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Malmquist Productivity Index on Islamic Economics and Finance Research

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Abstract

This study proposes to review the implementation of Malmquist Productivity Index (MPI) in such research publications on the theme of Islamic economics and finance. It employs descriptive statistical analysis based on selected 102 article publications. The entire sample publications have published from 2006 to 2019. The results show that research using the MPI method has still been dominated by Islamic banks issues (73%) followed by Islamic insurance or takaful issue (12%), then zakat (8%), and Islamic microfinance issue (4%). The rest are issues about halal industry, *waqf* and Islamic REIT. Malaysia, Indonesia and Pakistan are the 3 countries with the most study areas compared to other countries. In addition, many MPI applications are implemented along with the use of DEA methods for measuring efficiency. The most approach used in 102 studies is the production and intermediation approach.

Keywords: *Malmquist Index, Productivity, Islamic Economics and Finance*

Introduction

The Malmquist Index or often called the Malmquist Productivity Index (MPI) is part of the Data Envelopment Analysis (DEA) method that specifically looks at the productivity level of each business unit, so

that changes in the level of efficiency and technology based on the inputs and outputs can be analysed. The Malmquist productivity index has also been utilized to analyze changes in intertemporal performance. The Malmquist Index was first created by Sten Malmquist in 1953 to measure productivity. In its development, the Malmquist Index was advanced by Caves et al. (1982). This method can decompose the level of productivity into changes in technical efficiency and technological change. In addition, the strength of the Malmquist Index method compared to others is that it does not require the assumptions of corporate behavior as applicable in the DEA method such as minimizing costs or maximizing profits.

The Malmquist index method is one of the indices most often used in research measuring the level of productivity of a business unit (Decision Making Unit / DMU), especially the banking industry. Other productivity indexes that are used less frequently include: the Laspeyres Index, the Pasche Index, the Fisher Index and the Tornqvist Index. The Malmquist Index has been represented by the value of the change in total factor productivity or TFP change. As mentioned above, the majority of applications of the DEA and MPI methods are in the banking and financial industries, including Islamic banking. Islamic finance in Indonesia only appeared around 1992, pioneered by Bank Muamalat Indonesia. After that, the Sharia Commercial Bank, Sharia Business Unit, Sharia Rural Bank (BPRS), Sharia Cooperative, Sharia Insurance, Sharia Pawnshop, Waqf, and other Sharia Financial Institutions (LKS) began to develop.

According to Nurfalah et al. (2018), Islamic banking is relatively more stable compared to conventional banking in the face of both internal and external shock. This is an interesting finding that needs to be proven through various researches in the future. Currently the Islamic financial economy is experiencing euphoria, both in developing countries, or even in developed countries. The financial industry and other forms of Islamic

economic institutions are growing throughout the universe, from the Middle East, the Asian region to Western countries such as the United Kingdom. In Indonesia, the Islamic economy has largely turned into a sharia financial industry, especially sharia banks which are also the best-selling entity "for sale" after the 1997 monetary crisis (Rusydiana et al, 2009).

This study portrays the application of research using the Malmquist Index productivity measurement method in the theme of Islamic economics and finance. Such problems in this research as; first, what are the topics of study of Islamic economics and finance that apply the MPI method. Second, in a research methodology approach, what is the composition of research related to the MPI method in Islamic economics and finance in general. Then how many the percentage of the number of publications, types of research, research approaches, to the object of study the application of the MPI method in Islamic economics and finance over the past 14 years (2006-2019).

Situating The Malmquist Index

The concept of productivity is basically a relationship between output and input in a production process. Productivity can be measured partially or totally. Partial productivity is the relationship between output and one input. Examples of partial productivity that are commonly used are labor productivity which shows the average output per labor, as well as capital productivity which illustrates the average output per capital. Total productivity or commonly called Total Factor Productivity (TFP) measures the relationship between outputs and several inputs together. The relationship has been expressed in the ratio of the output index to the aggregate input index. If the ratio increases, more output can be produced using a certain number of inputs, or a number of outputs can be

produced using fewer inputs. In measuring productivity, the most widely used method is total factor productivity (TFP). This method is used to overcome the weaknesses in calculating efficiency of more than one input and one output. TFP has been measured using index numbers that can measure changes in prices and quantities over time. In addition, TFP also measures comparisons and differences between entities.

