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Text network analysis on impact investment to promote social economy in developing countries

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Text Network Analysis on Impact Investment to Promote Social Economy in Developing Countries

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Abstract: Traditional businesses and philanthropy, which once considered as the opposite ends of investment spectrum, started to be blended for more development resources. Impact investment is one of the new types of investment to mobilize more capital. Since the emergence of the concept in 2007, interest and research on impact investment has growing rapidly as it can be analyzed with triple bottom line framework; financial, social and environmental. In particular, as impact investment drew attention as a way to establish social economy in developing countries, most research is studying on the relationship of social enterprises and impact investment. To review the level of academic development and suggest new areas to research, this paper provides a microscopic review of current studies on impact investment, using text network analysis. Through the study, it was found that the research on impact investment is still mainly focusing on its economic value, but started to consider social value. Moreover, the study on environmental value of impact investment is in shortage. The trend of research was also analyzed through keyword network and keyword trend. Text network analysis on impact investment provides scholars with an overview of research trend and suggestions to advance their studies on impact investment.

Keywords: impact investment, text network analysis, topic modeling, triple bottom line

1. Introduction

Impact investment has become an important issue after the global economic crisis in 2008. The term, impact investment was first introduced in 2007 to indicate an active investment on organizations that aim to create a positive impact on society. It was differentiated with other types of investments as it is targeting broader range of institutions, such as private companies, non-profit organizations and social enterprises. Since 2008, this new type of investment has drawn attention in that it creates social and environmental impacts while alleviating financial deficit.

The importance of impact investment has been growing in the field of international development. Impact investment is known as a new development resource that attracts private capital and enhance private sector of developing countries. It is also noted in that it can achieve a social economy in developing countries by allowing early-stage entities, such as social enterprises and cooperatives, to gain access to the market. Moreover, impact investment is started to generate environmental values, focusing on the issues like climate change and biodiversity.

Since it has been ten years after beginning of the study on impact investment, the need to examine the previous research has been increased. Analyzing key research topics or areas of research helps to identify the level or characteristics of academic development for impact investment. By investigating research trends, researchers can avoid unnecessary repetitive

studies and discover new areas of research due to the trend of social change (Lee et al. 2017: 102). In addition, analyzing research trends can provide ideas to improve or establish policies for the practitioners who are actually handling impact investment. Although there have been few studies which investigated research trends of impact investment, they only analyzed studies with categories like research type or nationality of the authors, using content analysis. However, content analysis has a limit that it can't analyze research trends in a microscopic level, using keywords. Text network analysis is therefore meaningful in that it's not just examining the frequency of words' occurrence, but the relationship between words by adopting a way of analyzing the correlations of words (Choi and Park 2011: 126).

This paper aims to investigate the research trends of impact investment through text network analysis. For the research, this paper collected 142 journal articles about impact investment, and used text network analysis to understand the main keywords within an impact investment and relationship of those keywords. In addition, this paper analyzed the research trends with changes in research topics of collected articles. Since the concept of impact investment was introduced in 2007, all articles were published from 2007 to 2019.

2. Impact Investment

2.1. Conceptualizing Impact Investment

Impact investment can be conceptualized in two ways; by clarifying differences between other types of investments and by focusing on its concept of 'triple bottom line.'

The first way to conceptualize impact investment is by clarifying differences between other types of investments. Impact investment is not the first concept to concern social impact of investment. Emerson (2003) argued that social returns could and should be blended with financial returns, and that the nature of investing and expecting returns from that investment is not a trade-off between financial and social interests, but the pursuit of value creation comprised of both interests (Emerson 2003; Clarkin and Cangioni 2015: 139). The British government also introduced the term 'Social Investment,' or 'Socially Responsible Investing (SRI),' through a Social Investment Taskforce established by Her Majesty's Treasury in 2000 (Organization for Economic Co-operation and Development [OECD] 2015; Kim et al. 2018: 12).

It was after global financial crisis in 2008 that the term 'impact investment' started to be clearly emphasized. The international community considered that impact investment can be a way to lighten financial burden while creating various impact. Impact investment differentiated itself from SRI, as SRIs are often designed to minimize negative impact (O'Donohoe, Leijonhufvud, Saltuk, Bugg-Levine and Brandenburg 2010: 5), where impact investments usually focus on creating positive social or environmental impact. Furthermore, since the publication by J.P Morgan (2010), impact investment started to be considered as a new type of financial asset class (Guézennec and Malochet 2013: 8).

[Figure 1] compares the differences in various types of investment, including impact investment. From a perspective of seeking societal value like charities, investment should put the impact on priority. On the other hand, from the perspective of seeking financial value like traditional businesses, there is an expectation of sufficient financial return. However, impact investment is essentially a dual purpose financing: the pursuit of both social benefit and financial profit (Marlowe 2014; Tekula and Shah 2016, cited in Tekula and Andersen 2019: 144). In case of societal value, impact investment is considering non-financial factors like environment, social and governance (ESG), which affect to the sustainability of organizations. This makes impact investment to be differentiated from Responsible Investing (RI), which precludes investment on businesses which has ESG risks.

In case of financial value, impact investment is seeking the economic revenue from market rate level to below market rate level. This makes impact investment to be distinguished from venture philanthropy, which is willing to give up much of its financial revenue and even take some capital losses in order to create impact. This characteristic also excludes social enterprises whose trading revenue exceeds 75% from the target of impact investment. Impact investment does not believe that it is necessary to invest on organizations that earn more than a market return (Kim 2013, November 7). In short, impact investment covers various types of investments that generate measurable and manageable impact along with financial returns through businesses to solve social and environmental problems (Kim, Kim, Kim, Lee, Kwon, Kim and Oh 2018: 14).
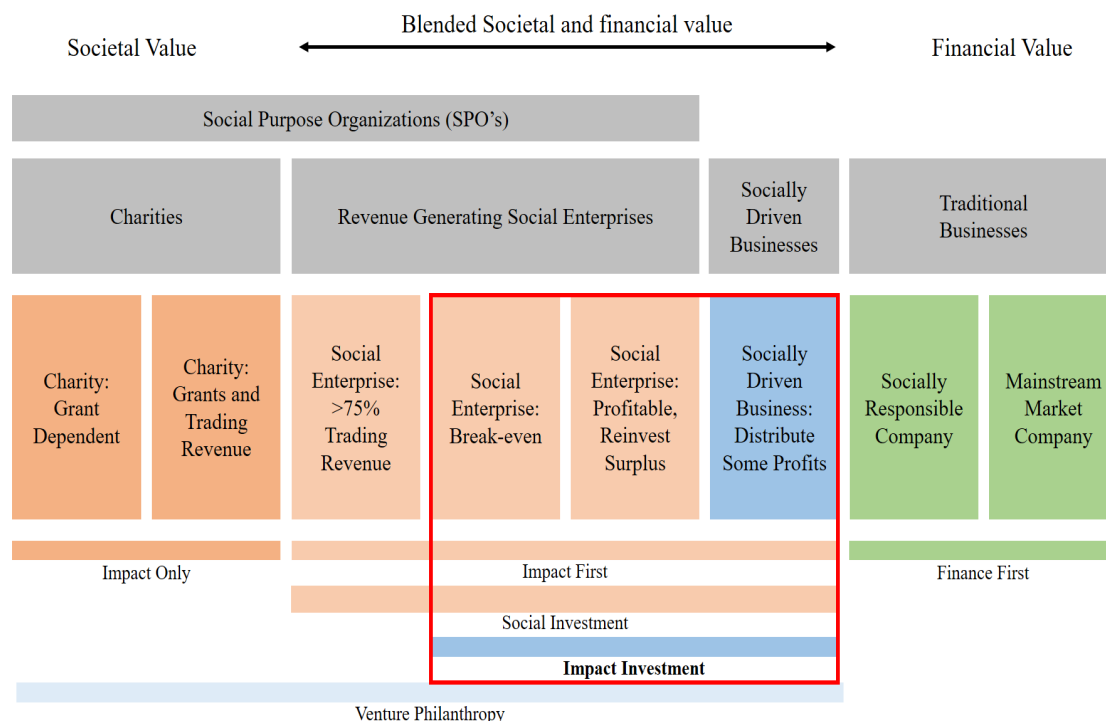

Figure 1] A Range of Impact Investment (Source: Kim, 2016)

The second way to conceptualize impact investment is focusing on its concept. Impact investment is "investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return (The Global Impact Investing Network [GIIN], no date)." In other words, impact investment can be defined with the 'Triple Bottom Line' framework, which incorporates three dimensions of performance; financial, social and environmental to achieve the sustainability (Slaper and Hall 2011: 4).

