprises in Stage 1, 17 enterprises in Stage 2, 28 enterprises in Stage 3, and only 2 enterprises in Stage 4 of the IFAC model.

Table 5 Cluster analysis for the Vietnamese services enterprises

VAR00001		Mean	Std. Deviation	Valid N (listwise)	
				Unweighted	Weighted
1.00	Stage1	3.960	0.418	28	28.000
	Stage2	3.838	0.413	28	28.000
	Stage3	3.631	0.470	28	28.000
	Stage4	3.510	0.503	28	28.000
2.00	Stage1	3.320	0.468	17	17.000
	Stage2	3.068	0.229	17	17.000
	Stage3	2.568	0.486	17	17.000
	Stage4	2.127	0.425	17	17.000
3.00	Stage1	2.599	0.431	30	30.000
	Stage2	2.101	0.369	30	30.000
	Stage3	1.689	0.358	30	30.000
	Stage4	1.538	0.324	30	30.000
4.00	Stage1	5.000	0.000	2	2.000
	Stage2	4.925	0.106	2	2.000
	Stage3	4.750	0.354	2	2.000
	Stage4	4.140	0.806	2	2.000
Total	Stage1	3.316	0.781	77	77.000
	Stage2	3.019	0.894	77	77.000
	Stage3	2.669	1.008	77	77.000
	Stage4	2.452	1.009	77	77.000

5. Conclusions and limitations

This study provides empirical evidence on the evolutionary stages of management accounting practices in Vietnamese services enterprises based on the IFAC model.

Regarding Research Question 1, we find that approximately 60% of the Vietnamese services enterprises (30 enterprises in Stage 1 and 17 enterprises in Stage 2) which is in the initial stages of the IFAC model. 36% of the services enterprises (28 enterprises) reached Stage 3 of the IFAC model, which is a significant point in this research. There are 2 (4%) of the enterprises are in Stage 4 of the IFAC model.

Regarding Research Question 2, we find the widely adopted management accounting practices in the Vietnamese services enterprises. They are Budgeting for product cost controlling, budgeting for revenue, using financial ratios analysis and non-financial measurements related to customers, and Profitability ratio analysis.

This article cannot avoid inherent limitations such as sample size, volume, and interpretation of questions. Also, time, financial factors, and non-response bias may influence the findings. The response rate of the survey remained rather low because of time and financial limitations. However, according to Van der Stede et al. (2005), the survey method would benefit if we understand the fundamental principles of the method and apply them appropriately.

6. Acknowledgements

The research financed by Asia Research Center-Vietnam National University, Hanoi under the project number CA.17.2A. The authors acknowledge with gratitude.

7. References

Abdel-Kader, M.G., &Luther, R. (2006a). IFAC's conception of the evolution of management accounting. *Advances in Management Accounting*. 15: 229-247.

Abdel-Kader, M.G., & Luther. R. (2006b). Management Accounting Practices in the British Food and Drinks Industry. *British Food Journal*. 108 (5): pp 336-357.

Abdel-Kader, M.G., & Luther, R. (2008). The impact of firm characteristics on management accounting practices: A UK-based empirical analysis, *British Accounting Review*, 40 (1): pp 2-27.

Chenhall, R. H., & Langfield-Smith, K. (1998). Adoption and Benefits of Management Accounting Practices: An Australian Study. *Management Accounting Research. 9* (1). 10.1006/mare.1997.0060.

Dao, T. H. (2015). Enhancing the system of cost management at Vietnamese steel enterprises. *Doctoral thesis*. National Economics University Vietnam. *(In Vietnamese)*

Doan, N.P.A. (2012). Studying the factors influencing the application of strategic management accounting techniques in Vietnamese enterprises. *Journal of development economics.* No. 264. October/2012. Pp: 9-15. *(In Vietnamese)*

Doan, N.P.A., Nguyen. D.T., & Lockman. M. (2011). Western Management Accounting Practices in Vietnamese Enterprises: Adoption and Perceived Benefits. *Pacific Accounting Review*.23(2): 142-164.

International Federation of Accountants (IFAC). (1998). *International Management Accounting Practice Statement: Management Accounting Concepts*, New York.

Joshi, P.L. (2001). The International Diffusion of New Management Accounting Practices: The Case of India. *Journal of International Accounting, Auditing & Taxation* .10 (1): pp. 85-109.

Johnson, H. T., & Kaplan, R. S. (1987). *Relevance lost: the rise and fall of management accounting.* Boston: Harvard Business School Press

Nguyen, T.P.D. (2018). The evolutionary stages of management accounting practices in Vietnamese manufacturing and commercial enterprises. *International Journal of Business, Economics and Law*, Vol. 16, Issue 5 (August), pp: 216-224. ISSN 2289-1552.

Nguyen, T. P. D., & Aoki.M. (2014). The Evolution of Management Accounting Practices in Vietnam: a Survey Research on Vietnamese Food and Beverage Enterprises. *The Keizai Gaku, Annual Report of the Economic Society*, Tohoku University. 74 (4), March 3/2014: pp 167-184.

Nguyen, H. (2012). Building cost management accounting system in Vietnamese confectionary enterprises. *Doctoral thesis*. National Economics University Vietnam. *(In Vietnamese)*

Sunarni, C. W. (2015). Management accounting practices at hospitality business in Yogyakarta, Indonesia. *Review of Integrative Business and Economics Research*, *4*(1), 380. (www.sibresearch.org) ISSN: 2304-1013 (Online); 2304-1269 (CDROM). PP 380-396.

Terdpaopong, K., & Visedsun. N., & Nitirojntanad. K., & Sandhu. K. (2018). *The Advancement of Management Accounting Practices of The Large Thai Manufacturing Companies.* Proceedings of Asia-Pacific Management Accounting Association (APMAA) 2018 Conference, Waseda University, Tokyo, Japan, 29 October- 1 November 2018.

Van der Stede, W., & Young A., S. M., & Chen, C. X. (2005). Assessing the Quality of Evidence in Empirical Management Accounting Research: The Case of Survey Studies. *Accounting, Organizations and Society*. 30 (7-8): pp. 655-684.

Wu, J., & Boateng. A., & Drury. C. (2007). An Analysis of the Adoption, Perceived Benefits, and Expected Future Emphasis of Western Management Accounting Practices in Chinese SOEs and JVs. *The International Journal of Accounting*.42 (2): pp.171-185.