The TFP index ab measures the change in the value of selected N outputs from the period "a" to "b" where p represents the output price. Indexes that are often used to measure TFP are Malmquist Index, Laspeyres Index, Pasche Index, Fisher Index and Tornqvist Index. In this study, what will be used to calculate the level of productivity (TFP) is the Malmquist Index. The Malmquist Index was first created by Sten Malmquist in 1953 to measure productivity. But in its development, the Malmquist Index was introduced by Caves et.al (1982). There are two things that are calculated in the Malmquist index measurement, namely the catch-up effect and the frontier shift effect. The catch-up effect measures the rate of change in relative efficiency from period 1 to period 2. Meanwhile the frontier shift effect measures the rate of technological change which is a combination of inputs and outputs from period 1 to period 2. The frontier shift effect is often referred to as the innovation effect.

The Malmquist Index is a bilateral index used to compare production technologies of two economic elements. The Malmquist Index is based on the concept of a production function that measures the maximum production function within a predetermined input limit. In its calculation, this index consists of several results, namely: efficiency change, technological change, pure efficiency change, economic scale change and TFP change. The Malmquist Index has several beneficial characteristics. First, this index is a non-parametric method so it does not require the specification of the production function form. Second, the Malmquist

index does not require assumptions of the economic behavior of the production unit such as cost minimization or profit maximization, so it is very useful if the goals of the producers are different or unknown. Third, the calculation of this index does not require price data which are often not available. Fourth, the Malmquist productivity index can be broken down into two components, namely changes in efficiency and changes in technology. According to Avenzora (2008) this is very useful because the analysis can be done more specifically based on components.

In the first generation model developed by Caves et.al (1982), there are 2 (two) Malmquist productivity index models (Bjurek, 1996). First is 'Malmquist input quantity index' and second is 'Malmquist output quantity index'. Malmquist input quantity index for a unit of production, at the time of observation t and t + 1, for technology reference in periods k, k = t and t + 1. The Malmquist input quantity index only measures changes in the input quantity observed between times t and t + 1, where:

$$MI_k\,(y_k, x_t, x_{t+1}) = \frac{E_k^I\,(y_k, x_t)}{E_k^I\,(y_k, x_{t+1})}\ ,\ k = t,\ t+1 \qquad (1)$$

Next, for the Malmquist quantity output index for a unit of production, at the time of observation t and t + 1, for technology reference in periods k, k = t and t + 1. The Malmquist output quantity index only measures changes in the quantity of output observed between time t and t + 1, where:

$$MO_k\,(y_t, y_{t+1}, x_k) = \frac{E_k^O\,(y_{t+1}, x_k)}{E_k^O\,(y_t, x_k)}\ ,\ k = t,\ t+1 \qquad (2)$$

Bjurek (1996) introduced a new definition of the Malmquist productivity index for production units between t and t + 1 based on the level of technology at time k, k = t and k = t + 1, following the tradition of

most productivity indices. Adjusting to the Tornqvist productivity index, the index constructed is a ratio between an output index and an input index:

$$MTFP_k = \frac{MO_k(y_t,y_{t+1},x_k)}{MI_k(y_k,x_t,x_{t+1})} = \frac{E_k^O\,(y_{t+1},x_k)/E_k^O\,(y_t,x_k)}{E_k^I\,(y_k,x_t)/E_k^I\,(y_k,x_{t+1})},\ k = t,\ t+1 \qquad (3)$$

The equation above illustrates the ratio between the output index and the Malmquist input index. If the productivity index value is greater than number 1, then there has been an increase in productivity. If the index value is less than 1, the level of productivity decreases, while if it is equal to 1, the level of productivity does not change.