The first dimension is the financial impact. Like other investments, impact investment aims to enhance its financial performance. Impact investment occurs through all the different forms of investing money, either in respect of loans, bonds, equity and quasi-equity for businesses and social enterprises; or in respect of funds which in turn investment in these financial assets (Reeder and Colantonio 2013: 5). In addition, the desired level of financial return varies from investor to investor. Impact investors have diverse financial return expectations, from below-market rate returns to risk-adjusted market rate (GIIN, no date). The expected level of financial resources to be received by the investor at a future point is generally of lower level than for normal financial investing (Reeder and Colantonio 2013: 5). Impact investment is therefore encapsulating a very broad space of investors, asset classes and activities with diverse financial return expectations and strategic objectives.

Beside a financial return, investors are seeking ways to contribute their profit back to the society. Social impact is "the net effect of an activity on a community and the well-being of individuals and families (Centre for Social Impact [CSI] 2008)." Social impact is clearly different with the broad term of 'impact.' Impact on its own implies an influence or effect on virtually anything, given its context. Social impact, however, is grounded in the effect it has on a pressing social challenge. In other words, impact investors are seeking the way to improve the conditions around the current situation (Business Impact). The effect of social impact therefore must be a positive change to the challenge. Thus, the social impact that impact investment is seeking is a contribution of investors "to an effort they care about that makes the society better in some way."

In addition to social impact, there are growing interest from investors in creating environmental impact (Mudaliar, Schiff and Bass 2016; European Commision [EC] 2016: 4), through investments in wide range of sectors including clean technology, green construction, sustainable forestry and biodiversity conservation. Social impact and environmental impact that impact investment is seeking can be defined as 'non-financial outcomes,' whose primary purpose is to 'do good' for society or the environment (Reeder and Colantonio 2013: 12). In short, funding a broad range of activities that tackle environmental and social problems, impact investment is becoming a new source of finance for charities, social enterprises and businesses with an environmental and social mission in addition to seeking profit (EC 2016: 3).
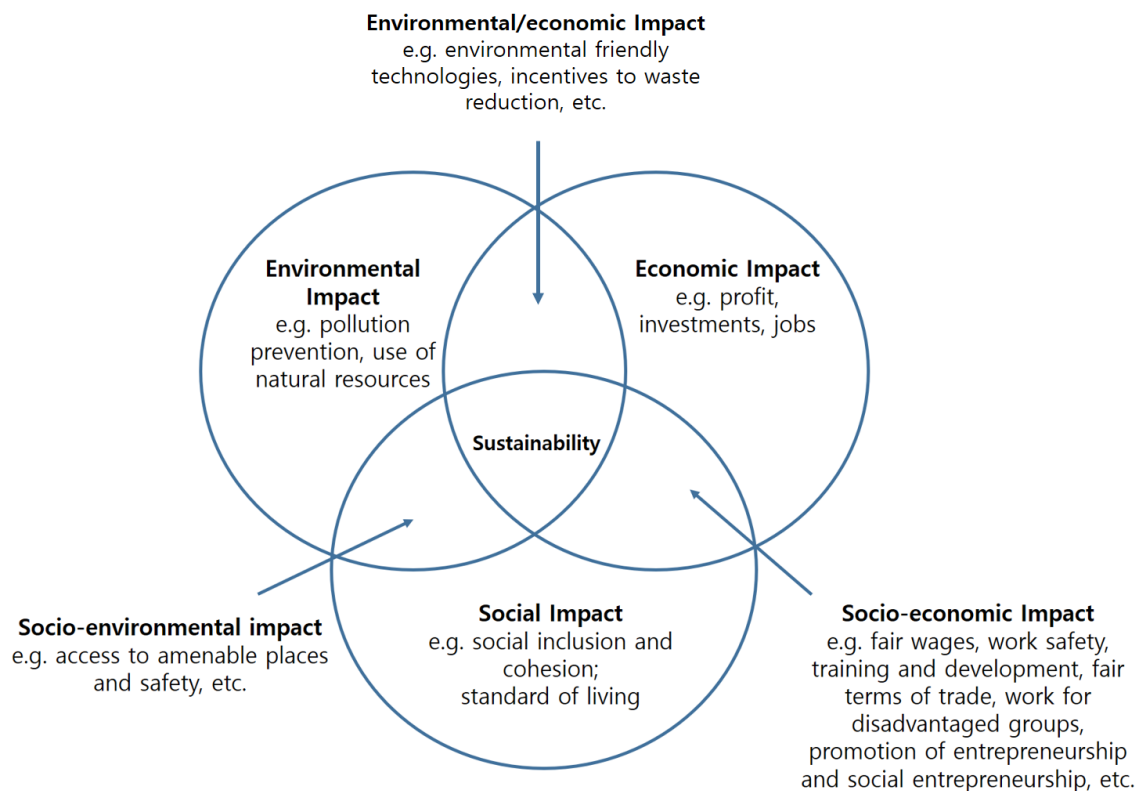
Environmental/economic Impact
e.g. environmental friendly technologies, incentives to waste reduction, etc.

Environmental Impact
e.g. pollution prevention, use of natural resources

Economic Impact
e.g. profit, investments, jobs

Sustainability

Socio-environmental impact
e.g. access to amenable places and safety, etc.

Social Impact
e.g. social inclusion and cohesion; standard of living

Socio-economic Impact
e.g. fair wages, work safety, training and development, fair terms of trade, work for disadvantaged groups, promotion of entrepreneurship and social entrepreneurship, etc.

Figure 2] The Three Impact Components (Source: Open University, no date)

2.2. Impact Investment and International Development

Impact investment is the most active in developing countries. Developing countries have limited roles of traditional capital market and difficulties to provide public services with government budget, especially for vulnerable people. Thus, for impact investors who seek financial, social and environmental interests, developing countries are the land of opportunity (Kim 2013, November 7).

The roles of impact investment in the field of international development also can be divided into three types according to its concept; financial, social and environmental. The first is financial impact. Impact investment can be a way to mobilize private capital, which were difficult to secure in traditional Official Development Assistance (ODA) projects. As the growth rate of development resources, which was largely covered by each donor country, has slowed, the issue of expanding development resources is now heavily emphasized internationally. Therefore, various investment methods to combine public and private funds are being proposed (Kim and Lee 2014: 7). Impact investment can be included in these new investment methods, as a way to mobilize private resources by supporting organizations in developing countries through general capital investments, not in the form of aid. Impact investment is expected to expand further in that it will block negative impacts of aid like deepening dependency and market distortions and support sustainable solutions based on local demand (Kim 2013, November 7).

In addition, impact investment can bring sustainable development of private sectors in developing countries by exploring businesses to solve social problems and providing technical support to build an ecosystem of markets. In most developing countries, many indicators of financial improvement have been returned to pre-aid period when the aid project is finished. Therefore, the perception that building an economic ecosystem is the most important thing for the sustainable financial development of developing countries has been widespread. Impact investment can contribute to the development of economic ecosystem in developing countries by investing in business models that can generate economic and social benefits. Moreover, as the private sector generates 60% of GDP and 90% of jobs (OECD, 2016, cited in Kim et al. 2018: 14), it can also contribute to poverty reduction and economic development of developing countries.

The second role of impact investment in international development is from social parts. Along with the expansion of development resources, the role of impact investment that drew the attention of international community is strengthening public-private partnerships within donor countries. The main players in traditional development cooperation were governments of donor countries and multilateral organizations. However, the number of main players have increased in various forms like civic groups, businesses and social enterprises. Various players brought the diversification of development projects and interests. This diversification raised the need for a method which meets the conflicting goals of various participants, and impact investment has emerged as the method. Development Impact Bond (DIB), a form of application of impact investment to development cooperation projects, is a typical example.[1] In DIB projects, government, businesses, civil society and other investors have their own roles. The government determines the priority of social values to be the goal of the project, and the businesses are in charge of managing the performance of the project. The civil society can respond directly to the project recipients and the investors provide the necessary funds. Therefore, DIB is a form of impact investment designed to maximize the performance of projects by engaging diverse players and utilizing their own expertise (Kim and Lee 2014: 23)

Another social role of impact investment is the enhancement of social economy in developing countries. Social economy refers to 'a change into civil society-oriented socioeconomic activities based on favoritism and solidarity from economic-oriented capitalism based on competition and superiority (Kim 2013, November 7).' In the ecosystem of social economy, in addition to existing profit-making companies, actors like social enterprises and cooperatives are working to achieve economic interests and social values in various forms. These entities must issue bonds or invest in stocks like ordinary start-ups to fulfill growth in scale. However,

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[1] DIB is a type of investment that applies Social Impact Bond (SIB), a form of impact investment, to development cooperation projects. The SIB is a type of contract in which the government promises to commit the performance target of a public project to a private service provider to solve social problems and to pay the principal and revenue required for the project after it has been achieved. The goal of the SIB is to create social outcomes by providing social services by using players of social economy in collaboration with the government, non-profit foundations and private investors.

