ISSN 2508-3155 eISSN 2508-464X

# The International Review of Financial Consumers

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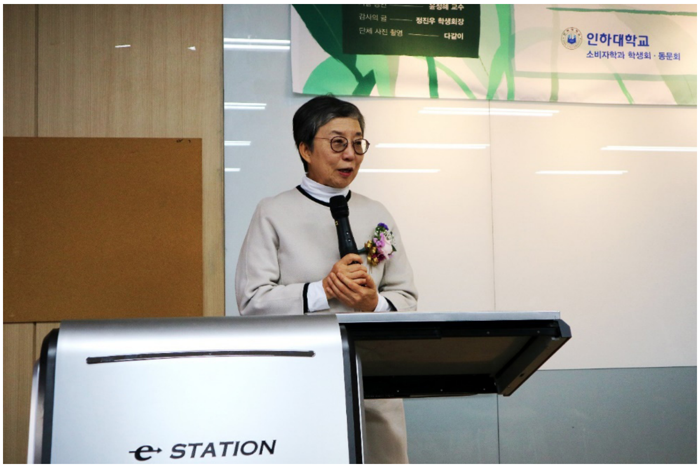
Vol. 4, No. 2, 2019

# Professor Junghai Yoon (retiring in February 2020)



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The International Review of Financial Consumers, Volume.4 Issue.2(Oct., 2019), 1-11 pISSN 2508-3155 eISSN 2508-464X
https://doi.org/10.36544/irfc.2019.1-2.1


**The International Review of Financial Consumers**

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# The Assessment of Financial Literacy: The Case of Europe*

Gianni Nicolini†

A B S T R A C T

The study starts from the definition of financial literacy and its components, to identify the criteria that an assessment methodology should have to properly measure it. In the second part, an empirical analysis of the degree of financial literacy of adult population in several European countries (France, Germany, Italy, Sweden, UK) is used to highlight similarities and to stress differences between countries. Results show how the availability of 50 items allows to differentiate the levels of financial literacy in various areas of knowledge (e.g. loans, investments, money management). The use of money (e.g. credit cards, debit cards, cash) is the area of knowledge where individuals seem to be more well-informed and confident. Conversely, investment and investment products (e.g. stock, bonds) represent a weak point, with average scores being dramatically low.

*Keywords: financial literacy, financial knowledge, consumer finance.*

## Ⅰ. Introduction

The interest in financial literacy and awareness about its potential in protecting consumers from making mistakes or taking wrong financial decisions have grown over time. Several countries developed national strategies to promote financial literacy through financial education, with an aim of assessing current financial literacy and planning initiatives devoted to developing well-informed and aware financial consumers. Those efforts from governments, policy makers, and other institutions, such as OECD and World Bank, require reliable measurement of financial literacy to estimate a baseline level of knowledge of a certain target group (e.g. youth, adults, working population, etc.), plan for financial education curricula, and assess the effectiveness of such initiatives.

This paper uses a literature review to summarize definitions and ways to measure financial literacy, with the aim of demonstrating how measures on financial literacy improvement based on a reasonable number of items that take into account different areas of knowledge can provide a clearer understanding of financial literacy level than measures based on just a few items.

The paper is organized in two parts. The first one is focused on the definition of financial literacy and its measurement. The second part analyzes data from different European countries to assess the financial literacy of adult populations.

## Ⅱ. Definition of Financial Literacy

The assessment of financial literacy requires a clear definition about what financial literacy means. In one

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of the first studies on financial literacy, Noctor, Stoney and Stradling (1992) refer to financial literacy as “the ability to make informed judgements and to make effective decisions regarding the use and management of money". This definition starts from the ability (competence) but makes a step forward pointing out that financial literacy includes ability to take financial decisions. If the word knowledge is not mentioned in this definition, it can be argued that it is included in it. If knowledge and competence are different concepts, we can assume there is a hierarchic connection between them. This is due to the fact that knowledge represents some kind of pre-requisite to develop competence, if competence is an ability to apply knowledge to practical issues, solving a problem or taking a decision. Hence, if it is possible to have knowledge and not be able to apply it (competence), it does not work the opposite way. People cannot apply knowledge they do not possess. It follows that, including competence, the definition of Noctor et al. (1992) assumes the relevance of knowledge too and includes all the three basic elements of financial literacy: knowledge, competence and the use of money.

Similar definitions, based on the concept of ability, were used by Mandell (2008) for whom "financial literacy refers to the ability of consumers to make financial decision in their own best short and long term interest". Servon and Kaestner (2008) stated that "Financial literacy refers to a person’s ability to understand and make use of financial concepts". Within this first set of definitions, the one of Noctor et al. (1992) is closer to a concept of financial literacy as a decision-making process. This definition was used in several other studies such as Schagen and Lines (1996), Beal and Delpachitra (2003), ANZ (2008), Atkinson and Kempson (2008) and Worthington (2013). In their study, Schagen and Lines (1996) tried to define abilities related to the "use of money" that need to be considered, arriving to (1) the understanding of key concepts central to money management and (2) the conclusion that a working knowledge of financial institutions, systems and services is the key ability to develop to be financially literate. Similarly, Bowen (2003) made an attempt to specify the skills needed to make "use of money". The author talks about financial knowledge "as the understanding of key financial terms and concepts needed to function daily in American society", saying that "it includes knowledge about items related to banking-checking and savings, auto-life-health and homeowners’ insurance, loans, taxes, and investing".

Vitt et al. (2000) defines financial literacy as “the ability to read, analyze, manage and communicate about the personal financial conditions that affect material well-being". Referring to 'reading', 'analysing' and 'managing', the authors develop the concept of 'competence' in specific areas, all related to the use of the information. The key role of information as the input of a financial decision-making process is quite evident in Mason and Wilson (2000). For these authors, financial literacy is "an individual’s ability to obtain, understand and evaluate the relevant information necessary to make decisions with an awareness of the likely financial consequences". The words 'ability' and 'understand' recall 'competence' and 'knowledge' even if the need of an access to financial information introduces a new issue and highlights how much knowledge and competences risk to be meaningless in a scenario where information is not available. The same issue is stressed by Johnson and Sherraden (2006) who note that the application of knowledge and competence requires access to financial information and financial institutions.

The need to analyze financial literacy in a decision-making framework - implicit in the definition of Vitt et al. (2000) - is even more clear in Danes and Haberman (2007) where "financial literacy is the ability to interpret, communicate, compute, develop independent judgment, and take actions resulting from those processes in order to thrive in our complex financial world".

If financial literacy should be related to both knowledge and competence, some studies paid more attention to 'knowledge', as Kim (2001) stated that “financial literacy is a basic knowledge that people need in order to survive in a modern society”. Similarly, the FINRA (2003) adopted a definition of financial literacy as "the understanding [knowledge] ordinary investors have of market principles, instruments, organizations and regulations". The NCEE (2005) also addresses a pivotal role of knowledge in its definition of financial literacy as "familiarity with basic economic principles, knowledge about the U.S. economy, and understanding of some key economic terms". Lusardi and Tufano (2009) defined financial literacy as "familiarity with the most basic economic concepts needed to make sensible saving and investment decisions" and Almenberg and Widmark (2011) refer to financial literacy as "familiarity with basic financial concepts and products". Again, Lusardi (2008) talks about financial literacy as "the knowledge of basic financial concepts". Definitions of financial literacy merely shaped around financial knowledge and. Generally, studies use financial knowledge as a proxy of financial literacy due to the need to fill the gap between available data - usually on financial knowledge - and the information needed, that involves financial skills and competences too. If the need to cope with the lack of data by using financial knowledge to measure financial literacy is reasonable, a rearrangement of the definition of financial literacy itself to ignore financial abilities and refer simply to financial knowledge is not. Reshaping the definition of financial literacy to make it fit with the data available can have positive effects on the consistency of results in empirical analysis. However, it risks extending conclusions from knowledge to competence assuming that a broader knowledge involves broader competence, even when people could be confident in answering questions about knowledge but not as confident in taking a financial decision. So, a definition of financial literacy should refer to both knowledge and competence on financial issues, keeping in mind that financial literacy should be assessed within a financial decision process, even if difficulties in measuring all these aspects can require the use of proxies.

The need to stress the different roles of knowledge and ability in financial literacy is evident in a number of studies. Moore (2003) highlights how individuals can be considered financially literate if they are competent and can demonstrate that they use the knowledge they have obtained. Huston (2010), in a research that reviewed more than 70 studies, arrived at the conclusion that “financial literacy consists of both knowledge and application [ability] of human capital specific to personal finance”. Knowledge and competences are included in a definition as different concepts even by the Jump$tart Coalition (2007) and the US Financial Literacy and Education Commission (FLEC) (2009). They defined financial literacy as "the ability to use knowledge and skills [competence] to manage financial resources [money] effectively for a lifetime of financial well-being”[1]. This last definition clearly includes all the three key elements of financial literacy (knowledge, competence and the use of money), matching with the core meaning of these topics. If financial literacy is related to the achievement of financial goals (the 'use of money'), the awareness that different goals require different financial knowledge and abilities was included in a definition of financial literacy by Remund (2010) who takes into account both short- and long-term perspectives of a decision-making process. In his study, “financial literacy is a measure of the degree to which one understands key financial concepts [knowledge] and possesses the ability and confidence to manage personal finances [money] through appropriate, short-term decision-making and sound, long-range financial planning, while mindful of life events and changing economic conditions”.

## Ⅲ. The Assessment of Financial Literacy

The assessment of financial literacy relates to the process by which the degree of knowledge and abilities of an individual (or a group of individuals) on a set of financial issues is estimated according to some criteria and by the application of a methodology.

Schmeiser and Seligman (2013), in a study on the measurement of financial literacy, highlighted how the measurement of financial literacy is still in its infancy and there is no standardized instruments for this yet. To understand how to measure financial literacy we need to analyze a number of issues and provide answers to some questions.

The quality of financial literacy measurement depends on the aim of this measurement and its application. Hence, the first issue to take into account is the reason why the measurement is developed. In order to develop a measure of financial literacy we need to know *why the measure is needed and how it will be applied*. When the aim of a study is to provide an overview of financial literacy, stressing how much people know about finance, or analysing the connection of financial literacy and some non-financial factors (e.g. education, stress, risky behaviors, etc.), it is important to include a wide range of financial topics in a study. Taking into account different aspects of the financial preparedness of an individual is consistent with the analysis of very different topics in the areas of money management, borrowing, saving and investment, insurance, etc. This is particularly reasonable when the target group of a study is quite large and includes people that differ in terms of financial needs, previous experiences in finance and different social

[1] The same definition will be used two years later by Hung, Parker and Yoong (2009) and Murphy (2013).

backgrounds. The same measure of financial literacy would be less reliable if applied in a study with the aim to analyze behavior of recipients in relation to a specific target. For instance, the topics to be addressed in a study on the role of financial literacy in the use of credit cards by youth will differ dramatically from a study that aims to summarize the big picture about financial knowledge of a large population. If credit cards can be used as a payment instrument and/or a borrowing facility, financial literacy should be considered in terms of money management and borrowing. It should not be studied with the lens of insurance and planning since the latter topics are not logically connected to the object of a study. Therefore, a measure of financial literacy applied to the knowledge of different financial areas may fit well in one case (overview of financial literacy) but not fit in another case (use of credit cards). Needless to say, the opposite is also true since a measure developed to analyze a specific financial behavior such as the use of credit cards should not be used to measure financial literacy in general terms. A measure developed to analyze money management and borrowing is taking into account only a part of what can be relevant to finance. This approach seems to be coherent with the recommendations provided by the Financial Service Authority in the UK (FSA 2005) on the measuring of financial literacy. In their study, FSA concludes how an overall scale based on knowledge and skills in different financial areas could be inappropriate, supporting the view that measurement should be limited to some selected topics.

Measurement of financial literacy might vary the *degree of difficulty* of test questions, depending on the aim of a study. Some studies will test more advanced knowledge and abilities, while for other cases to test the knowledge of basic financial principles may be enough. Lusardi (2009) analysed financial literacy as a tool for informed consumer choice, highlighting that basic concepts are not enough to take financial decisions. To make a competent savings and investment decision, one needs more than simply applying the knowledge of fundamental financial concepts, although it is essential. One needs to be aware of the relationship between risk and return, to know how bonds, stocks, and mutual funds work, and to understand basic asset pricing. Again, the need to differentiate between knowledge and abilities is stressed by Huston (2011) who suggests to measure knowledge, ability and behaviors separately and connect the three results by a scoring grid.