Research Method

This study utilizes data in the form of research journals and other research publications for the period 2006-2019 that have been published regarding the application of the Malmquist Productivity Index method in Islamic economic and financial research. These journals had been obtained or accessed online from published journals sites. The methodology used in this study is a qualitative method approach with descriptive statistics of literature studies of 102 publications related to the application of the Malmquist Productivity Index method in the area of Islamic economics and finance. Data collection techniques are carried out by triangulation (combined), data analysis is inductive/ qualitative, and qualitative research results emphasize more on the meaning of generalization (Sugiyono, 2008).

Qualitative research is descriptive. The data analyzed does not to accept or reject the hypothesis (if any). The results of the analysis are in the form of descriptions of observed symptoms and do not have to be numbers or coefficients between variables (Subana and Sudrajat: 2005). According to Wijaya (2013), descriptive statistics are a field of statistical

science that studies ways of collecting, compiling and presenting research data summaries. The data must be summarized well and regularly, both in the form of tables, diagrams or graphic presentations, as a basis for various decision making (Wijaya, 2013). This research was processed using Ms. Excel.

This study uses a purposive non probability sampling method. This sample has grouped into a decision sample (judgment) that selects sample members according to certain criteria on the basis of past records or research objectives to be achieved, and quota samples are selected based on quotas or certain categories, which describe the dimensions of dimension (proportion) of population (Wijaya, 2013). The criteria referred to in this study are 102 publications related to the application of the Malmquist Productivity Index method in the theme of Islamic economics and finance from 2006-2019.

Result and Disscussion

Based on Appendix 1, the sources of the most widely discussed MPI publications is *International Journal of Islamic and Middle Eastern Finance and Management* with 3 papers. Then, the most widely discussed MPI publications are *the Journal of Islamic Banking and Finance*, *Service Industries Journal*, *Applied Economics*, *Journal of Development Economics*, *International Journal of Productivity and Performance Management*, *Economic Modelling*, *Education and Humanities Research*, *Review of Islamic Economics*, *Islamic Economic Studies*, *International Journal of Business and Society*, *Humanomics*, *Journal of Asian Finance*, *Economics and Business*, *Indonesian Sharia Economic Journal*, *Journal of Islamic Economics*, *Banking and Finance*, and *Journal of Islamic Business and Management*. Where, each publisher's name amounts to two papers discussing MPI. Meanwhile, the most conferences that published papers on MPI were the 1st International

Conference on Islamic Economics, Business, and Philanthropy (ICIEBP 2017) with a total of two papers. In addition, in this study there were also one working paper.

This study reviewed 102 studies with publishing from 2006 to 2019. During this period, research on the three-year MPI with the most publications occurred in 2017 to 2019. The number of papers in the three years were 14, 12, and 10 papers, respectively. During 2006 to 2019, there was an increase and a decrease. In 2006 there was only 1 paper and in 2019 there were 10. This shows that the development of the MPI analysis model to see the efficiency of a company is increasing. The following is a table of years of publication and the number of papers each year.

Table 1. Classification of Publications by Year

No.	Year of Publication	Number of Articles
1	2019	10
2	2018	12
3	2017	14
4	2016	7
5	2015	9
6	2014	7
7	2013	8
8	2012	7
9	2011	8
10	2010	7
11	2009	2
12	2008	2
13	2007	8
14	2006	1
Total		102

In the 102 papers we reviewed, we classified according to the names of the authors who often did research on MPI. The names of writers who often conduct research on MPI are Fadzlan Sufian and Aam Slamet Rusysiana, with 6 papers each. Then, Mariani Abdul Majid also conducted research on MPI by making 5 papers. In addition to the researchers already mentioned, researchers who conducted research using MPI for more than 2 papers included Fakarudin Kamarudin and Zulkifar Bagus Pambuko, each with 4 papers, and who wrote three papers including M. Kabir Hassan, Aslam Mia, Nazratul Aina MA, Norma Md Saad, and Md Azizur Rahman. The distribution list of researchers using the most MPI methods in the paper written can be explained in the following table.