In DIB, the role of government turns into the role of donor countries, project target turns into developing countries and the goal of project turns into poverty reduction and socioeconomic development from resolution of social problems. Therefore, the DIB is a type of business in which private investors invest in projects that contribute to socioeconomic development and poverty reduction in developing countries. In addition, if they achieve their original goal of development when the project is completed, principal and income will be compensated by aid agencies.

as actors of social economy are unable to compete with ordinary businesses in the market, this approach to capital market is difficult. Therefore, additional resources are needed to enable early-stage social enterprises and cooperatives to gain access to the capital market in the future, by increasing the size of the enterprises. Impact investment can be a resource that provides the very possibility.

The last role of impact investment in international development is its environmental impact. The environmental role of impact investment was not discussed much in previous studies. However, the fact that many environmental issues are mentioned in the analysis of impact investment in the international development sector suggests the increasing importance of its environmental roles. In the early stage of impact investment, eight areas including agriculture, education and housing and community facilities were selected as the main areas where active impact investment is expected (InSight at Pacific Community Ventures and Initiative for Responsible Investment 2011: 22). Among these areas, three areas were related to the environment; energy, environment and water, showing how environmental values are important in impact investment. In addition, at the '2017 International Symposium on International Development Cooperation and Impact Investment' held in Korea, 'climate change' and 'diversity' were selected as key subjects for impact investment in developing countries. The symposium emphasized the environmental value of impact investment, mentioning the necessity to establish an investment model that would reduce greenhouse gas or climate change while bringing real economic benefits to the community.

In other words, impact investment plays economic, social and environmental roles in international development cooperation, which are not simply limited to developing countries. For developing countries that are beneficiaries of investment, can establish a market ecosystem and grow a social economy through impact investment. In addition, for donor countries who are practicing investments, private funds can be mobilized for development cooperation projects and public-private partnerships can be developed. Impact investment provides a sustainable environment for both donor and developing countries by contributing to the resolution of environmental problems like climate change and environmental conservation. [Figure 3] clarifies the role of impact investment in international development, utilizing the framework of triple bottom line.
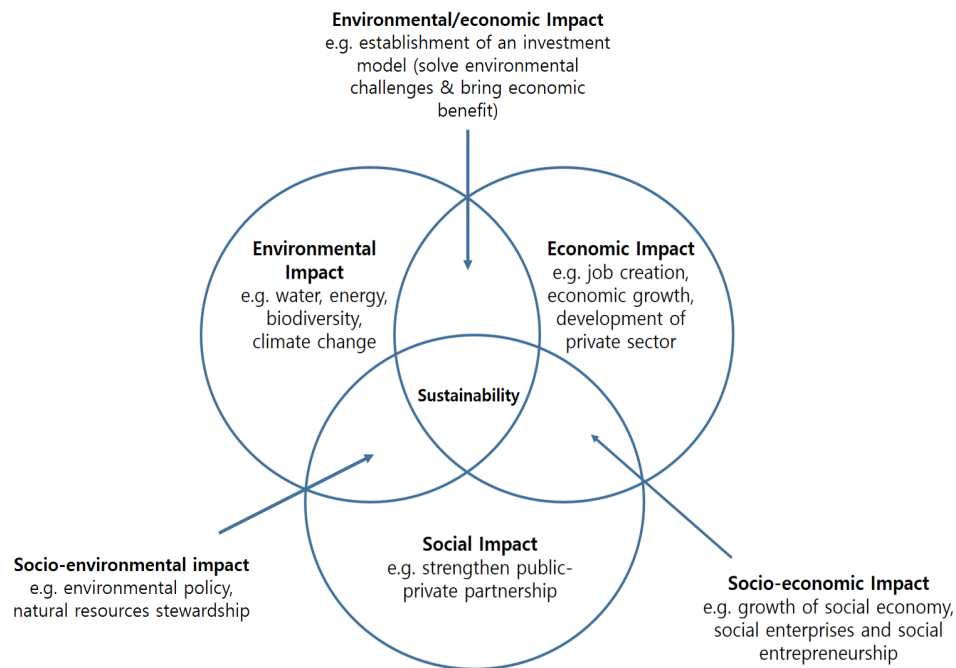
Figure 3] The Three Impact Components of Impact Investment in International Development

3. Research Methodology

This study adopted text network analysis as a research methodology. Text network analysis is a method for encoding the relationships between words in a text and constructing a network of the linked words (Popping 2000, cited in Diesner and Carley 2004: 1). This technique is based on the assumption that language and knowledge can be modeled as networks of words and the relations between them (Sowa 1984, cited in Choi, Choi and Kim 2011: 52). Therefore, this methodology is to find keywords for research on certain topic and to look at the centrality of those keywords within the network of them.

Total four categories were investigated through text network analysis; the number of the articles per year, topic modeling, keyword network and keyword trends by utilizing the NetMiner 4.0 software. For this, 142 journal articles were collected with two different ways. The first way was to use Biblio Data Collector of NetMiner 4.0 to search articles from Springer. In this case, this study collected papers which include one of two terms, 'impact investing' or 'impact investment' within their titles or keywords. 64 articles were collected with this method, and 61 articles were selected after reviewing their abstracts.

The second way to collect articles was to export information from the SCOPUS. In this case, only the term 'impact investing' was used, as all the articles that include 'impact investment' in their title selected 'impact investing' as their keywords. 91 articles were selected after reviewing abstracts, and total 142 were extracted after merging process with 61 articles from Springer.

4. Findings

4.1. The Number of the Articles per Year

[Figure 4] shows the changes in the number of the research on impact investment per year. It shows that the research on impact investment started from 2011, four years after the introduction of the concept. It also shows that the interest of the academia towards impact investment has been growing rapidly. This interest was dramatically increased in 2018, which can be shown by more than doubled number of studies. In 2019, thirteen research on impact investment has been conducted until May.

The massive growth of impact investment field in 2018 led the rise of the number of the research. The first factor was evolution of the SRI mindset. It is started from BlackRock's recent letter to CEOs, which urged impact investors to "blend the lines between impact investment and the profit-driven investment space." With this mindset, impact investors are no longer seeking for simply 'not doing bad,' but focusing on 'actually doing good,' to make positive social and environmental impact. Impact investment of 2018 started with the change of mindset, which made the number of the research to be increased.

The second factor was that impact investment became more mainstream. There was a move toward greater inclusivity as the notion of 'impact' becomes more integrated into traditional investment, and it brought more wealth into the impact investment realm. Big players like Goldman Sachs expanded capital for impact investment that meet ESG criteria and increased diversity in the impact investor pool made more diverse impact investments and a stronger industry.

The last factor of dramatic increase in impact investment research was democratization of impact investment. In 2018, great movement to bring impact investment to more people happened, and more impact investment options were available to investors through public markets. For instance, impact-focused online platforms increasingly enabled investors to mix and match among impact themes and offered more transparent and customizable variety of impact investment (Piskadlo 2018, March 6).
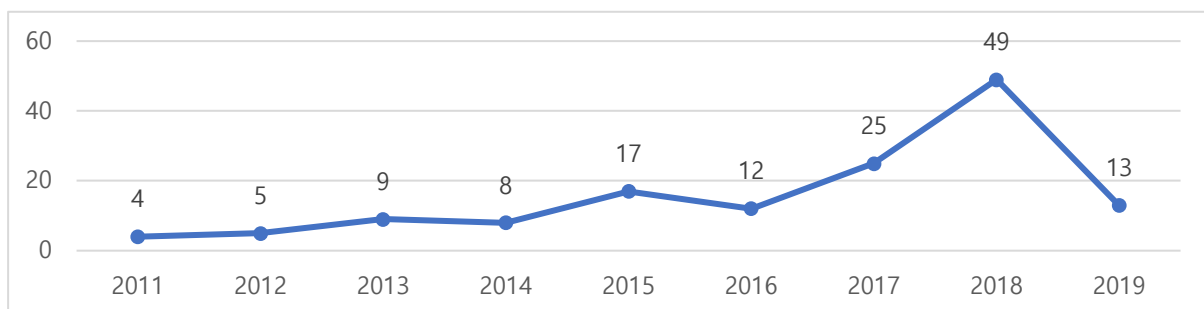

Figure 4] The Number of the Articles per Year

4.2. Topic Modeling

Topic modeling is a statistical inference model to find the subject of a document (Oh et al. 2017: 215). This method is done through computerized documents, and the topics are derived based on the utilization patterns and probabilities of words within the target documents (Shin et al. 2018: 708). This study conducted topic modeling analysis based on Latent Dirichlet Allocation (LDA) method, using NetMiner 4.0. To examine the topic trends over time in detail, the number of topics to be extracted was set as twenty-five. In addition, in order to extract only the papers with dominant first topic, this study selected articles whose first topic's possibility is over 0.4.