If the above-mentioned criteria suggest "what" is relevant to measure, before thinking about "how" to do it, it is useful to set some broad criteria for a scoring system on financial literacy. Results from previous studies[2] agree that measures of financial literacy should be *relevant, simple* and *comprehensible*, with the ability to differentiate between different people. A measure of financial literacy is relevant if it is based on the issues that show a connection with the needs of financial knowledge of the recipients. It will be simple and comprehensible if it is possible to explain the outcomes to a non-technical audience. The ability to differentiate between people with different knowledge and abilities is needed to evaluate their scores and compare.

Nicolini (2019) reviewed around 80 studies to demonstrate how different measures of financial literacy were developed. Results show how nearly all available options of measuring financial literacy have been used: self-assessment questions, answers to single questions as self-standing measures of financial literacy, the amount of correct answers to a set of questions. Some studies are looking at these measures in order to develop indices of financial literacy that discriminate between people who correctly answered at least some questions or who were able to provide correct answers to all of them. The same study takes reviews the evidence about topics. Almost three out of four studies (55 out of 78) included the knowledge of basic principles as a reference point or as a part of a bigger set of topics in the assessment of financial literacy. Compound interest, risk diversification and inflation are the most frequent topics. Broad areas of application of such general items make them a perfect match for financial literacy measures applied in studies that try to provide a big picture of financial literacy in a wide population. In most of the cases (41 out of 55), these topics are the only ones used to assess financial literacy, while in the others (14 out of 55) they are used with more specific topics (e.g. money management, saving and investment, etc.). When a specific area of knowledge was emphasized, saving and investments received more attention. More than twenty studies included questions on saving and investments (23 out of 78). In most studies this was the only area of interest, however in some cases (10 out of 23) it was either the focus of the analysis

[2] FSA (2005), Lusardi and Mitchell (2014), Atkinson and Kempson (2008).

or the only topic that was matched with items of general issues.

## Ⅳ. Financial Literacy in Europe

This section presents the results from an empirical study on financial literacy in Europe. The first sub-paragraph describes the survey used to collect data as well as the questionnaire structure. The second presents the results of the survey, comparing the degree of financial literacy across different European countries.

### A. Data

The data were provided by the Consumer Finance Research Center (CFRC): a research center promoted by a network of academics, with an aim of doing research and developing studies on consumer finance by linking together academics, financial authorities, consumer unions and NGOs[3]. From 2014 to 2018, the CFRC promoted a set of national surveys, targeting adults population (older than 18 years), with an aim of measuring the degree of financial literacy in Europe. The survey was replicated in different countries (France, Germany, Italy, Sweden, the UK) with the application of the same criteria and questionnaire, in order to collect data both for a national study and an international comparison. The questionnaire was specifically developed to analyze financial literacy and financial behaviors of financial consumers in European countries. The structure and the contents of the questionnaire were released by the experts of the CFRC taking care of previous studies and customizing the questions to make them fit with the peculiarities of the specific country (e.g. financial products and services available, legal framework, features of the welfare system, etc.).

The questionnaire is organized in three sections. The first section gathers information on respondents' socio-demographic characteristics. Questions concern age, gender, education, marital status, income, and other information useful for identification of respondent's personal profile.

Section number two consists of 50 multiple choice questions on financial literacy. Questions are organized in ten groups of five questions each. Each group analyzes financial knowledge and financial behaviors on a specific area of contents. The ten areas are the following: Interest rates, Inflation, Mortgages, Investments, Bonds, Bank accounts, Payments, Savings and Investments, Loans and Debts, and Retirement and Planning.

For each area, five questions were developed following the same principles. Questions are differentiated by the difficulty of a topic. The first two questions are the easiest ones. Questions 3 and 4 stress more advanced topic, while question 5 is the most difficult. Difficulty is mainly referred to as the degree of sophistication of financial content, while other technical sources of difficulty were minimized. So, the length of the question (number of words) does not differ much. The need for mathematical skills was reduced to basic operations, and the use of jargon was limited. This is intended to reduce the chance that a respondent does not answer correctly, even being knowledgeable of the content, due to difficulty related to the technicalities of the question. Standardization of the test involved even the number of options in each question. The only exception is the five questions frequently used in previous surveys (the so-called "Lusardi-Mitchell" questions) - which are part of this questionnaire - in which all questions have the same number of options, equal to three. At the same time, two further options are available: the "do not know" and the "prefer not to say" options to avoid the risk of respondents trying to guess. This second section of the questionnaire provides 50 items to be used to build financial literacy measures. Such a generous number of items was intentionally included in the questionnaire in order to develop and compare several measurements of financial literacy.

The third section of the questionnaire investigates financial behaviors and attitudes in several financial areas. The use of bank accounts, the preferences between difference payments options (e.g. cash, credit cards, etc.) when different options are available, or the preferences for bond or stocks, are few of the financial behaviors discussed in the questionnaire.

### B. Level of Financial Literacy in Europe

The availability of 50 items on financial literacy gives

[3] For details about the CFRC visit www.consumer-finance.org.

the chance to assess financial literacy more thoroughly than some previous studies. 50 questions are divided into ten groups of five questions with varying levels of difficulty. Ten areas of knowledge investigated by those items are Interest rates, Inflation, Mortgages, Diversification, Bonds, Bank Accounts, Payments, Stock Investments, Debts, and Retirement and Insurance. The first five areas represent an extension of the so called "big five" questions originally developed by Lusardi and Mitchell and replicated in several surveys. The first question of the first five sets is a "big five" question. An additional four questions were added in each to complete the set. The remaining five sets were chosen to address different areas of knowledge and include both daily decisions (e.g. payments, bank account management) and long-term decisions (e.g. stock investments, retirement and insurance). Different financial literacy measurements were developed on the basis of those 50 questions. The first one is constructed as the sum of correct answers to the full set of items, being a range from zero to fifty. In addition, ten topic-specific measurements counted the number of correct answers to the five questions in each set. Moreover, it is possible to identify for which topic respondents are the most lacking in knowledge, and in what areas individuals are more knowledgeable.

Infographics of the results for five European countries included in this study (France, Germany, Italy, Sweden, and UK) - overall and separately for men and women -- are reported below.

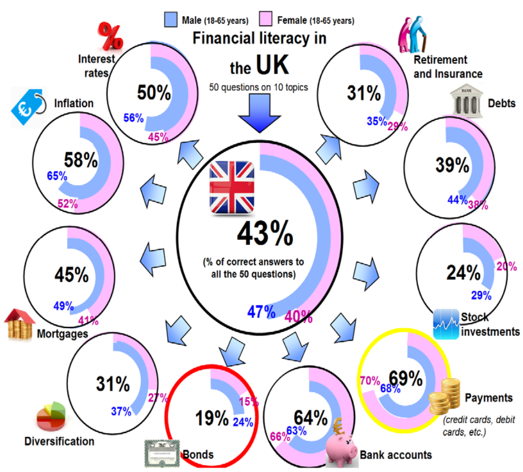


**Figure 1.** Financial literacy in the UK
Source: Data from CRFC (2016) N = 280 men, 316 women, 11 n.a.

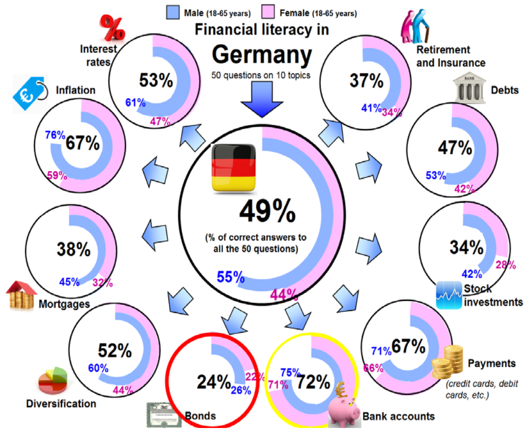


**Figure 2.** Financial literacy in Germany
Source: Data from CRFC (2017); N=244 men, 275 women, 14 n.a.

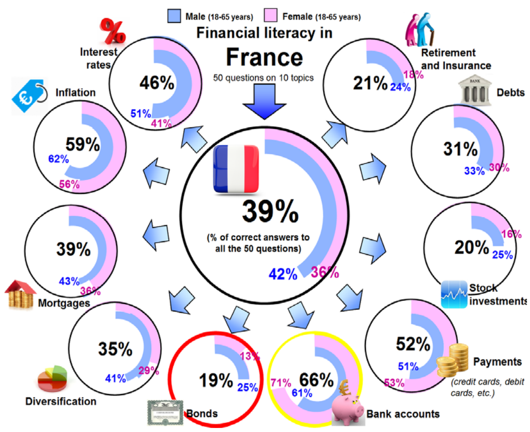


**Figure 3.** Financial literacy in France
Source: Data from CRFC (2017); N=243 men, 263 women, 11 n.a.

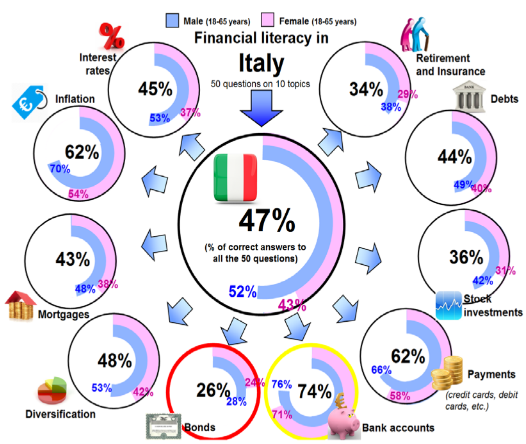


**Figure 4.** Financial literacy in Italy
Source: Data from CRFC (2015); N=247 men, 255 women

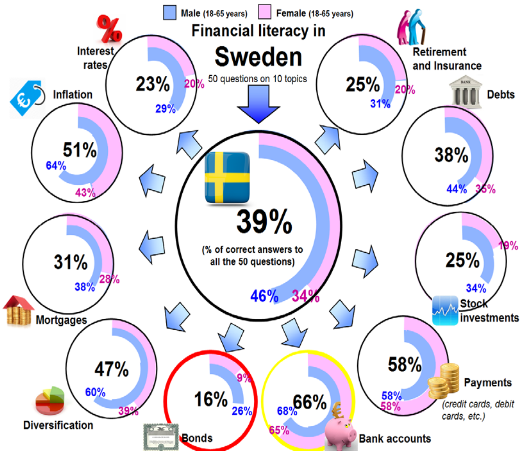


**Figure 5.** Financial literacy in Sweden
Source: Data from CRFC (2015); N=269 men, 369 women, 35 n.a.

Looking at the overall scores - reported in the center of each graph and obtained through the sum of correct answers to all the 50 items - Germany has the highest score (49% of correct answers on average), followed by Italy (47%) and the UK (43%). France and Sweden show average scores (39% for both of them) that are 10 percentage points below that in Germany. Regardless of differences between countries, results are far from being encouraging: on average a European citizen from the sample failed to correctly answer more than half of the questions.

The breakdown of the overall score into ten topic-based scores may be more informative. Looking at the area of knowledge where individuals scored the worst on average, it is clear that Bonds is unanimously the most critical area. It is the area with the lowest score in every country of the sample. In Germany, the average percentage of correct answers to five questions on bonds is 24%. This result is essentially the same in Italy (26%), while the percentage drops to 19% in France and the UK, reaching a minimum in Sweden (16%). Such a low average score is not limited to bonds, but seems to involve the investment areas generally speaking. Results for Stock Investments are only a bit higher than the knowledge on bonds in some cases. The average number of correct answers to five questions on stocks is 34% in Germany and 36% in Italy, while it is 24% in the UK, 25% in Sweden, and only 20% in France.

On the other hand, the area of knowledge with the best scores is Bank Account in three out of five countries (Italy, France, and Sweden), and Payments Tools for the other two countries (Germany, and the UK). Such difference between countries is balanced by the fact that in countries with the highest knowledge on Bank Accounts, the financial literacy score on knowledge is the second best score, while countries that perform best on Payment Tools show the second best result in Bank Accounts. The percentages of correct answers to five questions on Bank Accounts or five question on Payments Tools goes beyond 70% more than once (e.g. Italy - 74% in Bank accounts, Germany - 72% in Bank Accounts) and are systematically greater than 60%.

Looking at other topic-based indices, in Diversification (based on five question on the diversification of investments) Germany (52%) and Italy (48%) score the highest, although the score of Sweden (47%) is quite near. At the same time, this area of knowledge is quite weak for the UK (31%) and France (35%). The need to address financial literacy looking at specific domains of knowledge is evident. In case of Mortgage Index, the Britons are the most knowledgeable on average (45%) scoring better than Italy (43%), France (39%) and Germany (38%).