Table 2. Authors of MPI research

No	Writer	Number of Papers
1	Fadzlan Sufian	6
2	Aam Slamet Rusydiana	6
3	Mariani Abdul-Majid	5
4	Fakarudin Kamarudin	4
5	Zulkifar Bagus Pambuko	4
6	M Kabir Hassan	3
7	Aslam Mia	3
8	Nazratul Aina Mohammad Anwar	3
9	Norma Md Saad	3
10	Md Azizur Rahman	3

We next classify the reviewed papers based on the focus of the study on the Islamic financial sector. Studies conducted cover various sectors such as banking, endowments, insurance, zakat, microfinance institutions, etc. In 102 papers, the sector with the most MPI research occurred in the banking sector of 74 papers. The insurance sector is also in great

demand by researchers with a total of 12 papers. Other sectors that are quite attractive to researchers are zakat totaling 8 papers and microfinance institutions totaling 4 papers. Following is a list of sectors that are the focus of researchers and the number of papers can be seen in Table 4.

Table 3. Classification of Publications by Sector Focus Study

No	Focus	Number of Papers
1	Islamic Banking	74
2	Islamic Insurance (Takaful)	12
3	Zakat	8
4	Islamic Microfinance	4
5	Waqf	2
6	Halal Industry	1
7	REIT Industry	1
	Total	102

We then classify reviewed papers based on studies conducted in certain countries. Studies conducted in various countries and comparative analysis between countries are also found in the literature that we review. In 102 papers, case studies in the country with the most MPI research occurred in Malaysia as many as 34 papers, and the second and third most occurred in Indonesia and Pakistan, namely 26 and 13 papers. Developing countries get the greatest attention of researchers, namely in Malaysia and Indonesia. Whereas in European countries each is less desirable by researchers. Following is a list of countries and the number of papers can be seen in Table 5.

Table 4. Classification of Publications Based on Country Studies

No	Country	Number
1	Malaysia	34
2	Indonesia	26

3	Pakistan	13
4	Bangladesh	9
5	Turkey	7
6	Qatar	4
7	UAE	4
8	Brunei Darussalam	3
9	UK	1
10	Others	16

Then we classify research based on various research methodologies. We identified four categories of methodologies used by researchers in our paper that covered empirical, conceptual, and cross-sectional exploration methods. Conceptual studies are based on certain concepts, models and approaches (parametric and non-parametric) and techniques with different approaches. Empirical studies formally estimate and evaluate efficiency and changes in productivity using a database. Studies based on surveys are defined as exploratory cross-sectional studies. Table 5 illustrates the distribution of the methodology in the study we reviewed.

Table 5. Classification of Publications Based on Methodology

No	**Methodology**	**Number of Papers**
1	Empirical	78
2	Conceptual	1
3	Exploratory cross sectional	23
	Total	102

Based on the results in Table 5, most of the studies use the empirical method of evaluating efficiency and productivity using a database of 78 papers. In addition to using empirical methods, exploratory cross section research methods were also used as many as 23 papers. While research using conceptual methods only 1 paper. This conceptual model illustrates

a step-by-step research approach to evaluating and assessing changes in the efficiency and productivity of the Islamic economic sector.

Table 5 shows an overview of the methodology distribution and clarifies that most studies are empirical. On the basis of the distribution of literature and studies reviewed, we designed a conceptual flow chart to represent each and every step needed in research based on the approach of the type of analytical tool of the efficiency of the Islamic economic sector. The distribution of analytical tool approaches and the number of papers can be seen in Table 6.