After reviewing five related keywords, the twenty-five topics were named as sub-themes. Among five keywords, names of countries and regions were excluded in the naming process. Sub-themes were analyzed in two different ways; classifying those sub-themes again into themes and using categories according to the concept of impact investment.

[Table 1] and [Table 2] show how this study analyzed the selected topics and how the topics were classified into categories, using the entire period from 2011 to 2019 as an example. [Table 1] used a way to categorize the sub-themes into themes. Every sub-theme was sorted into eight themes; impact purpose and decision, investment method, investment performance and assessment, resource procurement and utilization, social awareness, role of actors and investment policy.

The theme 'investment purpose and decision' is including words like 'fund,' 'woman,' 'right,' 'climate,' 'change,' 'healthcare' and 'return'. It shows that there are various goals and reasons for conducting projects for impact investment, related to its three impacts. 'Investment method' theme is consisted of words like 'strategy,' 'challenge,' 'bond,' 'conduct,' 'collaboration' and various actors. It indicates that impact investment projects are carried out to solve the challenges of the world with strategies. It also implies that these strategies are held by collaboration of various actors.

The next theme is 'investment performance and assessment.' Words like 'donor,' 'assessment,' 'evaluation,' 'measurement,' 'return,' 'outcome' and 'investor' shows that measuring outcome and return of investors are important issue of impact investment research. 'Innovation' is also included in this theme, indicating that impact investment aims to create some innovation of the society, not only seeking the financial return.

The theme 'resource procurement and utilization' includes words like 'asset,' 'service,' 'product,' 'capital,' 'project,' 'engagement,' 'funding' and 'decision-making.' It implies that this theme is about engaging assets for the projects and services. 'Social awareness' theme is about change of social paradigm. Words like 'trend,' 'society,' 'review,' 'paradigm,' 'country,' 'social,' 'theory' and 'change' indicate that this theme is about reviewing theories of various countries. The last theme, 'investment policy' is consisted of words like 'policy,' 'practice,'

'instrument' and 'bond,' showing that policies for impact investment are mainly about bond between actors.

Theme	Related Keywords	Sub-theme
Investment purpose & decision	director, philanthropy, fund, woman, girl, right, healthcare, risk, climate change return	Investor's financial purpose of investment
		Economical/social decision-making
		Strategies to benefit women
Investment method	strategy, challenge, bond, conduct, collaboration, business, government, company, microfinance, bank	Government investment management
		Investment perspectives of government and market
		Responsible Investing
		Strategies to pursue sustainability in financial dimension
		Impact fund investment strategies
Investment performance & assessment	community, donor, assessment, evaluation, approach, analyst, measurement, return, investor, innovation, outcome	Performance assessment strategies
		History of social impact pursuit
		Financial return of impact investment
		Performance assessment criterion
		Expansion of the market in developing countries
		Return of private sector
Resource procurement & utilization	asset, service, product, capital, decision-making, funding, project, area, engagement, financing, effect	Financial asset procurement
		Development resource procurement
		Funding for environment conservation
		Opportunities & challenges of environmental asset utilization
Social awareness	trend, society, review, paradigm, country, social, theory, change,	Social paradigm
		Changes in paradigms of various countries
		Changes in theories of impact investment
		Literature review on social dimension
Role of actors	foundation, community, donor, industry, entrepreneur, stakeholder, network, role, investor, company, SME, organization, responsibility sustainability	Roles of actors in the market
		Roles of actors in social sector
Investment Policy	policy, practice, instrument, bond	Policies to support SIBs for sustainability

Table 1] Topic Modeling for Impact Investment Research by Themes (2011 ~ 2019)

[Table 3] shows how topics of journal articles were classified according to the concept of impact investment. Most of the topics were divided into financial, social and environmental categories.

The 'financial' category is including words like 'finance,' 'microfinance,' 'capital,' 'donor,' 'wealth,' 'investor,' and 'benefit.' These keywords show that this category is mainly about financing, return and investment of donors. The examples of 'financial' topics can be 'investor's financial purpose of investment' and 'strategies to pursue the sustainability in financial dimension.'

'Social' category is consisted of words like 'bond,' 'relationship,' 'service' and 'philanthropy.' It indicates that this category emphasizes partnership among actors and philanthropic side of impact investment. In addition, words like 'woman' and 'rights' show examples of social challenges that impact investment is trying to solve. Moreover, 'social' category also includes

'entrepreneur,' 'SME,' 'sustainability' and 'innovation.' These keywords imply that social dimension of impact investment is seeking ways to create social innovation and increase sustainability of investment projects by introducing new actors like social entrepreneurs. Topics like 'social paradigm' and 'strategies to benefit women' can be some examples of 'social' category.

The 'environmental' category includes words like 'climate,' 'asset' and 'risk,' which are showing importance of utilization of environmental asset and climate change issue. 'Opportunities and challenges of environmental asset utilization' was found as the only 'environmental' topic within the entire period from 2011 to 2019.

Topics which include two values at the same time were categorized into 'financial and social' and 'financial and environmental.' 'Financial and social' category is consisted of words like 'philanthropy,' 'fund,' 'entrepreneur' and 'financing,' mixture of financial and social category. 'Financial and environmental' category is also consisted of words from two categories, such as 'finance,' 'conservation,' 'ecosystem' and 'climate' and 'change.' Sub-themes which have only social and environmental values were not occurred. In case of the 'mixture' category, topics with all three values were involved, like 'changes in theories of impact investment' and 'performance assessment criterion.' In this category, words like 'decision-making,' 'challenge,' 'strategy,' 'evaluation,' 'development,' 'collaboration,' 'value' and 'creation' are included, which are the keywords that need to concern all three dimension of impact investment.

Category	Related Keywords	Sub-theme
Financial	finance, microfinance, capital, donor, fund, market, wealth, infra, benefit, investor, bank, return, asset	Investor's financial purpose of investment
		Government investment management
		Financial asset procurement
		Development resource procurement
		Financial return of impact investment
		Strategies to pursue sustainability in financial dimension
		Expansion of the market in developing countries
		Impact fund investment strategies
Social	bond, relationship, service, community, entrepreneur, policy, innovation, network, woman, girl, rights, philanthropy, SME, partnership, sustainability, paradigm	Social paradigm
		History of social impact pursuit
		Changes in paradigms of various countries
		Literature review on social dimension
		Strategies to benefit women
		Policies to support SIBs for sustainability
Environmental	climate, asset, risk, dimension	Opportunities & challenges of environmental asset utilization
Financial/Social	philanthropy, fund, venture, company, funding, entrepreneur, role, bank, financing	Economical/social decision-making
		Responsible Investing
Financial/Environmental	finance, conservation, ecosystem, climate, change	Funding for environment conservation
Mixture	decision-making, behavior, challenge, strategy, product, evaluation, development, government, business, collaboration, value, creation	Performance assessment strategies
		Investment perspectives of government and market
		Changes in theories of impact investment
		Roles of actors in the market
		Roles of actors in social sector
		Performance assessment criterion
		Return of private sector

Table 1] Topic Modeling for Impact Investment Research by The Concept of Impact Investment (2011 ~ 2019)

This study conducted analysis by setting the period in detail, in order to find out the topic trends over time. Published year of collected studies, from 2011 to 2019, was divided into three periods; from 2011 to 2013, from 2014 to 2016 and from 2017 to 2019. [Table 5] and [Table 6] show the topic trends of two topic modeling methods. The classification process of twenty-five topics and corresponding topics for each period is specified in Appendix.

[Table 5] shows the result of topic modeling by classifying sub-themes again into the themes. According to [Table 5], 'investment performance and assessment' is the theme that the highest number of topics are included in every period. It is the only theme to record a rate over twenty percent for each period. It implies that the impact investors' priority issue is the result of their investment, like return and impact.

Themes which were emphasized in the first period are 'investment purpose and decision' and 'investment method.' It shows that sub-themes like decision-making and investment management are considered by the investors in the early stage of impact investment. Therefore, these two themes faced gradual decline of related topics. The most drastic change happened in 'investment purpose and decision' category. In the first period, from 2011 to 2013, five topics were found to be included in this theme. However, in the second and the third period, only one sub-theme was included in this section.