Knowledge on Retirement and Insurance is another area where financial literacy seems to be quite low. Results from Germany are still the best, but the average number of correct answers to five questions of these areas are below 40% (Germany - 37%). The scenario is not positive even in Italy (34%) and the UK (31%) but becomes even more negative in Sweden (25%) and France (21%). For the latter two countries, the presence of a strong and efficient welfare system may partially explain why people in Sweden tend to know less since it is safe to assume that they do not need to play an active role in planning their retirement. The lack of knowledge about retirements and insurance in France is not explained by similar circumstances.

A final comment about financial literacy in Europe relates to a "gender gap". Such phenomenon is not new and there are a lot of studies from different countries around the world that show that on average females tend to be less knowledgeable in finance than males. Unfortunately, this result is confirmed in all cases of this study. As seen in the figures, females score on average less than males in every topic-based area in every country. Sometimes the gap is very small (e.g. France, Debt: Male 32% Vs Female 30%) but in other cases it can be wider than 10 percentage points (e.g. Sweden, Bonds: Male 26% Vs Female 9%; Italy, Inflation: Male 70% Vs Female

54%). There are a few exceptions that could be referred to as a "reverse gender gap", in which females score on average better than males. It happens in France (Payments: Male 51% Vs Female 53%; Bank Accounts: Male 61% Vs Female 71%) and the UK (Payments: Male 68% Vs Female 70%; Bank Accounts: Male 63% Vs Female 66%). Such results suggest that females may tend to develop comparable degree of financial knowledge when knowledge is related to products and services used in an iterative manner (e.g. credit cards, bank accounts, etc.), where probably a learning-by-doing effect occurs. Needless to say, further investigation is required to arrive at final conclusions. However, it is interesting how results from previous studies did not show any examples of this "reverse gender gap". Such result supports the hypothesis that an assessment of financial literacy based on a small number of items risks providing misleading or incomplete information on a complex phenomenon.

## Ⅴ. Conclusions

This paper investigated financial literacy in Europe using data from different European countries. Available definitions of financial literacy stress the need to address financial knowledge, financial skills, and financial attitude to measure financial literacy. At the same time, a measurement that relies on financial knowledge only is not by definition incomplete. The lack of knowledge discovered in the empirical analysis in Europe can be considered evidence of a lack of financial literacy, due to the fact that financial skills represent the ability to apply financial knowledge in order to take a financial decision. Assuming that people cannot apply knowledge they do not have, a low degree of financial knowledge can be interpreted as a low degree of financial literacy. In case of a fully knowledgeable population the assumption that such population is also financially literate could fail if such knowledge is not properly applied in taking financial decisions (e.g. lack of financial skills or financial attitude).

The availability of rich data from different national surveys allowed assessment of financial literacy more thoroughly than in other studies. Although respondents failed to correctly answer more than fifty percent of the questions on average, the analysis of results in single topic areas shows that in some topics - such as payments tools and the management of bank accounts - individuals tend to score much better. Areas such as investments related topics (e.g. bonds, stocks, diversification) are the ones where the average scores are lowest. Results also confirm the existence of a "gender gap", with female respondents tending to score lower than males in every country. While this latter result confirms evidence from previous studies, the analysis of single content areas show how that gender gap is much smaller or disappears in certain domains (e.g. payments tools and bank accounts), including a reverse gap in some cases.

Results from this study strongly support the hypothesis that a reliable estimation of financial literacy cannot be based on a small number of questions. That is particularly true when a financial literacy measurement is used to assess the effectiveness of financial education curricula or other initiatives aimed at increasing consumers' financial literacy.

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Received/ 2019. 09. 11
Revised/ 2019. 11. 13
Accepted/ 2019. 12. 01

# Appendix

**Table A1.** CFCR data - Descriptive statistics

| UK | | | Germany | | | France | | |
|---|---|---|---|---|---|---|---|---|
| | # | % | | # | % | | # | % |
| **Age** | | | **Age** | | | **Age** | | |
| *18-24* | 107 | 17.70% | *18-24* | 48 | 9.10% | *18-24* | 67 | 13.00% |
| *25-30* | 90 | 14.90% | *25-30* | 74 | 14.00% | *25-30* | 64 | 12.40% |
| *31-35* | 71 | 11.70% | *31-35* | 64 | 12.10% | *31-35* | 43 | 8.30% |
| *36-40* | 60 | 9.90% | *36-40* | 46 | 8.70% | *36-40* | 53 | 10.30% |
| *41-45* | 42 | 6.90% | *41-45* | 30 | 5.70% | *41-45* | 50 | 9.70% |
| *46-50* | 48 | 7.90% | *46-50* | 35 | 6.60% | *46-50* | 33 | 6.40% |
| *51-55* | 55 | 9.10% | *51-55* | 47 | 8.90% | *51-55* | 44 | 8.50% |
| *56-60* | 42 | 6.90% | *56-60* | 31 | 5.90% | *56-60* | 33 | 6.40% |
| *60-65* | 32 | 5.30% | *60-65* | 44 | 8.30% | *60-65* | 46 | 8.90% |
| *65+* | 58 | 9.60% | *65+* | 110 | 20.80% | *65+* | 84 | 16.20% |
| **Gender** | | | **Gender** | | | **Gender** | | |
| *Male* | 280 | 46.10% | *Male* | 244 | 45.80% | *Male* | 243 | 47.00% |
| *Female* | 316 | 52.10% | *Female* | 275 | 51.60% | *Female* | 263 | 50.90% |
| *n.a.* | *11* | *1.80%* | *n.a.* | *14* | 2.60% | *n.a.* | *11* | 2.10% |
| **Income (Monthly)** | | | **Income (Monthly)** | | | **Income (Monthly)** | | |
| *< £500* | 94 | 14.00% | *< €500* | 47 | 8.40% | *< €500* | 48 | 9.10% |
| *£500 <£750* | 64 | 9.50% | *€500 <€750* | 29 | 5.20% | *€500 <€750* | 45 | 8.50% |
| *£750 <£1,000* | 57 | 8.50% | *€750 <€1,000* | 84 | 14.90% | *€750 <€1,000* | 67 | 12.60% |
| *£1,000 < £1,500* | 103 | 15.30% | *€1,000 < €1,500* | 104 | 18.50% | *€1,000 < €1,500* | 126 | 23.80% |
| *£1,500 < £2,000* | 74 | 11.00% | *€1,500 < €2,000* | 70 | 12.50% | *€1,500 < €2,000* | 86 | 16.20% |
| *£2,000 <£3,000* | 86 | 12.80% | *€2,000 <€3,000* | 28 | 5.00% | *€2,000 <€3,000* | 74 | 14.00% |
| *£3,000< £4,000* | 35 | 5.20% | *€3,000< €4,000* | 118 | 21.00% | *€3,000< €4,000* | 44 | 8.30% |
| *> £4,000* | 28 | 4.20% | *> €4,000* | 24 | 4.30% | *> €4,000* | 18 | 3.40% |
| *n.a.* | 66 | 9.80% | *n.a.* | *29* | 5.20% | *n.a.* | 11 | 2.10% |
| **Total** | **607** | **100%** | **Total** | **533** | **100%** | **Total** | **519** | **100%** |

**Table A1.** Continued

| Italy | | | Sweden | | |
|---|---|---|---|---|---|
| | # | % | | # | % |
| **Age** | | | **Age** | | |
| *18-24* | 49 | 9.70% | *18-24* | 90 | 14.80% |
| *25-30* | 45 | 8.90% | *25-30* | 85 | 14.00% |
| *31-35* | 43 | 8.50% | *31-35* | 71 | 11.70% |
| *36-40* | 49 | 9.70% | *36-40* | 59 | 9.70% |
| *41-45* | 55 | 10.90% | *41-45* | 72 | 11.80% |
| *46-50* | 56 | 11.10% | *46-50* | 68 | 11.20% |
| *51-55* | 51 | 10.10% | *51-55* | 71 | 11.70% |
| *56-60* | 50 | 9.90% | *56-60* | 43 | 7.10% |
| *60-65* | 41 | 8.20% | *60-65* | 45 | 7.40% |
| *65+* | 64 | 12.70% | *65+* | 4 | 0.70% |
| **Gender** | | | **Gender** | | |
| *1 - Male* | 247 | 49.20% | *Male* | 269 | 44.20% |
| *0 - Female* | 255 | 50.80% | *Female* | 305 | 50.10% |
| *n.a.* | *0* | 0.00% | *n.a.* | *35* | 5.70% |
| **Income (Monthly)** | | | **Income (Monthly)*** | | |
| *< €500* | 65 | 12.90% | *<8.000 SEK* | 89 | 14.00% |
| *€500 <€750* | 25 | 5.00% | *8,000 <15,000 SEK* | 68 | 10.70% |
| *€750 <€1,000* | 42 | 8.30% | *8,000 <15,000 SEK* | 42 | 6.60% |
| *€1,000 < €1,500* | 108 | 21.50% | *15,000 < 22,000 SEK* | 83 | 13.10% |
| *€1,500 < €2,000* | 84 | 16.70% | *22,000 <30,000 SEK* | 131 | 20.60% |
| *€2,000 <€3,000* | 65 | 12.90% | *30,000 <38,000 SEK* | 84 | 13.20% |
| *€3,000< €4,000* | 1 | 0.20% | *38,000 <45,000 SEK* | 19 | 3.00% |
| *> €4,000* | 39 | 7.80% | *>45,000 SEK* | 25 | 4.00% |
| *n.a.* | 74 | 14.70% | *n.a.* | *95* | *14.90%* |
| **Total** | **503** | **100%** | **Total** | **636** | **100%** |

* 1 SEK ("Swedish Krona") = 0.104876 EUR (10,000 SEK = 1,048.76 EUR)
Source: http://www.x-rates.com (Exchange rate on Friday, October 6th 2017)

The International Review of Financial Consumers, Volume.4 Issue.2(Oct., 2019), 13-27 pISSN 2508-3155 eISSN 2508-464X
https://doi.org/10.36544/irfc.2019.1-2.2


The International Review of Financial Consumers

www.eirfc.com

# Investment Behavior of Women Business Owners in Myanmar

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A B S T R A C T

Individuals invest in different types of investment based on their preference and risk taking behavior. Depending on their financial knowledge and awareness, tax and social factors and personal factors, their investment decisions are different. The study aims to identify the investment behavior of women business owners in Yangon, to examine factors of investment behavior and to analyze the relationship between them. The studied population is about 2000 woman business owners, members of Myanmar Women Entrepreneur Association (MWEA). The sample was selected by using random sampling method with the sample size of 120 respondents. The result shows that respondents mostly invest in traditional assets such as bank deposits, gold and real estate, rather than modern financial assets such as bonds, stocks and insurance. They mostly used the traditional off-line trading method for investment except for securities trading using on-line means.

*Keywords: Investment Behavior, Risk, Attitude, Financial Literacy, Influencing Factors*

## Ⅰ. Introduction

Investment is an outgrowth of economic development and the maturation of modern capitalism. Saving and investment are key ingredients to long run economic growth: when a country saves a large portion of its GDP, more resources are available for investment in capital, and higher capital raises a country's productivity and living standard. It is important to consider the status of the government budget for the country economy. When a government budget deficit crowds out investment, it reduces the growth of productivity and GDP (Mankiw, 2010). For the economy as a whole, from a macro-economic point of view, aggregate investment in the current period is a major factor in determining aggregate demand and, hence, the level of employment (Narayanna, 2012). Savings or investments are powerful tools in the alleviation of poverty.

Investment is important not only for the country as a whole but also for businesses and individuals. Businesses need to make the most out of their profits and savings by putting money into investments that will give extra return year by year. Businesses tend to invest in real estate, government bonds, gold etc. to ensure that their money is secure and growing. Normally, people tend to invest if they have money in hand with the purpose of creating wealth and financial security although there is no guarantee that they will make money from their investments, and they may lose value.

There are many different types of investment strategies

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We would like to express the greatest thanks to Professor Hongjoo Jung, Chairman of the IAFICO and members for giving us the chance to attend and read the paper in the Conference. Also we thank the ADBI for funding support. Finally, I am very grateful and appreciated much to Professor Sharon Tennyson, Professor and Editor of IRFC from Cornell University, USA for giving valuable guidance with great patience to the research completeness in time.
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depending on investors' risk taking behavior: investment portfolios can be low risk, moderate risk or high risk. Investment behaviors can also be different based on investment motives. If the investor has enough financial knowledge and awareness, an appropriate investment portfolio can be determined. However, unless investors have the basic knowledge of portfolio management like "Don't Put All Your Eggs in One Basket", they may face investment failure.