Table 6. Classification of Publications Based on Analysis Tools Approach

No	Frontier approach	Number of Papers
1	MPI	47
2	MPI and DEA	53
3	MPI and other method	2

Based on the results in Table 6, the analysis tool approach that is often done by researchers is MPI and DEA as many as 53 studies, while for those who only use the MPI approach as many as 47 studies. In addition, there are 2 researchers who used other analysis tools besides MPI and DEA, namely Frontier shift effect and Panzar Rosse (PR) analysis tools. DEA is a non-parametric approach to evaluating the efficiency of an Islamic economic sector, while the Malmquist Productivity Index (MPI) is one of the most popular methods used to deal with changes in total factor productivity (TFP).

Approach for selecting input-output combinations. The choice of input-output combination is a very complex problem, because each DMU may have an "n" number of inputs and outputs. From the literature we have identified the following approaches for variable selection including the production approach, intermediation approach, value added approach,

and other approaches. The following is a list of approaches to input-output combination and number of studies.

Table 7. Classification of Publications Based on the Input-Output Combination Approach

No	Approach	Number of Papers
1	Production approarch	47
2	Intermediation approach	43
3	Value added approach	4
4	Others	8

The production and intermediation approach is the main approach used in the literature, which consists of 47 papers and 43 papers, respectively. The production approach assumes the sector as a unit of production, which produces loans, deposits and other financial services using inputs such as labor (number of employees, employee costs) and capital (fixed assets and other assets). While the intermediation approach assumes the Islamic economic financial sector as an intermediary for financial service products. The production approach treats deposits as output variables while the intermediation approach views deposits as input variables. The value added approach was also undertaken by researchers with a total of 4 papers, and an approach other than three that has mentioned as many as 8 papers used by researchers to look at input-output combinations.

Several studies have tried a two-stage approach to determine the factors that influence efficiency and changes in productivity. In the first stage the researcher assessed the efficiency and changes in productivity and in the next stage the efficiency scores and changes in productivity were regressed on a determining variable which included Islamic financial sector variables, macroeconomic variables, and regulatory variables. The

following is a list of papers that use various data analyzes as a second step approach.

Table 8. Classification of Literature based on The Second Stage Approach

No	Second Stage Regression Techniques	Number of Papers
1	Tobit regression	9
2	Panel data regression	7
3	Simple regression	3
4	Others	4

Table 8 shows the tobit regression is a technique that is widely used for the second stage approach of 9 papers. Panel data regression is also widely used by researchers namely as many as 7 papers, while using simple regression for the second stage approach of 3 papers. In addition to these three techniques, the researchers also used other techniques for the determinants of a number of 4 papers which included Generalized Least Squares (GLS) regression techniques, Paired dependent t tests, Bootstrap regression, and Multivariate Panel Regression Analysis to assess the impact of determinants on efficiency and changes in the productivity of the banking industry.

Conclusion

The focus of this research is to find out the extent of the development of the application of the Malmquist Productivity Index method in research primarily related to Islamic economic and financial research in the world. The results show that there is a tendency for an increase in the number of articles on publications on Islamic economics and finance with the application of the MPI method over the study period, especially in the last 3 years. The application of the MPI method in Islamic economic and

financial research is dominated by discussion of themes related to Islamic banks and Islamic insurance (*takaful*), furthermore the themes of zakat and Islamic microfinance.

Malaysia, Indonesia and Pakistan are the 3 countries with the most study areas compared to other countries, followed by Bangladesh, Turkey and the GCC. In terms of methodology, many MPI applications are implemented together with the use of DEA methods for measuring efficiency. Meanwhile, research by the independent MPI is relatively less than the first group. Nearly the entire research sample is empirical, not conceptual. The most efficient and productivity measurement approach used in 102 studies with the MPI method is the production and intermediation approach, while the value-added approach, the asset approach and other approaches, are relatively less used. Some MPI studies are continued with the second phase which is parametric. The majority of the two-stage MPI methods use the tobit regression and panel regression models. While other models are simple regression, GLS, and bootstrapped models.