In the second period, the number of sub-themes related to 'resource procurement and utilization' and 'role of actors' was increased. The growth of 'resource procurement and utilization' reflects the fact that impact investment is recognized as a new development resources. It also shows that impact investors started to looking for a way to utilize their resources wisely, not only thinking about how to manage their investment process. In addition, the growth of 'role of actors' shows that impact investors' increased interest on the partnership between various players for more effectiveness of their investment.

'Social awareness' was found to be the most noteworthy theme in the third period. This theme is significant in that it is drawing more and more attention of the researchers. Though there was no topic related to the social awareness of people in the first period, the number of topics were increased throughout the time. It reflects the fact that the social paradigm or theories about impact investment have progressively been established.

	2011 ~ 2013		2014 ~ 2016		2017 ~ 2019		2011 ~ 2019	
Theme	Number	Ratio	Number	Ratio	Number	Ratio	Number	Ratio
Investment purpose & decision	5	20%	1	4%	1	4%	3	12%
Investment method	5	20%	5	20%	3	12%	5	20%
Investment performance & assessment	6	24%	6	24%	7	28%	6	24%
Resource procurement & utilization	3	12%	5	20%	4	16%	4	16%
Social awareness	0	0%	1	4%	5	20%	4	16%
Role of actors	4	16%	7	28%	4	16%	2	8%
Investment Policy	2	8%	0	0%	1	4%	1	4%
Total	25	100%	25	100%	25	100%	25	100%

Table 2] Topic Modeling for Impact Investment Research by Themes

[Table 6] shows the result of topic modeling by using categories according to the concept of impact investment. According to [Table 6], rate of 'financial' category is the highest in most period, especially in the entire period from 2011 to 2019. This implies that the impact investment research is still focusing on its financial dimension rather than other values. The importance of financial value is also noted in the fact that topics with two values always contain economic one. In is clearly shown that there was no sub-theme which only includes social and environmental values. Therefore, it can be said that the financial value is the basis of impact investment research.

Another implication from [Table 6] is the fluctuation of 'Social' category. In the first period, from 2011 to 2013, almost fifty percent of sub-themes were related to social dimension of impact investment. It implies that impact investors and researchers were focusing on social impact of impact investment as it is a significant difference with other types of investments in the early stage. However, only four topics among twenty-five were included in social section in the second period. It clearly shows that the interest of researchers and investors moved on to the financial return of their investments. The importance of social value is gradually increasing in the third period, as the international community is focusing on the 'impact' of impact investment again.

The third implication is from the 'Environmental' category. It is found that the academia is not yet interested in environmental value of impact investment. There was no topic about environmental value from 2011 to 2016, and only one sub-theme was related to it in the third period. Even in the case of topics with two values, it is found that financial and social value are drawing more attention that financial and environmental values. It implies that the research on environmental value of impact investment is outrageously insufficient.

The last implication of topic modeling is from the 'Mixture' category. Though the scarcity of interest on environmental values, there has been a steady interest on the 'triple-bottom line' of impact investment. 'Mixture' category rated more than twenty percent in every period, which shows that the researchers clearly know the concept of impact investment. Moreover, the number of topics included in 'Mixture' category has been growing, implying the possibility to be increased in the future.

Category	2011 ~ 2013		2014 ~ 2016		2017 ~ 2019		2011 ~ 2019	
	Number	Ratio	Number	Ratio	Number	Ratio	Number	Ratio
Financial	7	28%	10	40%	9	36%	8	32%
Social	12	48%	4	16%	6	24%	6	24%
Environmental	0	0%	0	0%	1	4%	1	4%
Financial/Social	1	4%	4	16%	1	4%	2	8%
Financial/ Environmental	0	0%	1	4%	1	4%	1	4%
Mixture	5	20%	6	24%	7	28%	7	28%
Total	25	100%	25	100%	25	100%	25	100%

Table 3] Topic Modeling for Impact Investment Research by The Concept of Impact Investment

4.3. Keyword Network Map

Using the NetMiner 4.0, this study extracted keywords from the selected articles. When extracting keywords, general verbs and nouns not related to the content (e.g. research, goal, analysis, focus), words that are related to the main topic (e.g. impact, investment, impact investment) were removed. As for the inclusion of similar words such as 'impact investment' and 'impact investing,' this study selected keywords which are used more commonly in the academia. In addition, in case of abbreviation such as 'Social Responsible Investing' and 'SRI,' it was set for abbreviation to include every other words to prevent the situation that the software analyzes each parts separately like 'social,' 'responsible' and 'investing.' NetMiner 4.0 was also used for analyzing the relationship between keywords, by converting the two-mode network of the words-articles structure to the one-mode network of words-words structure. This one-mode network shows the co-occurrence of keywords within 142 articles. Then, Path Finder Network Scaling was progressed to leave only highly interrelated relationships between words, for the visualization.

[Figure 5] shows the result of the text network analysis from 2011 to 2019. The total number of extracted keywords was 2,398, but only eighty-two words occurred in more than eleven articles were analyzed to see the relationships between the most frequently occurred words. According to the [Figure 5], words that are in the center of the network are 'investor,' 'market,' 'development,' 'policy,' and 'capital.' In the group of 'investor,' the most important word is 'return.' It was found that the investors are taking risks when they are funding to the impact investment projects for the return of values. Words like 'financing' and 'fund' show that the value impact investors are looking for is financial value. 'Bank,' 'community,' 'company' and 'institution' can be few examples of these investors.

'Market' is also one of the main investors of impact investment projects, which already formalized its own group in the keyword network map. In the group of 'market,' words like 'finance' and 'role' are important. These two words imply that financing for projects and practitioners in the market field and the role of market sector in impact investment are the main things that the market is concerning.

The group of 'development' clearly shows the attention of impact investment research on developing countries. In this section, the most important word is 'challenge.' Words like 'solution,' 'strategy,' 'innovation' and 'practice' show that important issue of impact investment in international development field is to solve the problems for the growth of developing countries.

Though the frequency of occurrence is quite low, 'policy' and 'capital' also have their own groups in the keyword network map. In case of 'policy,' it was found that 'government' and 'business' is the main consideration of impact investment policies. Words like 'management,' 'sustainability' and 'governance' imply that the policies for government is mostly concerning about management of resources and sustainability of its investment. In addition, in the 'business' sector, words like 'social,' 'activity' and 'model' show that policies for businesses are mainly for social enterprises. It also indicates that these policies are to enhance the effectiveness of activities of social enterprises, to achieve their social goals.

The group of 'capital' is the smallest group in the map. 'Tool,' 'measurement,' 'evaluation' and 'effect' clearly show that the capital is necessary for making tools of performance measurement of impact investment.

In the overall period of impact investment research, it is found that the impact investment is mainly focusing on its financial values. The biggest groups, group of 'investor' and 'market' indicate that impact investors are only considering the financial return of their investment projects rather than social or environmental values. However, impact investment policies keep the social value of impact investment on the top priority, as it's supporting activities of social enterprises and sustainability of government's projects. The group of 'development' can be said as the mixture of financial and social values, as its consisted of words like 'funding,' 'economy,' 'growth,' 'innovation' and 'service.'

Figure 5] Text Network of Impact Investment Research

In the period from 2011 to 2013, thirty words were occurred in more than three articles among eighteen were selected. According to the [Figure 6], the most important words in this period are 'theory,' 'return,' 'investor' and 'development,' though there was no significant group.

The word 'theory' reflects the fact that this period is the early stage of the research on impact investment. Words like 'challenge,' 'practice,' 'strategy' and 'change' imply that the researchers and impact investors realized some challenges in the field of impact investment. These keywords indicate that they tried to establish theories and strategies to solve the problem, change the community and enhance the efficiency of impact investment in practice.

'Return' is also the keyword that occurred often in this period. The fact that it is connected with both 'social' and 'fund' imply the importance of this word. As it is also connected with 'theory,' it can be said that the researchers made and effort to establish theories, focusing on the ultimate purpose of impact investment, which is creating financial and social return.

'Investor' shows that there were various stakeholders like market, Limited Liability Company (LLC) and institutions. In this period, market was not stressed as the main investor. Research on impact investment between 2011 and 2013 stated the importance of 'role,' 'interest' and 'financing' or the investment 'activity' itself of these stakeholders.

In this period, 'development' was just one area that investors were interested in. Relationship between 'development,' 'organization' and 'benefit' indicates that impact investors of early stage concerned about the return they can earn through international development cooperation.