In the past, in Myanmar, a common savings mechanism is accumulating tangible assets such as cash, gold and rice at home. Women often purchase gold as a form of savings, knowing that its price is stable since international markets-not local politics or domestic fiscal and monetary policies-dictate gold prices. Peer savings groups are another popular informal financial tool in Myanmar. Traditionally, there are generally four avenues for investment: gems, gold, cars and property. One report described that poor people often use their money to purchase land, livestock, machinery, and spend for education, transportation and migrationto other countries(Proximity Designs & Studio D Radiodurans, 2014).

However, with the emergence of the Yangon Stock Exchange in 2015 and new financial institutions, people in Myanmar started to invest in modern financial products such as insurance, stock, bonds, and foreign exchange (Forex) trading.[1] According to the United Nations Capital Development Fund (ThihaKoKo, 2018), in the five years since 2013, the number of formal and informal savers in Myanmar has risen from 30 % to 50%; however, informal savings including non-cash assets, jewelry or cash on hand are the main channels for savings. Myanmar is drafting a National Savings Mobilization Strategy to encourage citizens to save in order to support continued economic growth andto reach parity with its regional neighbors.

Understanding the factors influencing investment behavior is therefore important for both investors and financial institutions. In order to find out investors' investment behavior, a survey of women business owners in Myanmar was conducted. The status of women in the social and economic spheres has beengrowing in Myanmar over the past few decades, as women have started to participate in the labor force, politics and other sectors. To raise the role of women in the economy, the government has drawn up a National Strategic Plan for the Advancement of Women (2013-2022) under which it aims to eliminate all forms of discrimination against women (Myanmar Times, 2017).

Despite the development of a stock exchange for financial products and services in Myanmar, research on their investor behaviors is very limited. This study will be helpful to find out the ideal investment options for business owners. These findings could be useful to financial institutions to devise appropriate strategies and to market appropriate financial products or offer new financial products to investors in order to satisfy their needs.

## Ⅱ. Literature Review

Investment can be viewed as deferred consumption, that is, income earned but not consumed and kept for future consumption. The concept refers to the immediate commitment of resources, money or otherwise, in the expectation of reaping future benefits irrespective of the form it takes.Its key attribute is the sacrificing of something of value now for future benefit later (Bodie, Kane, & Marcus, 2001).

An investment refers to any money or income not consumed but kept aside, either in a financial institution or invested in the capital market, real estate or any other production activity with a view to generating higher future income and/or increasing its innate value in the future (Investment Finance Essays, 2013). Investment behavior is crucial to an investor's future and the decision is dependent on many factors (Ansari & Moid, 2013). Most researchers have examined the risk taking behavior of investors and they mainly focused on the relationship between risk taking behavior and demographic factors, financial literacy and tax benefits.

### A. Financial Literacy and Investment Behavior

Financial literacy plays an important part in our daily life, such as managing personal finance, investment, etc. Danes &Haberman(2007) defined financial literacy as

[1] The Ministry of Planning and Finance has permitted foreign insurers to operate in the country since January 2019. Because of the liberalization of insurance sector in Myanmar, there are about 24 insurance companies including foreign-owned.

an individual's ability to obtain, understand, and evaluate information, which is relevant to decision making by understanding of the financial consequences that occur as the effect of the development in the complexity of the global finance. Bhushan(2014) conducted a survey of the relationship between financial literacy and investment behavior which showed that the level of financial literacy affects awareness regarding financial products as well as investment preferences towards financial products. Also, respondents having low financial literacy primarily invest in traditional and safe financial products and do not invest much in those financial products which are comparatively more risky and can give higher returns. This result is in line with the findings of VanRooij et al. (2012) which shows that individuals with lower financial literacy are much less likely to invest in stocks, which is a modern financial instrument.

## B. Financial Attitude and Investment Behavior

In making investment decisions, it is important to consider financial attitude as an influencing factor. Financial attitude is defined as a state of mind, opinion, or judgment about finance(Pankow, 2003). The theory of Planned Behavior presented by Ajzen (2014) provides a model that can predict an individual's intention to engage in a behavior at a specific time and place. The theory was intended to explain all behaviors over which people have the ability to exert self-control. The key component to this model is behavioral intent. Behavioral intentions are influenced by the attitude about the likelihood that the behavior will have the expected outcome, and the subjective evaluation of the risks and benefits of that outcome. Attitudes refer to the degree to which a person has a favorable or unfavorable evaluation of the behavior of interest. It entails a consideration of the outcomes of performing the behavior(Wayne, 2018). Sondari&Sudarsono(2015) tested the applicability of the theory of planned behavior in predicting intention to invest and found that attitudes toward investment and subjective norms significantly influenced the intention to invest.

## C. Social Factors and Investment Behavior

The most popular and essential theory that is needed to be considered is Behavioral Finance Theory. Behavioral finance is the study of the influence of psychology on the behavior of investors or financial analysts. It also includes the subsequent effects on the markets. It focuses on the fact that investors are not always rational, have limits to their self-control, and are influenced by their own biases. Behavioral Finance Theory described that investors make cognitive errors that can lead to wrong decisions. There are some decision making biases and errors in Behavioral Finance such as self-deception, heuristic simplification, social influence and emotion(Corporate Finance Institute, 2019).

Social factors can influence investor behavior. Venkateshraj(2015) studied the investment pattern of employed women. The study covers factors influencing the investment pattern, financial literacy level, risk profile of financial products and the type of financial products preferred. The study discovered that Internet has replaced newspapers and magazines as the most preferred source of investment information. It was found that friends and relatives continue to be an important source for investment information. This finding is aligned with the research of Shanmugham and Ramya(2012).

## D. Tax Factors and Investment Behavior

Taxes are important influences on investment returns. It is important that the investors understand how to manage their portfolio to minimize the tax burden. Singh and Vanita(2002) studied mutual fund investors' perceptions and preferences and found that tax exemptions significantly affected investor behavior. Venkateshraj(2015) also found that respondents were aware of the tax benefits available for certain investment products, and that a majority preferred to invest in provident fund and life insurance products to claim the tax benefit.

## E. Demographic Factors and Investment Behavior

Many studies have shown that the demographic profile of investors is an influencing factor among others. Sadiq and Ishaq(2014) analyzed the effect of demographic factors on the behavior of investors during the choice of investment. It was found that there is an association between demographic characteristics and the level of risk tolerance. Results showed that demographic factors like investor's age, academic qualification, income level, investment knowledge, and investment experience have significant effect on the behavior of investors. There is a positive correlation between the investor's academic qualification, income level, and investment knowledge and investment experience with their level of risk tolerance during the choice of investments. Those findings are in line with the results of Venkateshraj(2015).

# Ⅲ. Research Methods

## A. Data Collection and Analysis

Primary data was collected from women business owners in Yangon by using well-structured questionnaires. The questionnaires were adopted from the study of Venkateshraj(2015). To collect the primary data, the researcher conducted personal interviews with the members by attending the association meeting. While attending the meeting, the structured questionnaires were distributed to the members directly. Then, a face-to-face interview was conducted after finishing the meeting. Simple random sampling was used for drawing samples. Before making the personal interview, a pilot study was conducted by contacting 20 woman business owners in order to test the effectiveness of the questionnaires.

The demographic factors of age, marital status, education, occupation, working experience, working sector, monthly income and family sizeof the women are identified. Then the other factors (financial literacy, financial attitude, social factors,tax factors and risk-taking behavior of respondents) are examined based on the respondent's level of agreement with structured questions measured on a five-point Likert scale. The five point Likert scale was used to interpret the responses whereby the scores of "Strongly disagree" and "Disagree" were represented by mean score equivalent to 1 to 2.5 on Likert scale ($1\leq$ disagree$\geq 2.5$). The scores of 'Neutral' were equivalent to 2.6 to 3.5 on the Likert scale ($2.6\leq$Neutral$\geq 3.5$). The scores of "Agree" and "Strongly agree" were equivalent to 3.6 to 5 on the Likert scale ($3.6\leq$Agree$\geq 5$). The detailed questions regarding investment behavior and antecedent factors are attached in the Appendix.

The variable of *financial literacy level* is measured by respondent knowledge on bond, interest rate, stock market, and portfolio management and consumer purchasing power. For the *financial attitude* variable, women's preference and confidence in taking risk on investments, financial management attitude, and attitude concerned with financial outcome are used. *Social factors* include consultation with family members, friends, and financial adviser, social motivation for investment and sources of information for investment. *Tax factors* cover the tax benefits and tax savings for investments.

Descriptive statistics are used for the analysis. Descriptive statistics give a picture about the demographic profile, the level of financial literacy, financial attitude, social factors, tax factors and investment behavior which can be summarized in terms of mean, standard deviation, and frequency. To analyze the relationship between them, correlation analysis is employed in this study.

## B. Population and Sample

This study focuses on woman business owners working in different sectors in Yangon Region, who are members of the Myanmar Women Entrepreneurs Association. The Myanmar Women Entrepreneurs Association (MWEA) is a non-Government, non-profit association founded in 1995. Its aim is to unite and bring into focus the role and capabilities of Myanmar women entrepreneurs. There are about 2,000 active members of the Association, who are women entrepreneurs and managers in the manufacturing, trading and service businesses. Women in the Association have achieved success in the economic and social sectors, with 42 having already received ASEAN awards. About 150 members were asked and 120 members (5% of total members) completely responded to the survey questions.

Table 1 shows the summary of demographic profiles of respondents. The majority of respondents (36.7%) were from the age group of 41 - 50 years, followed by those who were from the age group of 51 - 60 years. It was found that the majority of women are married (66.7%). The majority the respondents has a family size of more than six people (40%), followed by a family size of four to six (38.3%). Most of the respondents are graduates (62.5%) followed by those who have post-graduate degrees (31.7%). The majority of respondents (81.7%) work in

**Table 1.** Demographic Profile of Respondents

| No | Variable | Categories | Number | Percent % |
|---|---|---|---|---|
| 1. | Age | Below 30 years | 18 | 15 |
| | | 31 - 40 | 29 | 24.2 |
| | | 41 - 50 | 44 | 36.7 |
| | | 51 - 60 | 23 | 19.2 |
| | | Above 60 years | 6 | 5 |
| 2. | Marital Status | Single | 40 | 33.3 |
| | | Married | 80 | 66.7 |
| 3 | Dependent People | < 3 | 86 | 71.7 |
| | | 3 - 6 | 16 | 20.7 |
| | | 7 - 9 | 9 | 7.4 |
| 4. | Number of Children | ≤ 2 | 113 | 94.2 |
| | | 3 - 4 | 7 | 5.8 |
| 5. | Family Size | 1 - 3 | 26 | 21.7 |
| | | 4 - 6 | 44 | 38.3 |
| | | >6 | 48 | 40 |
| 6. | Highest Education | Under Graduate | 7 | 5.8 |
| | | Graduate | 75 | 62.5 |
| | | Post-Graduate and above | 38 | 31.7 |
| 7. | Nature of Job | Manufacturing | 22 | 18.3 |
| | | Trading / Service | 98 | 81.7 |
| 8. | Years of working experience | <5 years | 19 | 15.8 |
| | | 5 - 10 years | 25 | 20.8 |
| | | 11 - 15 years | 30 | 25 |
| | | 16 - 20 years | 13 | 10.8 |
| | | >20 years | 33 | 27.5 |
| 9. | Monthly income(Kyats) | <30 Lakhs | 66 | 55 |
| | | 31 - 50 Lakhs | 25 | 20.8 |
| | | > 50 Lakhs | 29 | 24.2 |

Source: Survey Data, 2019

the trading and service sector, and most of the respondents have over 20 years working experience (27.5%). It can be observed that 55% of the respondents have a monthly income of less than 30 lakhs MMK and 24% have monthly income in the range of above 50 lakhs.

## Ⅳ. Results and Discussion

### A. Investment Practices of Respondents

In order to find out the respondents' investment behavior, questions on investment awareness, risk perception on investment, actual investment held, trading method, and investment purpose were asked and analyzed using descriptive statistics.

It can be seen from Table 2 that the majority of respondents are aware of real estate as an investment (84.2%), followed by bank deposits (82.5%) and gold (79.5%) respectively. Awareness of postal savings and the share market is moderate (around 50%) and awareness about bonds is low.