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Appendix

Appendix 1. MPI Research Publications on Islamic Economics and Finance

No	Type of Publication	Number of Paper
	JOURNAL	
1	International Journal of Islamic and Middle Eastern Finance and Management	3
2	Journal of Islamic Banking and Finance	2
3	Service Industries Journal	2
4	Applied Economics	2
5	Jurnal Ekonomi Pembangunan	2
6	International Journal of Productivity and Performance Management	2
7	Economic Modelling	2
8	Education and Humanities Research	2
9	Review of Islamic Economics	2
10	Islamic Economic Studies	2
11	International Journal of Business and Society	2
12	Humanomics	2
13	Journal of Asian Finance, Economics and Business	2
14	Jurnal Ekonomi Syariah Indonesia	2
15	Journal of Islamic Economics, Banking and Finance	2
16	Journal of Islamic Business and Management	2
17	Academy of Accounting and Financial Studies Journal	1
18	Al-Iqtishad: Journal of Islamic Economics	1
19	American Journal of Economics	1
20	Applied Financial Economics	1

21	Asian Academy of Management Journal of Accounting and Finance	1
22	Asian Business Review	1
23	Asian Journal of Business and Accounting	1
24	Asia-Pacific Management Accounting Journal	1
25	Australasian Journal of Islamic Finance and Business	1
26	BDDK Bankacılık ve Finansal Piyasalar	1
27	Buletin Ekonomi Moneter Dan Perbankan	1
28	Cogent Economics and Finance	1
29	Eurasian Business Review	1
30	Gadjah Mada International Journal of Business	1
31	Global Business Review	1
32	IIUM Journal of Economics and Management	1
33	International Advances in Economic Research	1
34	International Journal of Accounting and Finance	1
35	International Journal of Bank Marketing	1
36	International Journal of Business	1
37	International Journal of Economics and Financial Issues	1
38	International Journal of Empirical Finance Information	1
39	Internasional Journal of Financial Economics and Econometrics	1
40	International Journal of Financial Management and Economics	1
41	International Journal of Hospitality Management	1
42	International Journal of Humanities and Social Science	1
43	International Journal of Managerial Finance	1
44	International Journal of Research in Business and Social Science	1

45	International Journal of Zakat	1
46	IOSR Journal of Business and Management	1
47	Islamic Finance: Performance and Efficiency	1
48	Islamic Management and Business	1
49	Journal of Asian Development Studies	1
50	Journal of Emerging Economies and Islamic Research	1
51	Journal of Financial Services Marketing	1
52	Journal of Islamic Economics and Finance	1
53	Journal of Islamic Finance and Business	1
54	Journal of King Abdulaziz University, Islamic Economics	1
55	Journal of Risk Finance	1
56	Journal of Technology Management	1
57	Journal of The Malaysian Institute of Planners	1
58	Jurnal Bisnis Dan Manajemen	1
59	Jurnal Keuangan dan Perbankan	1
60	Jurnal Liquidity	1
61	Jurnal Siasat Bisnis	1
62	Jurnal Studi Ekonomi Dan Bisnis Islam	1
63	Management Studies and Economic Systems	1
64	Middle Eastern Finance and Economics	1
65	Panoeconomicus	1
66	Pressacademia	1
67	Research Journal of Finance and Accounting	1
68	Review of Economics and Development Studies	1
69	Social and Management Research Journal	1
70	Studies in Economics and Finance	1
71	The Central European Review of Economics and Management	1
72	The Journal of Applied Business Research	1

73	The Journal of Development Practice	1
74	The Lahore Journal of Economics	1
75	World Applied Sciences Journal	1
	CONFERENCE	
1	1st International Conference on Islamic Economics, Business, and Philanthropy	2
2	Prosiding Perkem	1
3	11th Internasional Academic Conference	1
4	International Conference of Zakat 2018	1
5	13th International Conference on Data Envelopment Analysis	1
6	Internasional Conference on Social Science Studies (ICSS 2018)	1
7	The 6th International Conference On Social Sciences Research 2017	1
8	World Zakat Forum International Conference Proceedings	1
9	International Conference on Economic, Entrepreneurship & Management 2019	1
10	Working paper	1
	Total	102