The first period of impact investment research implies that this time was an era for establishing theories within the academia. In addition, researchers of impact investment were focusing on both financial and social values. Connection of 'return' with 'social' and 'fund' shows this balance between economic and social impact. However, the fact that 'investor' is mainly connected with words like 'financing' and 'interest' indicates the emphasis on financial value of the stakeholders.
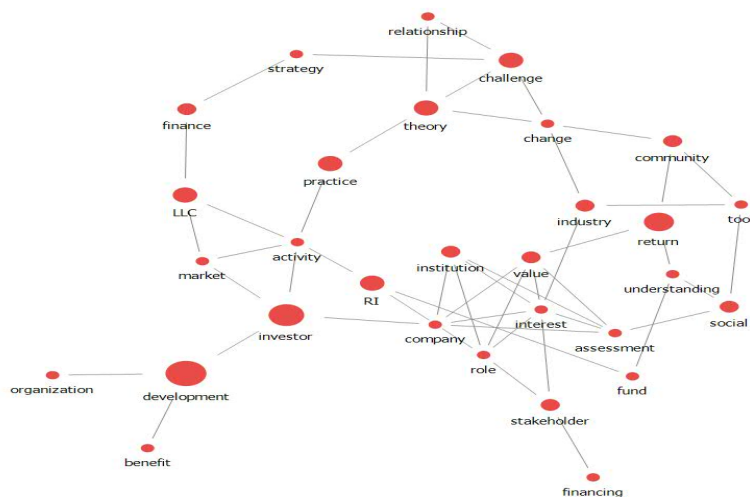
Figure 6] Text Network of Impact Investment (2011 ~ 2013)

In the second period, from 2014 to 2016, thirty-seven articles were found, and total 865 words were extracted. Among these keywords, this study considered seventy words that were appeared in more than four articles. It was found that financial and social values are divided by the word 'resource.'

In the financial section, the most important words are 'investor,' 'market' and 'development.' 'Investor' is the keyword which has a great frequency in occurrence. It still has close relationship with words like 'return' and 'fund,' that indicates the investors' main goal is the creation of value and benefit, mostly the financial. Among these investors like 'business,' 'government,' 'institution' and 'foundation,' the 'market' showed the significant growth in this era. It is closely connected with other investors, concentrating on the management of itself.

Impact investment on 'development' also focused on financial dimension in the second period. Words like 'economy,' 'capital' and 'fund' imply that development projects were considering mainly on financial effect or economic growth through funds.

The social section of this period is considering the issue of the scarcity of financial and social resources. Though there is a word 'finance,' this group is named as social section because 'social' words like 'entrepreneurship' and 'sustainability' are concentrated in this part. In addition, 'finance' is also closely related with 'social,' 'service' and 'collaboration.' Therefore, although the words in financial section occurred much more than the words in social section, it is meaningful that social part grew and specialized. 'Sustainability' and 'entrepreneurship' indicate the increase of interest on social goals of impact investment and the growth of social dimension.
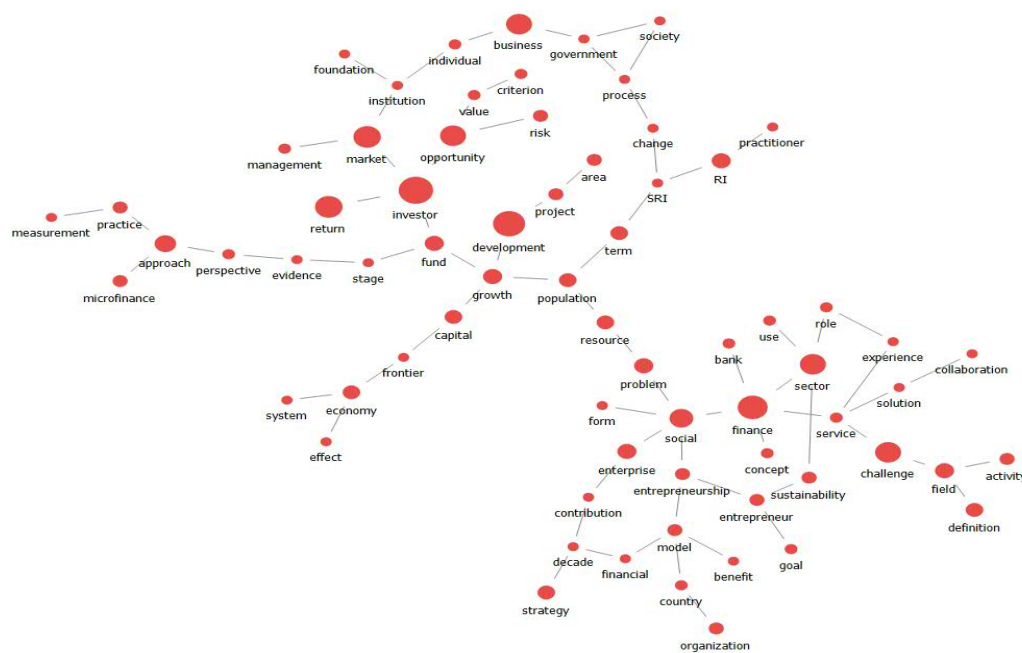
Figure 7] Text Network of Impact Investment (2014 ~ 2016)

In the third period, from 2017 to 2019, eighty-seven articles were published. Among 1,797 words, eighty-seven words appeared in more than seven articles were extracted as significant keywords. In this period, the word 'market' is in the center of the network. Keywords of this era can be divided into groups of 'market,' 'development,' 'policy' and 'sustainability.'

In the group of 'market' and 'investor,' it was found that market is totally divided from the group of investors. Moreover, market formulated the biggest group of keyword network in this era. 'Asset,' 'class,' 'practitioner' and 'method' indicate that various investors are looking for different kinds of asset classes as financial resources for impact investment projects. It implies that impact investors are still focusing on financial values. However, in this period, it was found that investors including market started to emphasize social value of impact investment. Words like 'responsibility,' 'bond' and 'manager' clearly show the consideration of impact investors on their social roles and goals.

Researchers' interest on social returns appeared more distinctly in the groups of 'sustainability' and 'policy,' which were specialized from the social section. These two sections are connected with the word 'partnership,' which is also included in the social section. In the group of 'sustainability,' 'government,' 'value,' 'management' and 'governance' are important keywords. In this group, efforts to keep the value of sustainability, especially the management of government is emphasized. In the group of 'policy,' the importance of social policies increased. Researchers are looking for policies for innovative solution, measurement and evaluation.

The attention towards 'development' was found to be decreased a lot in the third period. However, the words connected with development were diversified, such as 'challenge,' 'country,' 'economy' and 'enterprise.' As the 'development' is connected with 'solution' and 'innovation,' it can be said that the researchers are looking for a way to overcome the challenges innovatively. Moreover, the word 'theory' is included in the 'challenge' of 'development.' It means that the international development is considered as main research subjects in the field of impact investment.
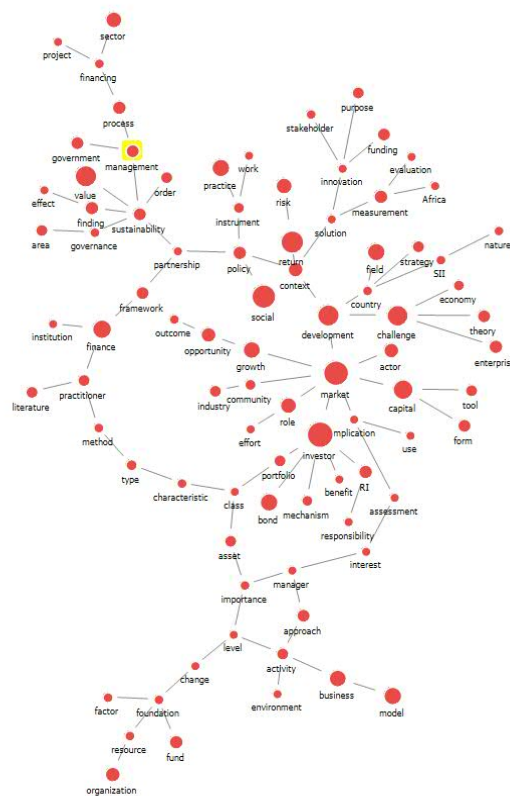

Figure 8] Text Network of Impact Investment (2017 ~ 2019)

4.4. Keyword Trends

This study divided collected articles into three groups based on the published year, and analyzed them by the word co-occurrence with NetMiner 4.0. In this analysis, the in-degree

centrality of the words shows their representativeness. A word that has high in-degree centrality means how often they occurred with other keywords.

[Table 5] shows the change of the trends of research on impact investment through time period and there are few implications about these trends. The first implication is about the words which appeared in every period steadily. Words like 'investor,' 'return' and 'development' have always been in the top 10 keywords in the research on impact investment. However, researchers' interest on word 'development' is keep decreasing unlike other two words. It shows that the attention towards impact investment in developing countries or international development has been fallen.