Although the women are aware about most of the investment avenues, it does not directly lead to the actual investment. Table 2 also depicts the actual investments held by the respondents. Although the awareness about

**Table 2.** Investment Awareness and Investments Held by Respondents

| Types of Investment | Awareness | | Investments Held | |
|---|---|---|---|---|
| | Number | Percent (%) | Number | Percent (%) |
| Real Estate | 101 | 84.2 | 56 | 46.7 |
| Bank deposits | 99 | 82.5 | 76 | 63.3 |
| Gold | 95 | 79.2 | 58 | 48.3 |
| Commodities | 82 | 68.3 | 55 | 45.8 |
| Foreign Exchange Market | 75 | 62.5 | 38 | 31.7 |
| Insurance | 71 | 59.2 | 33 | 27.5 |
| Share Market | 62 | 51.7 | 5 | 4.2 |
| Postal savings | 61 | 50.8 | 28 | 23.3 |
| Bonds | 44 | 36.7 | 1 | 0.8 |
| Others | 25 | 20.8 | 15 | 12.5 |

Source: Survey Data, 2019

real estate is highest, actual investment in real estate is only at a moderate level of 46.7%. It can be assumed that people lost interest in the real estate market in Myanmar although the real estate market was active before 2010. Investment in the share market (4.2%) is quite low compared to the moderate awareness level of the share market.

Bank deposits (63.3%) are the most preferred investment held by the women, as the bank deposit is a comparatively risk-free asset followed by gold (48.3%), real estate (46.7%) and commodities (45.8%). It can also be seen that gold is one of the most preferred investments for women; they buy gold not only for investment but also for fashion. Myanmar women like to wear gold as jewelry on special occasions according to their traditions. Investments held in the form of insurance and foreign exchange currency are 27% and 32%, respectively, followed by postal saving at 23%. The least preferred types of investment are bonds (0.8%) and shares (4.2%) respectively.

Overall, the survey indicates that women are more interested to invest in traditional investment avenues rather than the modern financial instruments. This may be due to the fact that the modern financial instruments were introduced to Myanmar people in 2010s and people are still unfamiliar with those avenues.

It can be observed from Table 3 that the majority of respondents (29.2%) are investing in at least two assets. Investments in four and above assets are 26.7% followed by investment in three assets (25.8%). Investment in one asset is uncommon. This result suggests that Myanmar women business owners are good at diversifying the investment portfolio by investing in more than one investment avenue.

**Table 3.** Portfolio Diversification Behavior of Respondents

| No. of Portfolio | Number | Percent (%) |
|---|---|---|
| 1 | 22 | 18.3 |
| 2 | 35 | 29.2 |
| 3 | 31 | 25.8 |
| 4 and above | 32 | 26.7 |
| Total | 120 | 100 |

Source: Survey Data, 2019

Table 4 describes the trading methods used by the participants. The participants prefer traditional offline channel to trade all investment avenues except in share market investment. The respondents mainly used online trading channel for the share market (69%). Thus it appears that women have adopted online trading as the technology has advanced in Myanmar.

Table 5 describes the purpose of investment as indicated by the respondents. Results indicate that the women business owners seem to consider regular earning return as the main purpose of investment (50.8%) followed by the purpose of getting high return (35.8%) and just for safety (31.7%). The participants also consider that their children’s education is one of the main purposes for investment. It thus can be assumed that women mainly consider earning as the major purpose for investment rather than other purposes.

**Table 4.** Trading Method used by Respondents

| Type of Investment | Online Channel | | Traditional Offline Channel | | Both | |
|---|---|---|---|---|---|---|
| | Number | Percent (%) | Number | Percent (%) | Number | Percent (%) |
| Share Market | 31 | 68.9 | 12 | 26.7 | 2 | 4.4 |
| FE Market | 23 | 35.9 | 33 | 51.6 | 8 | 12.5 |
| Real Estate | 20 | 30.7 | 43 | 66.15 | 2 | 3.07 |
| Gold | 20 | 24.7 | 54 | 79.0 | 7 | 8.6 |
| Commodities | 18 | 24.0 | 38 | 50.7 | 19 | 25.3 |
| Bank deposits | 19 | 20.7 | 60 | 65.2 | 13 | 14.1 |
| Insurance | 8 | 13.8 | 48 | 82.8 | 2 | 3.4 |
| Postal savings | 4 | 8.3 | 44 | 91.7 | 0 | 0 |
| Bonds | 2 | 7.4 | 25 | 92.6 | 0 | 0 |

Source: Survey Data, 2019

**Table 5.** Main Purpose of Investment of Respondents

| Purpose | Number | Percent (%) |
|---|---|---|
| High Return | 43 | 35.8 |
| Regular Earning Return | 61 | 50.8 |
| Just for Safety | 38 | 31.7 |
| For Marriage | 7 | 5.8 |
| For Children Education | 34 | 28.3 |
| Retirement Plan | 16 | 13.3 |

Source: Survey Data, 2019

To understand the first consideration in decision making of the women, the results of this survey question are shown in Table 6. Table 6 indicates that the majority of participants consider firstly the safety of capital (40.8%), while 23.4% of participants think fulfilling personal needs (post retirement need, children education, marriage etc.) is the first priority. High return and liquidity needs are the first consideration for fewer respondents.

Table 7 displays that the majority of participants (37.5%) hold their investments more than one year before withdrawing profit. This is followed by 36.7% of respondents who hold investments less than one year, and 25.8% of respondents who state they hold investments for exactly one year.

Table 8 shows that the frequency of investment review varies across the participants. The majority of respondents review their investments monthly (48.3%), followed by a review period of occasionally and yearly at 15% each, respectively. Results indicate that Myanmar's business women tend to check their investment situation frequently.

**Table 6.** First Consideration of Respondents in Investment Decision

| Factors | Number | Percent (%) |
|---|---|---|
| Liquidity | 19 | 15.8 |
| Safety of capital | 49 | 40.8 |
| High return | 15 | 12.5 |
| Convenience to purchase | 2 | 1.7 |
| Trends in financial market | 7 | 5.8 |
| Personal Needs | 28 | 23.4 |
| Total | 120 | 100 |

Source: Survey Data, 2019

**Table 7.** Duration of Investment Period for Respondents

| Investment Period | Number | Percent (%) |
|---|---|---|
| Less than one year | 44 | 36.7 |
| One year | 31 | 25.8 |
| More than one year | 45 | 37.5 |
| Total | 120 | 100 |

Source: Survey Data, 2019

**Table 8.** Frequency of Investment Review

| Frequency | Number | Percent (%) |
|---|---|---|
| Monthly | 58 | 48.3 |
| Quarterly | 17 | 14.2 |
| Yearly | 18 | 15.0 |
| Occasionally | 18 | 15.0 |
| Rarely | 9 | 7.5 |

Source: Survey Data, 2019

## B. Antecedents of Investment Behavior of Respondents

To further analyze the investment behavior of respondents, they were asked about their agreement to various statements related to the following factors. The factors of interest are financial literacy, financial attitude, social factor, tax factor and risk-taking behavior. The following tables show financial literacy, financial attitude, social factors, tax factors and risk-taking behavior of the respondents based upon the survey results.

For the financial literacy, the larger the score is, the more literate the respondents are. The level of financial literacy is identified by the financial knowledge and awareness on the stock and bond, mutual fund, interest rate and portfolio concept. The scores are varied among the women entrepreneur; however, the average mean score of 3.05 indicating that the respondents are neither literate nor illiterate from the financial aspect.

For the financial attitude, the larger the mean score, the more confirmed their financial attitude is on investment. The respondent agreed on every statement regarding preference of investment, regarding safety, having confidence on their investment, belief on investment as an option to get additional income and blaming no one for investment losses as shown by the high score level. Therefore, it is concluded that the respondents' financial attitude is appropriate for investment with high level on average (4.07).

For the social factors of women in respect of the investment, the bigger the mean score, the more dependent the respondents are on the social factors. The study found that they take the advice of family members, colleagues and also financial experts to get information for investment decisions. The average score is with mean value of 3.39 that indicates a moderate level of social influence on investment decisions of women.

For the tax factor, the bigger the mean score is, the more significant the tax factors are for investment decisions. The respondents agreed that they always consider tax benefits when they take investment decision such as gold, real estate, stock, bank deposit which are overall averaged at the moderate level of 3.26.

Finally, for the risk-taking behavior of the respondents, a majority of respondents strongly agreed that they consider risk before making investment as shown by the highest mean score of 4.20 followed by preference on well performing investment avenues, having readiness to take risk with enough information and desire safe investment, which means that they are aware on the investment risk. The statements of preference on the risky and fluctuating assets range from ranging 3.00 to 3.32. Thus, overall, re-

**Table 9.** Financial Literacy Influences on Investment Behavior of Women

| Description | Mean | Std. Deviation |
|---|---|---|
| Buying a company stock usually provides a safer return than stock mutual fund. | 2.56 | 1.333 |
| When interest rate rises, the bond price falls. | 2.53 | 1.577 |
| Company stocks are riskier than bonds. | 2.77 | 1.704 |
| When investors spread their money among different assets, the risk of losing money decreases. | 3.56 | 1.269 |
| When prices of all goods have doubled in the future, your purchasing power will be lower. | 3.82 | 1.012 |
| Average | 3.05 | |

**Table 10.** Financial Attitude Influences on Investment Behavior of Women

| Description | Mean | Std. Deviation |
|---|---|---|
| You prefer to invest rather than spending. | 3.92 | .881 |
| Safety is the main motto of Investment. | 4.03 | .907 |
| You are confident enough to manage your investment. | 4.27 | .686 |
| Investment offers an additional income. | 4.08 | .747 |
| You never blame others for any investment losses. | 4.06 | .882 |
| Average | 4.07 | |

spondents' risk-taking behavior is moderate.

Table 14 shows the relationship among each antecedent factor influencing the investment behavior of the respondents. All the factors are positive relationships with each factor; among them, financial attitude, financial literacy and risk-taking behavior are strongly correlated. Therefore, it implies that their financial literacy, financial attitude can encourage risk-taking behavior and at the same time the behavior increase the literacy and attitude of women entrepreneurs. Tax factors have a positive but weak correlation with other factors. The relationship between social factors and financial attitude, literacy, and risk-taking behavior are also weak.

**Table 11.** Social Influences on Investment Behaviors of Women

| Description | Mean | Std. Deviation |
|---|---|---|
| You always consult with your family before making investment. | 3.69 | .968 |
| You always consult with friends/colleagues before making investment. | 2.94 | .015 |
| Family is the main motivation factor to do investment. | 3.50 | .970 |
| You normally search information for investment in Internet. | 3.36 | .951 |
| Financial advisor's advice is crucial in investment process. | 3.48 | .053 |
| Average | 3.39 | |

**Table 12.** TaxInfluences on Investment Behaviors of Women

| Description | Mean | Std. Deviation |
|---|---|---|
| You always consider tax benefits when you take investment decision. | 3.72 | .735 |
| Tax saving investments such as share market, bank deposit are the most attractive investments. | 3.24 | 1.061 |
| You still invest in Gold and Real Estate even Government collect tax on them. | 2.83 | .976 |
| Average | 3.26 | |

**Table 13.** Risk-TakingInfluences on Investment Behavior of Women

| Description | Mean | Std. Deviation |
|---|---|---|
| You always consider levels of risk before making investment. | 4.20 | .784 |
| You prefer to invest in risky investment avenue. | 3.00 | 1.152 |
| You are ready to take risk if you have sufficient information. | 3.19 | .829 |
| You prefer to invest in well performing investment avenue. | 3.36 | .907 |
| You are interested to invest in highly fluctuating avenues. | 3.32 | .923 |
| You always yearn for investment to be safe even it gives lower return. | 3.10 | 1.152 |
| Average | 3.36 | |

**Table 14.** Correlation between Investment Behavior Factors

| Correlation coefficient | Financial Literacy | Financial Attitude | Social Factor | Tax Factor | Risk-taking Behavior |
|---|---|---|---|---|---|
| Financial Literacy | 1.000 | .994 | .076 | .176 | .995 |
| Financial Attitude | .994 | 1.000 | .080 | .175 | .999 |
| Social Factors | .076 | .080 | 1.000 | .048 | .082 |
| Tax Factors | .176 | .175 | .048 | 1.000 | .180 |
| Risk-taking Behavior | .995 | .999 | .082 | .180 | 1.000 |

Source: Survey Data, 2019

# Ⅴ. Conclusion

The objective of the study was to investigate behavior of the MWEA members in making investment. The survey results on the financial literacy and attitude of the women indicate that the owners have a moderate level of financial literacy but a high level of investing confidence and attitudes that support investing. The correlation results describe that financial literacy, financial attitude and risk-taking behavior among the women business owners are strongly and positively related with each other. The results of the study support earlier research findings that attitude toward investment significantly influences the intention to invest(Sondari & Sudarsono, 2015).