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1. Manuscript must be written in English. Submitted articles should not have been published or be under review for publication with another journal.
2. Manuscript's length is about 15 – 20 pages, typed in one-half spaced on A4-paper size.
3. Manuscript must include an 150 – 200 word abstract and keywords.
4. Manuscript must be arranged as follows: Title, Name of Author, E-mail address, Abstract, Keywords, Introduction (including method if any), Discussion, Conclusion, References.
5. Manuscript's titles not more than ten words.
6. Manuscript must be submitted in Microsoft Word or RTF.
7. Arabic words should be transliterated according to the style of *International Journal of Middle Eastern Studies.*
8. Manuscript references are preferably derived from the up-to-date references.
9. The author's resume should be submitted separately, consisting of at least full name, institutional address, phone number, areas of studies, and recent publications (if any).
10. ***Shirkah*** use APA Style 6th edition (2010) as reference format writing. We suggest the use of a reference manager software such as Mendeley, Zotero, and Endnote at templating the citation style. APA Style to be used is as follows:

Book with single author

Swann, G. M. Peter. (2014). *The Economics of Innovation an Introduction*. Cheltenhum & Northampton: Edward Elgar.

in-text citation: (Swann, 2014)

Articles in reference books

Alatas, S. F. (2006). Islam and the Science of Economics in Abu Rabi', I.M. *The Blackwell Companion to Contemporary Islamic Thought*. USA: Willey-Blackwell (pp. 587-606).

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Hackett, Rosalind (2007). "Religous Dimentions of War and Peace: Introduction." Dalam Gerrie ter Haar dan Yoshio Tsuruoka (Ed.), *Religion and Society: An Agenda for the 21st Century* (h. 3-6). Retrieved from http://brill.nl.

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Master's thesis, from a commercial database

McNieI, D. S. (2006). Meaning through narrative: A personal narrative discussing growing up with an alcoholic mother (Master's thesis). Available from ProQuest Dissertations and Theses database. (UMI No. 1434728)

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Adams, R. J. (1973). Building a foundation for evaluation of instruction in higher education and continuing education (Doctoral dissertation). Retrieved from http://www.ohiolink.edu/etd/

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Bruckman, A. (1997). MOOSE Crossing: Construction, community, and learning in a networked virtual world for kids (Doctoral dissertation, Massachusetts Institute of Technology). Retrieved from http://www-static.cc.gatech.edu/--asb/thesis/

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Journal article with No DOI

Bourkhis, K., and Nabi, M. S. (2013). Islamic and conventional banks' soundness during the 2007-2008 financial crisis. *Journal Metrics*, 22(2), 68-77.

in-text citation: (Bourkhis & Nabi, 2013).

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Ichwan, M. (2012). The Local Politics Of Orthodoxy: The Majelis Ulama Indonesia in the Post-New Order Banten. *Journal Of Indonesian Islam*, 6(1), 166-194. doi:http://dx.doi.org/10.15642/JIIS.2012.6.1.166-194

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Hasan, N. (2012). Islamist Party, Electoral Politics And Da'wah Mobilization Among Youth : The Prosperous Justice Party (PKS) in Indonesia. *Journal of Indonesian Islam*, *6*(1), 17-47. Abstract from http://jiis.uinsby.ac.id/index.php/jiis/article/view/97

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Research report

Fisher, B. S., Cullen, F. T., & Turner, M. G. (2000). The Sexual Victimization of College Women. Research Report.

in text citation : (Fisher, Cullen, Turner, 2000)

Monograph

Routray, Bibhu Prasad (2013), *National Security Decision-Making in India* (RSIS Monograph No. 27). Singapura: Rajaratnam School of International Studies.

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