The second implication is the emergence of new keywords. Words like 'market' and 'social' started to be emphasized between 2014 and 2016, and became important keywords in the third period. This shows that the researchers' attention towards social value of impact investment has grown gradually. Furthermore, it shows that market is considered as a main stakeholder in the field of impact investment.

The last implication is about the words that are only appeared in certain period. In the first period, the word 'theory' was emphasized as one of the keywords. It clearly shows that the period between 2011 and 2013 was the term that researchers were establishing new theories for the new concept. In the second period, words like 'sector' and 'approach' were appeared. These two words imply that researchers started to study on partnerships of various sectors like public, private and civic and tried to find ways to manage those partnerships for the better performance of impact investment projects. In the third period, the word 'capital' found to be one of the keywords which has high in-degree centrality. In the entire period from 2011 to 2019, 'capital' was found to be connected with 'evaluation,' 'tool,' 'assessment' and 'evaluation.' In addition, in the third period, 'capital' was related to words like 'tool' and 'form.' Therefore, it can be said that high in-degree centrality of capital in this period indicates the awareness of evaluation and assessment.

2011 ~ 2013		2014 ~ 2016		2017 ~ 2019	
Keyword	In-Degree Centrality	Keyword	In-Degree Centrality	Keyword	In-Degree Centrality
Development	0.095960	Investor	0.151620	Market	0.141982
Investor	0.068182	Finance	0.111111	Investor	0.139198
Return	0.058081	Sector	0.099537	Social	0.114143
Theory	0.050505	Development	0.098380	Return	0.113586
Challenge	0.037879	Opportunity	0.092593	Value	0.098552
Institution	0.035354	Market	0.091435	Development	0.098552
Community	0.035354	Return	0.087963	Challenge	0.088530
LLC	0.035354	Social	0.085648	Capital	0.080178
Value	0.032828	Approach	0.085648	Business	0.075167
Industry	0.032828	Business	0.084491	Finance	0.074053

Table 4] Keyword Trends of Impact Investment

5. Conclusion

With the need for a new development resources, impact investment has emerged as a type of investment differentiated from others, which has a potential for financial, social and environmental development in both donor and developing countries. It can be a way to mobilize private capital which cannot be fulfilled by ODA and a way to make various actors to cooperate. It is also emphasized as a method to raise a social sector of developing countries. In particular, impact investment is drawing attention as a prominent way to set up a social economy in developing countries.

This study reviewed the research trend on impact investment by text network analysis. Collected journal articles were divided into three periods to investigate the specific changes in research trends. The text network analysis was utilized in three ways; topic modeling, keyword network map and keyword trends, and suggested a few implications.

The first implication is that research on impact investment is still mainly focusing on financial value, but is changing in a way to consider social value as well. Topic modeling on impact investment showed that most of the topics are related to economic issues, such as financial return and resource procurement. It was also found in the keyword network map that most of the words with high frequency of occurrence are in economic category. In particular, keyword network map indicated that the main goal of impact investors is financial return from their investments.

However, researchers' attention towards the social value of impact investment has been growing gradually. The result of the topic modeling showed slight increase of 'Social' category between the second and the third period. Growth of 'Mixture' category also implied that researchers' massive interests on financial value developed to the concerns on various values include economic value that impact investment can create. Moreover, emergence of words like 'sustainability,' 'entrepreneurship,' 'enterprise' and 'bond' distinctly indicated the enlargement of attention for impact investment' s social value.

The second implication is that there is still lack of research on the environmental impact of impact investment. Topic modeling analysis showed that there are only few research topics related to the 'environmental' category, as well as in 'financial and environmental' section. Moreover, 'environmental' keyword have never appeared in keyword network map. These results implied that the researchers should focus more on the environmental return, rather than concerning only the financial and social impacts.

The last implication is about the change in research trends of impact investment, which was found in the keyword trends section. In the first period, from 2011 to 2013, many studies on impact investment were about theories, which reflected the characteristic of early stage studies. Then, in the second period, partnership among various sectors began to be emphasized in the academia for effectiveness and efficiency of impact investment. In the last

period, between 2017 and 2019, the word 'capital' began to rise, which indicated the growth of researchers' attention for the evaluation of their performances. Therefore, it can be said that the research trend is clearly changing throughout the history, from establishment of theories to the assessment of results.

References

Business Impact (no date). *What Is Social Impact?*. [online]. Available at: https://socialimpact.umich.edu/about/what-is-social-impact/ [Accessed 5 June 2019].

Choi, Y. and Park, S. (2011). *A Study on the Trends of Korean Administration: Application of Network Text Analysis Method*. Korean Public Administration Review, Volume 45 (1), pp.123-139.

Choi, Y., Choi, Y. and Kim, H. (2011). Analysing Key Policy Concepts Underlying Saemaul Undong Policy Within Newspaper Editorials: Application of Network Text Analysis Method. *Korean Comparative Government Review*, Volume 15 (3), pp. 45-70.

CSI (2008). *About Social Impact* [online]. Available at: https://www.csi.edu.au/about-social/ [Accessed 5 June 2019].

Diesner, J. and Carley, K. (no date). *Using Network Text Analysis to Detect the Organizational Structure of Covert Networks* [online]. Available at: https://www.researchgate.net/publication/220017532_Using_Network_Text_Analysis_to_Detect_the_Organizational_Structure_of_Covert_Networks [Accessed 3 April 2019].

EC (2016). *Future Brief: Environmental Impact Investment*. Brussels: EC.

Emerson, J. (2003). *The Blended Value Proposition: Integrating Social and Financial Returns*. California Management Review, Volume 45 (4), pp.35-51.

GIIN (no date). *What You Need to Know about Impact Investing* [online]. Available at: https://thegiin.org/impact-investing/need-to-know/#how-do-impact-investments-perform-financially [Accessed 12 June 2019].

Guézennec, C. and Malochet, G. (2013). *Impact Investing: a Way to Finance the Social and Solidarity Economy? An International Comparison.* Working Paper No. 2013-02. Paris: The Policy Planning Commission (CGSP).

InSight at Pacific Community Ventures and Initiative for Responsible Investment at Harvard University (2011). *Impact Investing: A Framework for Policy Design and Analysis* [online]. Available at: http://iri.hks.harvard.edu/files/iri/files/impact-investing-policy-framework.pdf [Accessed 2 June 2019].

Kim, J. (2013). *Opportunities and Possibilities of Impact Investment as Social Finance* [online]. Available at: http://ibr.kr/1 [Accessed 9 May 2019].

_____. (2016). *Impact Investment and Social Venture* [online]. Available at: https://webcache.googleusercontent.com/search?q=cache:YmmAddXJj6sJ:https://ccei.creativekorea.or.kr/json/common/fileDown.download%3Fuuid%3D201706270930018fbc27d7-6eb6-47d3-a3f2-2f2b2bb9f374+&cd=1&hl=ko&ct=clnk&gl=kr [Accessed 10 May 2019].

Kim, J. and Lee, S. (2014). *Discussion and Implications of Impact Investment and DIB*. Seongnam: KOICA.

Kim, J., Kim, H., Kim, S., Lee, K., Kwon, E., Kim, E. and Oh, S. (2018). *A Study on the Establishment of Korea International Cooperation Agency (KOICA) Impact Investment and Using Blended Resources Guidelines*. Seongnam: KOICA.

Lee, T., Park, K., Seomun, G., Kim, M., Hwang, J., Yu, S., Jeong, S., Jung, M. and Moon, M. (2017). *Analysis of Research Articles Published in the Journal of Korean Academy of Nursing Administration for 3 Years (2013~2015): The Application of Text Network Analysis*. Journal of Korean Academy of Nursing Administration, Volume 21 (1), pp. 101-110.

Marlowe, J. (2014). Socially Responsible Investing and Public Pension Fund Performance. *Public Performance & Management Review*, Volume 38, pp. 337-358.

Mudaliar, A., Schiff, H. and Bass, R. (2016). *2016 Annual Impact Investor Survey*. New York: GIIN.

O'Donohoe, N., Leijonhufvud, C., Saltuk, Y., Bugg-Levine, A. and Brandenburg, M. (2010). *Impact Investments: An emerging asset class*. New York: J.P. Morgan.

OECD. (2015). *Social Impact Investment: Building the Evidence Base*. Paris: OECD.

_____. (2016). *Development Co-operation for Private Sector Development: Analytical Framework and Measuring Official Development Finance.* Paris: OECD.

Oh, S., Choi, H. and Yoon, J. (2017). Monitoring Augmented Reality Technology Using Topic Modeling of Patents. *Journal of the Korean Institute of industrial Engineers*, June 2017, pp. 213-228.