Myanmar women usually prefer to invest in the traditional investment avenues like bank deposits, real estate and gold. They are still unfamiliar with modern investment avenues such as share market and bonds. The respondents also invest in more than one investment i.e., investment portfolio in order to avoid taking risk and they mainly use traditional offline channel for their investment. The women consider getting financial purpose rather than non-financial purpose. A majority prefer regular earning return than the high return since they first consider safety of investment. The most selected options of the woman business owners are the assets giving financial return without much risk. Hence, the women business owners are in likelihood of moderate risk taking in their investments.

The results of the study are therefore very supportive for banks and non-bank organizations to create the innovative but less-risky financial product portfolio or services which could give the regular earning returns from their investment. There is the opportunity for investment organizations to sell financial products like fixed deposit and postal saving services and also life and non-life insurance with the new and creative form of return from the insurance policy. On the other hand, there is a little interest of these business owners in the stock exchange market of Myanmar, thus the stock exchange commission of Myanmar should try to enhance the awareness of the potential group. Finally, financial literacy is very important in making investment decisions by the women, so seminars or workshops concerning the financial sector should be held by financial institutions.

There are some limitations of the study. First, the study only focused on the investment behavior of women from the MWEA Association. Data about other business owners who haven't been members would be very useful to identify their investment behavior and the influential factors. Another constraint is that the effects of investment behaviors on women's wealth and their social effects were not analyzed; this is a topic for future study. Finally, further research could investigate macro-economic variables like government policy changes and market rate changes as well as how demographic characteristics (e.g. income level, work experience) moderate the relationship between financial literacy and investment behaviors among the women business owners.

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Received/ 2019. 09. 09
Revised/ 2019. 11. 20
Accepted/ 2019. 12. 01

# Appendix

## Research Survey Questionnaire

The purpose of collecting data is for the academic research. I seek your kind assistance in completing the attached questionnaires which would take approximately 10 minutes of your valuable time. All the data collected will be treated as confidential and will be used for the research only.

## Section A -Demographic Profile

1. Age (in years)
   ☐ Below 30 years ☐ 31 - 40 ☐ 41 - 50 ☐ 51 - 60 ☐ Above 60 years

2. Marital Status
   ☐ Single ☐ Married ☐ Separated

*Answer 3 only if married and applicable*

3. Number of dependent people in your family _________
   *Please specify* - Number of Children(s) _____ Others _______

4. Highest Education
   ☐ Under Graduate ☐ Graduate ☐ Post Graduation and above ☐ Others (please specify) ___________

5. Occupation
   ☐ Self-Employed (Business) ☐ Self-Employed (Professional) ☐ Others (please specify) ____________

6. Years of working experience
   ☐ Less than 5 years ☐ 5 - 10 years ☐ 11 - 15 years ☐ 16 - 20 years ☐ more than 20 years

7. Monthlyincome is in the range of
   ☐ Less than 20 Lakhs ☐ 21 - 30 Lakhs ☐ 31 - 40 Lakhs ☐ 41 - 50 Lakhs ☐ above 50 Lakhs

8. How many people live in your house hold including yourself
   ☐ Less than 3 ☐ Less than 4 ☐ Less than 5 ☐ 5 and above

## Section B - Practice of Investment

9. Mark the products about that you are aware of (*not necessarily that you have invested)*
   ☐ Real estate ☐ Share market ☐ Commodities ☐ Bonds ☐ Insurance ☐ Postal savings
   ☐ Bank deposits ☐ Foreign Exchange Market ☐ Gold ☐ Others

10. Rate the risk level of each of the investments on a scale from

| | No Risk 1 | Low Risk 2 | Moderate Risk 3 | High Risk 4 | Very High Risk 5 |
|---|---|---|---|---|---|
| Real Estate | | | | | |
| Share Market | | | | | |
| Commodities | | | | | |
| Bonds | | | | | |
| Insurance | | | | | |
| Postal savings | | | | | |
| Bank deposits | | | | | |
| Foreign Exchange Market | | | | | |
| Gold | | | | | |
| Others | | | | | |

11. Your current investments are in ( tick the appropriate ones)

| | |
|---|---|
| Real Estate | ☐ Land ☐ Detached House ☐ Apartment |
| Share Market | ☐ YSX |
| Commodities | ☐ Metal ☐ Oil ☐ Livestock ☐ Agricultural products<br>☐ Others (please specify)__________ |
| Bonds | ☐ 2 years Bond ☐ 3 years Bond ☐ 5 years Bond |
| Insurance | ☐ Life ☐ Non-Life |
| Postal savings | ☐ Time Deposit ☐ Saving Deposit |
| Bank deposits | ☐ Time Deposit ☐ Saving Deposit |
| Foreign Exchange Market | ☐ USD ☐ Euro ☐ Others |
| Gold | ☐ Gold Bar ☐ Gold Coins ☐ Gold Jewelry |
| Others | |

12. Which channel do you use when you invest in assets?

| | Online Channel | Traditional Offline Channel |
|---|---|---|
| Real Estate | | |
| Share Market | | |
| Commodities | | |
| Bonds | | |
| Insurance | | |
| Postal savings | | |
| Bank deposits | | |
| Foreign Exchange Market | | |
| Gold | | |
| Others | | |

13. (a) Main purpose of making investment

| | |
|---|---|
| Financial Purpose | ☐ High Return ☐ Earn Regular Return ☐ Just For Safety |
| Non-Financial Purpose | ☐ For Marriage ☐ For Children Education ☐ Retirement Plan<br>☐ Others ( please specify) ______ |

(b) Rank the Factors that influence you while taking investment decision in order of importance. (Rank **1 to 8**)

☐ Liquidity ☐ Safety of capital ☐ High return ☐ Convenience to purchase
☐ Trends in financial market ☐ Children's education / marriage ☐ For post-retirement expenses
☐ Others (please specify) ________________

14. (a) How often do you review your investments?

☐ Occasionally ☐ Monthly ☐ Quarterly ☐ Yearly ☐ Rarely

(b) Normally, how long does it take to earn money (yield) from your investment?

☐ Less than One Year ☐ One Year ☐ More than One Year

## Part C - Antecedent Factors

**Social Factors**

Read the following statement and put a tick mark based on the degree of agreeability (Â).

| No | Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 15. | You always consult with your family before making investment. | | | | | |
| 16. | You always consult with friends/colleagues before making investment. | | | | | |
| 17. | Family is the main motivation factor to do investment. | | | | | |
| 18. | You normally search information for investment in Internet. | | | | | |
| 19. | Financial advisor's advice is crucial in investment process. | | | | | |

**Financial Attitude**

Read the following statement and put a tick mark based on the degree of agreeability (Â).

| No | Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 20. | You prefer to invest rather than spending. | | | | | |
| 21. | Safety is the main motto of Investment. | | | | | |
| 22. | You are confident enough to manage your investment. | | | | | |
| 23. | Investment offers an additional income. | | | | | |
| 24. | You never blame others for any investment losses. | | | | | |

**Financial Literacy**

Read the following statement and put a tick mark based on the degree of agreeability (Â).

| No | Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 25. | Buying a company stock usually provides a safer return than stock mutual fund. | | | | | |
| 26. | When interest rate rises, the bond price falls. | | | | | |
| 27. | Company stocks are riskier than bonds. | | | | | |
| 28. | When investors spread their money among different assets, the risk of losing money decreases. | | | | | |
| 29. | When prices of all goods have doubled in the future, your purchasing power will be lower. | | | | | |

**Tax Factors**

Read the following statement and put a tick mark based on the degree of agreeability (Â).

| No | Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 30. | You always consider tax benefits when you take investment decision. | | | | | |
| 31. | Tax saving investments such as share market, bank deposit are the most attractive investments. | | | | | |
| 32. | You still invest in Gold and Real Estate even Government collect tax on them. | | | | | |

**Section D - Investment Behavior**

Read the following statement and put a tick mark based on the degree of agreeability (Â).

| No | Statement | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 33. | You always consider levels of risk before making investment. | | | | | |
| 34. | You prefer to invest in risky investment avenue. | | | | | |
| 35. | You are ready to take risk if you have sufficient information. | | | | | |
| 36. | You prefer to invest in well performing investment avenue. | | | | | |
| 37. | You are interested to invest in highly fluctuating avenues. | | | | | |
| 38. | You always yearn for investment to be safe even it gives lower return. | | | | | |

**Thank you for your patience and time in answering the questions!**

The International Review of Financial Consumers, Volume.4 Issue.2(Oct., 2019), 29-41 pISSN 2508-3155 eISSN 2508-464X
https://doi.org/10.36544/irfc.2019.1-2.3


**The International Review of Financial Consumers**

www.eirfc.com

# How does the Quantity of Disclosed Information Provided by Insurers Affect Entity Behaviors in Internet Insurance Market?: A Study Based on Tripartite Evolutionary Game Analysis between Government, Insurance Companies and Consumers

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A B S T R A C T

The emergence of internet insurance provides a new consumption pattern for insurance consumers in the e-commerce era. However, without insurers fulfilling duty of disclosure, consumers' interests cannot be guaranteed. This paper will analyze the costs and benefits of three parties (i.e. government, insurance companies and consumers) and their strategies regarding information disclosure of insurance products on the internet. Using an evolutionary game model under bounded rationality assumptions, the Nash Equilibrium (NE) and evolutionary stability strategy (ESS) of the system are explored. The results show that (Disclosing, not Regulating, not Complain) is the best ESS and it is consumers' buying decision not regulation that ultimately compels insurers to disclose enough information. The different current situations in China and Japan are discussed in light of the model, and some measures are suggested to promote the development of internet insurance markets in both countries.

*Keywords: internet insurance; information asymmetry; information disclosure; tripartite evolutionary game analysis*

## Ⅰ. Introduction

Since the third revolution of science and technology, digitalization has gradually transformed many industries. However, industry commentators believe that the transformation of the insurance industry has come rather late. It was only in the 1990s that insurance products were first sold online in America (Bain and Co, 2015). Since then, the global internet insurance market has been developing by leaps and bounds. In the first quarter of 2018, InsurTech deals reached $724 million, which is a record of this industry, and a 155% increase from first quarter of 2017. Broadly speaking, internet insurance or digital insurance refers to activities that traditional insurance firms or other qualified financial institutions develop insurance products and services based on internet terminals or digital technologies (Zhong, Rutao and Xu, 2016). Internet insurance can enhance the customer experience, improve the efficiency of insurance business process, offer new products and make insurance companies more prepared for competition with other industries (Eling and Lehman, 2018). According to McKinsey (2018), 43% of commercial lines of InsurTechs are about distribution and sales. Therefore, some researchers hold that internet

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Deepest gratitude goes to Professor Nakaide, for his constant encouragement and guidance. The author is also deeply indebted to Professor Takase, Professor Kataoka and Professor Watanabe from Waseda University, for their instructive advice and kind help. The author would like to thank the China Scholarship Council under No. 201806980008.

insurance, in a narrow sense, mainly refers to insurance products and services that are provided through an internet channel (Koduka, 2016).

Although insurance provided through an internet channel is usually simpler than that sold through traditional methods, it is still not easy for consumers to understand products or services provided by insurance firms without face-to-face communication. Concurrently, information disclosed online is much less than for traditional sales. Theoretically, internet insurance firms should disclose the following information: rights and obligations of both parties in insurance contract; premium and its cost; coverage of insurance products; financial information of the firm; prediction of future situation and social responsibility (Koduka, 2016). However, many internet insurance firms may choose not to disclose all information, because disclosure means increasing the cost and may lead to a loss of advantages over competitors. The government may regulate information disclosure to protect consumers, but strict mandated disclosure may inhibit innovation and enthusiasm of internet insurance firms, which in turn reduce consumers' welfare. Hence, this leads to a challenging decision problem for internet insurance market regarding information disclosure and its regulation.

Generally, the internet insurance market has three participants -- insurance companies, the government and consumers. Traditional game theory can solve the above three-parties decision problem based on the hypothesis that the players are strictly rational. However, in the real world, individual rationality is restricted by available information, cognitive limitations, and time available to make decisions (Jiang et al., 2018). Evolutionary game theory can solve this problem by relaxing assumptions such that each player is boundedly rational, and players can learn from opposing parties to change strategies. Therefore, this paper introduces a tripartite evolutionary game model into this information disclosure problem in the internet insurance market. Its replicated dynamic equation and players' strategies are analyzed, to characterize the factors affecting strategies and the possible stable equilibriums. The results of the model are then used to analyze the situations of the internet insurance market in Japan and China, with suggestions for some measures to promote the healthy development of these markets.