Open University (no date). *Sustainable Innovations in Enterprises* [online]. Available at: https://www.open.edu/openlearn/money-business/sustainable-innovations-enterprises/content-section-3.2.3 [Accessed 2 June 2019].

Piskadlo, D. (2018). *Impact Investing Trends in 2018* [online]. Available at: https://www.centerforfinancialinclusion.org/impact-investing-trends-in-2018/ [Accessed 5 June 2019].

Popping, R. (2000). *Computer-assisted Text Analysis*. London: Thousand Oaks: Sage Publications.

Reeder, N. and Colantonio, A. (2013). *Measuring Impact and Non-financial Returns In Impact Investing: A Critical Overview of Concepts and Practice.* EIBURS Working Paper 2013/01. London: London School of Economics and Political Science.

Shin, S., Ha, M. and Lee, J. (2018). *Rediscovering the Interest of Science Education: Focus on the Meaning and Value of Interest*. Journal of the Korean Association for Science Education, Volume 38 (5), pp. 705-720.

Slaper, T. and Hall, T. (2011). *The Triple Bottom Line: What Is It and How Does It Work?*. *Indiana Business Review*, Spring 2011, pp. 4-8.

Sowa, J. (1984). *Conceptual Structures: Information Processing in Mind and Machine* [online]. Available at: https://www.researchgate.net/publication/200043236_Conceptual_Structures_Information_Processing_in_Mind_and_Machine_The_Systems_Programming_Series [Accessed 9 June 2019].

Tekula, R. and Shah, A. (2016). 'Funding Social Innovation' in Lehner, O. M. (ed.) *Routledge Handbook of Social and Sustainable Finance*. Oxford: Routledge, pp. 125-136.

Tekula, R. and Andersen, K. (2019). The Role of Government, Nonprofit, and Private Facilitation of the Impact Investing Marketplace. *Public Performance & Management Review*, Volume 42 (1), pp. 142-161.

Appendix 1. Topic Modeling for Impact Investment Research by Themes

1.1. The First Period: 2011 ~ 2013

Sub-theme	Theme
Financial investment strategy	Investment method
Social investment strategy	Investment method
Financial investment method	Investment method
Social asset utilization	Resource procurement & utilization
Financial asset utilization	Resource procurement & utilization
Investment method of institutions	Investment method
Information procurement for decision-making	Resource procurement & utilization
Foundation as a decision-maker	Investment purpose & decision
Performances & risks of impact investment	Investment performance & assessment
Various investors	Role of actors
Social return	Investment performance & assessment
Expansion of the market in developing countries	Investment performance & assessment
Social value assessment	Investment performance & assessment
Investment purpose of institutions	Investment purpose & decision
Policies for practice of investment	Investment Policy
Roles of social entrepreneurs	Role of actors
Roles of investment policies	Investment Policy
Social innovation & social performances	Investment performance & assessment
Social & financial dimension of impact investment	Investment purpose & decision
Collaboration & roles of stakeholders	Role of actors
Methods for improvement of women's benefit	Investment purpose & decision
Changes in performance assessment method	Investment performance & assessment
Improvement of women's right	Investment purpose & decision
Social role of private company & assessment	Role of actors
Measurement of social investment strategies	Investment method

1.2. The Second Period: 2014 ~ 2016

Sub-theme	Theme
Financing of actors	Resource procurement & utilization
Responsible Investing	Investment method
Investment on healthcare	Investment purpose & decision
Increase of resources utilization for development	Resource procurement & utilization
Assessment of activities	Investment performance & assessment
Assessment of performances	Investment performance & assessment
Roles of entrepreneurs	Role of actors
Impact investment market	Resource procurement & utilization
Social awareness on wealth	Social awareness
Approach of government to infrastructure	Investment method
Investors in the market & their asset	Role of actors
Financing for social sector	Resource procurement & utilization
Social sector & social return	Investment performance & assessment
Roles of entrepreneurs & impact funds	Role of actors
Financing for environment conservation	Resource procurement & utilization
Financial return for investors	Investment performance & assessment
Social & economical dimension of impact investment	Investment method
Resources procurement for development projects	Resource procurement & utilization
Roles of financial sector for sustainability	Role of actors
Management of shareholders in the market	Role of actors
Collaboration of government and businesses	Investment method
Roles of social enterprises	Role of actors
Return of entrepreneurs	Investment performance & assessment
Challenges in development field	Investment performance & assessment
Investment of private companies & funds	Investment method

1.3. The Third Period: 2017 ~ 2019

Sub-theme	Theme
Literature review on social entrepreneurship	Social awareness
Responsibility of actors for sustainability	Role of actors
Benefits of investment recipients	Investment performance & assessment
Changes in paradigms of various countries	Social awareness
Financial return of private companies	Investment performance & assessment
Economic benefits for improvement of welfare in developing countries	Investment performance & assessment
Changes in social paradigms	Social awareness
Policies for coordination of various actors	Investment Policy
Investors' performance assessment methods	Investment performance & assessment
Social capital of investors	Resource procurement & utilization
Financial investment strategies	Investment method
Value creation and management	Investment performance & assessment
Investment considering environmental risks	Investment purpose & decision
Financial dimension of responsible investing	Investment method
Utilization of environmental assets	Resource procurement & utilization
Utilization of financial assets	Resource procurement & utilization
Economy conservation of developing countries	Investment performance & assessment
Stakeholders' performances assessment	Investment performance & assessment
Financial institutions	Role of actors
Social & financial effect of impact investment	Resource procurement & utilization
Changes in theories & tools	Social awareness
Factors of development of foundations	Social awareness
Partnership methods for SIBs	Investment method
Types of institutions in the market	Role of actors
Roles of market sector for development	Role of actors

Appendix 2. Topic Modeling for Impact Investment Research by The Concept of Impact Investment

2.1. The First Period: 2011 ~ 2013

Sub-theme	Category
Financial investment strategy	Financial
Social investment strategy	Social
Financial investment method	Financial
Social asset utilization	Social
Financial asset utilization	Financial
Investment method of institutions	Financial
Information procurement for decision-making	Mixture
Foundation as a decision-maker	Mixture
Performances & risks of impact investment	Mixture
Various investors	Financial
Social return	Social
Expansion of the market in developing countries	Financial
Social value assessment	Social
Investment purpose of institutions	Mixture
Policies for practice of investment	Financial
Roles of social entrepreneurs	Social
Roles of investment policies	Social
Social innovation & social performances	Social
Social & financial dimension of impact investment	Financial/Social
Collaboration & roles of stakeholders	Social
Methods for improvement of women's benefit	Social
Changes in performance assessment method	Mixture
Improvement of women's right	Social
Social role of private company & assessment	Social
Measurement of social investment strategies	Social

2.2. The Second Period: 2014 ~ 2016

Sub-theme	Category
Financing of actors	Financial
Responsible Investing	Financial/Social
Investment on healthcare	Social
Increase of resources utilization for development	Financial
Assessment of activities	Mixture
Assessment of performances	Mixture
Roles of entrepreneurs	Social
Impact investment market	Financial
Social awareness on wealth	Financial
Approach of government to infrastructure	Financial
Investors in the market & their asset	Financial
Financing for social sector	Financial/Social
Social sector & social return	Social
Roles of entrepreneurs & impact funds	Financial/Social
Financing for environment conservation	Financial/Environmental
Financial return for investors	Financial
Social & economical dimension of impact investment	Financial/Social
Resources procurement for development projects	Mixture
Roles of financial sector for sustainability	Financial
Management of shareholders in the market	Financial
Collaboration of government and businesses	Mixture
Roles of social enterprises	Social
Return of entrepreneurs	Mixture
Challenges in development field	Mixture
Investment of private companies & funds	Financial

2.3. The Third Period: 2017 ~ 2019

Sub-theme	Category
Literature review on social entrepreneurship	Social
Responsibility of actors for sustainability	Mixture
Benefits of investment recipients	Mixture
Changes in paradigms of various countries	Social
Financial return of private companies	Financial
Economic benefits for improvement of welfare in developing countries	Financial
Changes in social paradigms	Social
Policies for coordination of various actors	Social
Investors' performance assessment methods	Mixture
Social capital of investors	Social
Financial investment strategies	Financial
Value creation and management	Mixture
Investment considering environmental risks	Financial/Environmental
Financial dimension of responsible investing	Financial
Utilization of environmental assets	Environmental
Utilization of financial assets	Financial
Economy conservation of developing countries	Financial
Stakeholders' performances assessment	Mixture
Financial institutions	Financial
Social & financial effect of impact investment	Financial/Social
Changes in theories & tools	Mixture
Factors of development of foundations	Mixture
Partnership methods for SIBs	Social
Types of institutions in the market	Financial
Roles of market sector for development	Financial

EMES network

building knowledge together