The rest of this paper is organized as follows. Section 2 contains a literature review on information disclosure of internet insurance and tripartite evolutionary game theory. In Section 3 the detailed problem, assumptions and parameter setting are described. The evolutionary model is established and solved in Section 4. Section 5 analyzes the model equilibrium and discusses the stability of every entity's strategy under different circumstances. In Section 6, conclusions and suggestions are given based on the different current situations for internet insurance in Japan and China. Section 7 provides a brief conclusion.

## Ⅱ. Literature review

### A. Internet insurance and information disclosure

So far, there isn't any widely accepted universal definition of internet insurance. According to China Insurance Regulatory Commission (CIRC, 2015), "Internet insurance business" means the business under which insurance institutions conclude insurance contracts and provide insurance services via self-operated network platforms, and third-party network platforms, among others, by relying on the Internet, mobile communications, and other technologies. Internet insurance is different from traditional insurance because it lacks face-to-face discussion with agents, which means the information insurers disclose online is the only source for consumers (Chen, 2017). Meanwhile, insurance buyers cannot easily tell the value of their purchases because it depends on actuarial estimates that they do not know and cannot analyze. Nor can the quality of the insurance be ascertained until a loss materializes (Shahar, 2011). Therefore, two major problems of internet insurance information disclosure are: how much information is enough for consumers and how to make sure the buyers understand the products. Shahar (2011) held that insurers must not only disclose policy terms, they must also highlight terms that are especially important or may cause unexpected agonies. Qu (2018) also pointed out that the "I have read and understood the Terms and Conditions" button is unreasonable because consumers have to click "yes" otherwise cannot move to the next step. In addition, Patten (2002) examined the use of the internet for information disclosure with a sample of property and casualty insurance firms, and concluded that financial information disclosed by the insurance firm sample is only moderate and the leaders in terms of developing web for financial gain are not balancing that leadership with respect to information disclosure. Thus, it is of great importance to study the information disclosure problem in internet insurance market.

### B. Evolutionary game model

Evolutionary game models were originally developed by biologists and mathematicians to address substantive questions in evolutionary biology (Smith and Price, 1973; Taylor and Jonker, 1978). Friedman (1991) first introduced the evolutionary game into economics. At present, it has been widely used in industrial organization, law, economic development, international trade and policy analysis. Güth (2007) analyzed buyer insurance and seller reputation in online markets applying an evolutionary framework. Ma (2015) explored complex and dynamic game relationship among participants in the forest insurance market based on a tripartite evolutionary game model. Gao (2017) applied evolutionary game theory to discuss and analyze selection behavior of trans-regional hospitals and patients in a telemedicine system. Yang (2019) constructed an evolutionary game model under incomplete information to research the role whistleblowing is playing in the air pollution control campaign in China. Compared to traditional game theory, evolutionary game theory pays more attention to the long-term interaction processes through which each party can learn to acquire knowledge from the other parties to change their strategies (Jiang, 2018). It is also very useful for investigating the foundations of game-theoretic solution concepts, especially Nash Equilibrium (NE) and selection among multiple NE (Friedman, 1998). Recently, evolutionary games have been widely used to analyze internet financial industry development and its regulation boundary (Su, 2015; Zhao, 2015; Zhang, 2016; Zhou, 2016). This article will also apply an evolutionary game model to analyze the information disclosure problem in internet insurance markets.

## Ⅲ. Problem statement and assumptions

There are three direct stakeholders in the internet insurance market, and each of them has two kinds of strategies when it comes to information disclosure.

Internet insurance firms have two kinds of strategies about information disclosure. One is disclosing enough effective information for consumers to buy suitable insurance ("disclosing" strategy in brief). This may cause some direct cost like labor cost and indirect cost like giving important information away to competitors. Together, let the total cost be $C_1$ when insurers choose "disclosing" strategy. The other strategy is not to disclose enough information for consumers to buy suitable insurance ("not disclosing" strategy in brief). This may reduce the cost (let it be $C_2$, and $C_1 > C_2$), but it may jeopardize consumers' trust and reduce the sales volume. Let the revenue loss from not disclosing be S. For convenience sake, let the extra cost of disclosing extra information be $C_i$ ($C_i = C_1 - C_2$). Let $\eta$, where $0 \leq \eta \leq 1$, represent the probability of internet insurers disclosing enough information.

The government acts as the supervisor of the internet insurance market, and accordingly has two strategies: "regulating" and "not regulating" information disclosure of insurers. When government regulates the information disclosure of internet insurance firms, there is some direct cost like labor cost, and if the mandated disclosure requirement is too much, it may jeopardize competition in this market (indirect cost). Together, let the total cost be $C_g$. Also, government can impose a penalty on insurers if they fail to fulfill government requirements (let this be $F_c$). When insurers disclose enough information, the market is perfect with welfare $V_g$. Meanwhile, if insurers don't disclose enough information, the government may suffer from a market efficiency loss $L_1$, and a loss of reputation and trust from consumers ($L_2$) when government choose "not regulating" strategy. Let $\mu$, where $0 \leq \mu \leq 1$, represent the probability of government choosing "regulating" strategy.

Let $V_m$ represent the consumers' welfare when insurance companies disclose enough information, and $V_m'$ be the consumers' welfare when insurance companies do not disclose enough information. Consumers might buy the unsuitable insurance because of lack of information, therefore $V_m'$ is smaller than $V_m$ ($V_m > V_m'$). Consumers can express their dissatisfaction by complaining about insurers. This may cause consumers cost of complaining ($C_m$), but may also bring them compensation ($F_m$) if the insurers don't disclose enough information. Let $\sigma$, where $0 \leq \sigma \leq 1$, represent the probability of consumers choosing “not Complain” strategy.

Based on the statements above, the game strategies of three parties and corresponding parameters are shown in Table 1.

For the sake of convenience, some other assumptions are made as below.

(1) Each player is boundedly rational in deciding whether to change their strategies, and they are all self-interested when entering the system.
(2) Each player can adjust their behavior to achieve long-term equilibrium.
(3) Government has the motivation to regulate the market when insurance companies don’t disclose enough information ($F_c - C_g > 0$).
(4) Consumers can get compensation from insurance companies only if government regulates the market.

The payoff matrix of the game is shown in Table 2.

## Ⅳ. Evolutionary game model and solution

Based on the payoff matrix above, the expected payoff of the parties can be expressed as below:

**Table 1.** Variables setting and meaning

| Variables | Meaning of the variables |
|---|---|
| $V_g$ | Public welfare of government when insurers disclose enough information |
| $C_g$ | Cost of government regulating the disclosure of internet insurance products |
| $L_1$ | Market efficiency loss of government when insurers don't disclose enough information |
| $L_2$ | Reputation and trust loss when government choose not-regulating and insurers choose not-disclosing enough information |
| $V_c$ | Revenue of internet insurers |
| $C_i$ | Cost of internet insurers when they disclose extra information |
| S | Revenue loss of reduced sale volume when internet insurance firms don't disclose enough information |
| $F_c$ | Penalty on internet insurers if the government thinks they don't disclose enough information |
| $F_m$ | Compensation to the consumers by the internet insurers if they are sued by consumers because of not disclosing enough information |
| $V_m$ | Welfare of consumers when insurers disclose enough information |
| $V_m'$ | Welfare of consumers when insurers do not disclose enough information |
| $C_m$ | Cost of complaining when the consumers are not satisfied with products |
| μ | Probability of government regulating the disclosure of internet insurance products |
| η | Probability of internet insurers disclosing enough information |
| σ | Probability of consumers being satisfied and don’t complain internet insurance firms |

**Table 2.** Payoff matrix of three parties

| | | Government | | | |
|---|---|---|---|---|---|
| | | Regulating | | Not regulating | |
| | | Insurance company | | Insurance company | |
| | | Disclosing | Not disclosing | Disclosing | Not disclosing |
| Consumer | not Complain | $\begin{pmatrix} V_g - C_g \\ V_c - C_i \\ V_m \end{pmatrix}$ | $\begin{pmatrix} V_g - C_g - L_1 + F_c \\ V_c - F_c - S \\ V_m' \end{pmatrix}$ | $\begin{pmatrix} V_g \\ V_c - C_i \\ V_m \end{pmatrix}$ | $\begin{pmatrix} V_g - L_1 \\ V_c - S \\ V_m' \end{pmatrix}$ |
| | Complaining | $\begin{pmatrix} V_g - C_g \\ V_c - C_i \\ V_m - C_m \end{pmatrix}$ | $\begin{pmatrix} V_g - C_g - L_1 + F_c \\ V_c - F_c - F_m - S \\ V_m' + F_m - C_m \end{pmatrix}$ | $\begin{pmatrix} V_g \\ V_c - C_i \\ V_m - C_m \end{pmatrix}$ | $\begin{pmatrix} V_g - L_1 - L_2 \\ V_c - S \\ V_m' - C_m \end{pmatrix}$ |

Note: each combination is shown as $(\text{government, insurers, consumers})^T$

### A. Internet insurance firms

The payoff equation of internet insurance firms choosing "disclosing" strategy is:

$$U_{\eta} = V_c - C_i \tag{1}$$

The equation of internet insurance firms choosing "not disclosing" strategy is:

$$\begin{aligned} U_{1-\eta} &= \mu\sigma(V_c - S - F_c) + \mu(1-\sigma)(V_c - S - F_c - F_m) \\ &+ (1-\mu)\sigma(V_c - S) + (1-\mu)(1-\sigma)(V_c - S) \\ &= V_c - S - \mu(F_c + F_m - \sigma F_m) \end{aligned} \tag{2}$$

The equation of average expected payoff of internet insurance firms is:

$$U_{\eta,1-\eta} = \eta U_{\eta} + (1-\eta)U_{1-\eta} \tag{3}$$

Following the method used by Taylor and Jonker (1978), replicator dynamics equation is used to represent the learning and evolution mechanism, that is, the change rate of $\eta$ is:

$$\begin{aligned} F(\eta) &= \frac{d\eta}{dt} = \eta(U_{\eta} - U_{\eta,1-\eta}) \\ &= \eta(1-\eta)[S - C_i + \mu F_c + \mu(1-\sigma)F_m] \end{aligned} \tag{4}$$

### B. Government

The equations of government choosing "regulating" and "not regulating" strategies are:

$$\begin{aligned} U_{\mu} &= \eta(V_g - C_g) + (1-\eta)(V_g - L_1 + F_c - C_g) \\ &= V_g - C_g + (1-\eta)(F_c - L_1) \end{aligned} \tag{5}$$

$$\begin{aligned} U_{1-\mu} &= \eta V_g + (1-\eta)[\sigma(V_g - L_1) \\ &+ (1-\sigma)(V_g - L_1 - L_2)] \\ &= V_g - (1-\eta)(L_1 + L_2 - \sigma L_2) \end{aligned} \tag{6}$$

The equation of average expected payoff and corresponding replicator dynamics equation are:

$$U_{\mu,1-\mu} = \mu U_{\mu} + (1-\mu)U_{1-\mu} \tag{7}$$

$$\begin{aligned} F(\mu) &= \frac{d\mu}{dt} = \mu(U_{\mu} - U_{\mu,1-\mu}) \\ &= \mu(1-\mu)[(1-\eta)(L_2 - \sigma L_2 + F_c) - C_g] \end{aligned} \tag{8}$$

### C. Consumers

The equations of consumers choosing "not complain" and "complaining" strategies, respectively, are:

$$U_{\sigma} = \eta V_m + (1-\eta)V_m' \tag{9}$$

$$\begin{aligned} U_{1-\sigma} &= \mu\eta(V_m - C_m) + \mu(1-\eta)(V_m' + F_m - C_m) \\ &+ (1-\mu)\eta(V_m - C_m) \\ &+ (1-\mu)(1-\eta)(V_m' - C_m) \\ &= \eta V_m + (1-\eta)V_m' + \mu(1-\eta)F_m - C_m \end{aligned} \tag{10}$$

Average expected payoff and replicator dynamics equations are:

$$U_{\sigma,1-\sigma} = \sigma U_{\sigma} + (1-\sigma)U_{1-\sigma} \tag{11}$$

$$\begin{aligned} F(\sigma) &= \frac{d\sigma}{dt} = \sigma(U_{\sigma} - U_{\sigma,1-\sigma}) \\ &= \sigma(1-\sigma)[C_m - \mu(1-\eta)F_m] \end{aligned} \tag{12}$$

Ultimately, the population dynamic of the evolutionary game can be represented as:

$$\begin{cases} F(\eta) = \eta(1-\eta)(S - C_i + \mu F_c + \mu F_m - \mu\sigma F_m) \\ F(\mu) = \mu(1-\mu)\{(1-\eta)[(1-\sigma)L_2 + F_c] - C_g\} \\ F(\sigma) = \sigma(1-\sigma)[C_m - \mu(1-\eta)F_m] \end{cases} \tag{13}$$

Now, by setting equations in (13) equal to zero, we solve for 11 equilibrium solutions in the system as follows $X_1 \sim X_{11}$:

$$X_1(0,0,0),\ X_2(1,0,0),\ X_3(0,1,0),\ X_4(0,0,1),\ X_5(0,1,1),$$
$$X_6(1,0,1),\ X_7(1,1,0),\ X_8(1,1,1),$$
$$X_9\left(1-\frac{C_m}{F_m},1,\frac{S-C_i+F_c+F_m}{F_m}\right),\ X_{10}\left(1-\frac{C_g}{F_c},\frac{C_i-S}{F_c},1\right),$$
$$X_{11}\left(1-\frac{C_g}{L_2+F_c},\frac{C_i-S}{F_c+F_m},0\right)$$

## Ⅴ. Equilibrium analysis and discussion

### A. Stability analysis

The stability of equilibrium points can be derived by analyzing the local stability of the Jacobian matrix

(Friedman 1991). The Jacobian matrix can be presented as following J:

$$J=\begin{bmatrix} a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \\ c_1 & c_2 & c_3 \end{bmatrix}=\begin{bmatrix} \frac{\partial F(\eta)}{\partial \eta} & \frac{\partial F(\eta)}{\partial \mu} & \frac{\partial F(\eta)}{\partial \sigma} \\ \frac{\partial F(\mu)}{\partial \eta} & \frac{\partial F(\mu)}{\partial \mu} & \frac{\partial F(\mu)}{\partial \sigma} \\ \frac{\partial F(\sigma)}{\partial \eta} & \frac{\partial F(\sigma)}{\partial \mu} & \frac{\partial F(\sigma)}{\partial \sigma} \end{bmatrix} \quad (14)$$

Where,

$$a_1=\frac{\partial F(\eta)}{\partial \eta}=(1-2\eta)(S-C_i+\mu F_c+\mu F_m-\mu\sigma F_m)$$

$$a_2=\frac{\partial F(\eta)}{\partial \mu}=\eta(1-\eta)(F_c+F_m-\sigma F_m)$$

$$a_3=\frac{\partial F(\eta)}{\partial \sigma}=-\mu\eta(1-\eta)F_m$$

$$b_1=\frac{\partial F(\mu)}{\partial \eta}=\mu(1-\mu)(\sigma L_2-F_c-L_2)$$

$$b_2=\frac{\partial F(\mu)}{\partial \mu}=(1-2\mu)\{(1-\eta)[(1-\sigma)L_2+F_c]-C_g\}$$

$$b_3=\frac{\partial F(\mu)}{\partial \sigma}=-\mu(1-\mu)(1-\eta)L_2$$

$$c_1=\frac{\partial F(\sigma)}{\partial \eta}=\sigma(1-\sigma)\mu\eta F_m$$

$$c_2=\frac{\partial F(\sigma)}{\partial \mu}=\sigma(1-\sigma)(\eta-1)F_m$$

$$c_3=\frac{\partial F(\sigma)}{\partial \sigma}=(1-2\sigma)[C_m-\mu(1-\eta)F_m]$$

According to Lyapunov's indirect method, when all eigenvalues ($\lambda$) of the Jacobian matrix are real and have the same sign, the equilibrium point is called Node. The node is stable (unstable) when the eigenvalues are negative (positive). Otherwise, when all eigenvalues are real and at least one of them is positive and at least one is negative, the equilibrium point is called Saddle. Saddles are always unstable (Izhikevich, 2019).

For equilibrium point $X_1(0,0,0)$,

$$J_1=\begin{bmatrix} S-C_i & 0 & 0 \\ 0 & L_2+F_c-C_g & 0 \\ 0 & 0 & C_m \end{bmatrix}$$

$\lambda_1=S-C_i$

$\lambda_2=L_2+F_c-C_g$

$\lambda_3=C_m$

According to the parameter setting and model assumptions, $\lambda_2>0$ and $\lambda_3>0$. Therefore, $X_1$ is unstable.

Similarly, the stability of remaining 10 equilibrium points are analyzed using the same method. The stabilities of eight pure strategy equilibriums are shown in Table 3.

As for the mixed strategy equilibriums ($X_9 \sim X_{11}$), their existence ($\eta, \mu, \sigma \in [0,1]$) relies on the model variables.

For $X_9$: $L_m+C_m<F_m$ and $F_c<C_i-S<F_c+F_m$;

for $X_{10}$: $C_i>S$, $C_i-S<F_c$;

for $X_{11}$: $C_i>S$, $C_i-S<F_c+F_m$.

Then, their stabilities are discussed as below.

As shown in Table 4, each of these three equilibriums has one real eigenvalue and a pair of complex-conjugate eigenvalues with zero real part. That means these mixed strategy equilibriums are not stable.

Thus, there are only three possible stable strategy combinations. These are $X_3$ (not Disclosing, Regulating, Complain), $X_5$ (not Disclosing, Regulating, not Complain) and $X_6$ (Disclosing, not Regulating, not Complain),

## B. Entity behavior discussion

In this section, we will analyze how the model variables affect the equilibrium strategies of the three parties in this model.

The internet insurance firms can choose to disclose enough information or not. There are five variables that

**Table 3.** Result of analyses of stabilities of pure strategy equilibriums

| Balancing point | $\lambda_1$ | $\lambda_2$ | $\lambda_3$ | Stability |
|---|---|---|---|---|
| $X_1$ | $S-C_i$ | $L_2+F_c-C_g>0$ | $C_m>0$ | If $S<C_i$, saddle; otherwise unstable node |
| $X_2$ | $C_i-S$ | $-C_g<0$ | $C_m>0$ | Saddle |
| $X_3$ | $S-C_i+F_c+F_m$ | $C_g-L_2-F_c$ | $C_m-F_m$ | If $C_g-L_2<F_c$, $C_m<F_m$, $F_c+F_m<C_i-S$, stable; otherwise unstable |
| $X_4$ | $S-C_i$ | $F_c-C_g>0$ | $-C_m<0$ | Saddle |
| $X_5$ | $S-C_i+F_c$ | $C_g-F_c<0$ | $F_m-C_m$ | If $F_m<C_m$, $F_c<C_i-S$, stable; otherwise unstable |
| $X_6$ | $C_i-S$ | $-C_g<0$ | $-C_m<0$ | If $C_i<S$, stable; otherwise saddle |
| $X_7$ | $C_i-S-F_c-F_m$ | $C_g>0$ | $C_m>0$ | If $F_c+F_m<C_i-S$, unstable node; otherwise saddle |
| $X_8$ | $C_i-S-F_c$ | $C_g>0$ | $-C_m<0$ | Saddle |

may affect their behavior: the fines paid to the government or consumers ($F_c$, $F_m$), consumers' complaining cost ($C_m$), revenue loss caused by sales volume decreasing (S), and the cost of disclosing extra information ($C_i$). Of which, $C_i$ is the only variable that can be controlled by insurers. As shown in Table 5, if $C_i > F_c + F_m + S$, insurers always tend to choose not to disclose enough information in spite of the size of $F_m$. While if $F_c + S < C_i < F_c + F_m + S$, insurers choose not to disclose enough information when $F_m < C_m$. If $F_m < C_m$ or $S < C_i < F_c + S$, there is no stable point in this system, every equilibrium is a saddle point, the system will become chaotic and insurers disclose or not disclose with a random possibility. However, if $C_i < S$, insurers choose to disclose enough information.

The government can control three variables to affect the other parties' behavior: the fines paid by insurers ($F_c$, $F_m$) and the cost of consumer complaining ($C_m$). As stated above, if $F_c$ and $F_m$ are too small compared to $C_i$, insurers will choose not to disclose enough information in the long run. But when $F_c + S < C_i < F_c + F_m + S$, if government makes $F_m > C_m$, although the system would be chaotic, there is a possibility that the insurers will choose to disclose enough information. Besides, $C_m$ and $F_m$ can

**Table 4.** Eigenvalues of Jacobian matrix of mixed strategy equilibriums

| | $\lvert\lambda E - A\rvert$ | $\lambda$ |
|---|---|---|
| $X_9$ | $\begin{bmatrix} \lambda & a_2 & a_3 \\ 0 & \lambda - b_2 & 0 \\ c_1 & c_2 & \lambda \end{bmatrix}$ | $\lambda_1 = b_2 = C_g - \frac{C_m}{F_m}(\frac{C_i - S - F_c}{F_m} L_2 + F_c)$ <br> $\lambda_2 = \pm\sqrt{a_3c_1} = \frac{F_m - C_m}{F_m}\sqrt{\frac{(S - C_i + F_c + F_m)(C_i - S - F_c)}{F_m}}$ <br> $\lambda_3 = -\sqrt{a_3c_1} = \frac{F_m - C_m}{F_m}\sqrt{\frac{(S - C_i + F_c + F_m)(C_i - S - F_c)}{F_m}}$ |
| $X_{10}$ | $\begin{bmatrix} \lambda & a_2 & a_3 \\ b_1 & \lambda & b_3 \\ 0 & 0 & \lambda - c_3 \end{bmatrix}$ | $\lambda_1 = \sqrt{a_2b_1} = \frac{\sqrt{(F_c - C_g)C_g(C_i - S)(C_i - S - F_c)}}{F_c}$ <br> $\lambda_2 = \sqrt{a_2b_1} = -\frac{\sqrt{(F_c - C_g)C_g(C_i - S)(C_i - S - F_c)}}{F_c}$ <br> $\lambda_3 = c_3 = \frac{(C_i - S)}{F_c} * \frac{C_g}{F_c} * F_m - C_m$ |
| $X_{11}$ | $\begin{bmatrix} \lambda & a_2 & a_3 \\ b_1 & \lambda & b_3 \\ 0 & 0 & \lambda - c_3 \end{bmatrix}$ | $\lambda_1 = \sqrt{a_2b_1} = \sqrt{\frac{(L_2 + F_c - C_g)(C_i - S)(C_i - S - F_c - F_m)C_g}{(L_2 + F_c)(F_m + F_c)}}$ <br> $\lambda_2 = -\sqrt{a_2b_1} = -\sqrt{\frac{(L_2 + F_c - C_g)(C_i - S)(C_i - S - F_c - F_m)C_g}{(L_2 + F_c)(F_m + F_c)}}$ <br> $\lambda_3 = c_3 = C_m - \frac{C_i - S}{F_c + F_m} * \frac{C_g}{L_2 + F_c} * F_m$ |

**Table 5.** Stabilities of equilibriums with $C_i$ of different size

| Balancing point | Numeric size of $C_i$ | | | |
|---|---|---|---|---|
| | $(-\infty, S)$ | $[S, F_c + S)$ | $[F_c + S, F_c + F_m + S)$ | $[F_c + F_m + S, +\infty)$ |
| $X_1$ | Unstable | Saddle | Saddle | Saddle |
| $X_2$ | Saddle | Saddle | Saddle | Saddle |
| $X_3$ | Saddle | Saddle | Saddle | $C_m < F_m$, stable; $C_m > F_m$, saddle |
| $X_4$ | Saddle | Saddle | Saddle | Saddle |
| $X_5$ | Saddle | Saddle | $C_m > F_m$, stable; $C_m < F_m$, saddle | $C_m > F_m$, stable; $C_m < F_m$, saddle |
| $X_6$ | Stable | Saddle | Saddle | Saddle |
| $X_7$ | Saddle | Saddle | Saddle | Unstable |
| $X_8$ | Saddle | Saddle | Saddle | Saddle |
| $X_9$ | Not exist | Saddle | Saddle | Not exist |
| $X_{10}$ | Not exist | Saddle | Not exist | Not exist |
| $X_{11}$ | Not exist | Saddle | Saddle | Not exist |

also affect consumers' behavior: if $C_m > F_m$, there is no benefit of complaining, so the consumers will choose "not complain" strategy.

On the other hand, there are also three variables that may affect government's decision: penalty on internet insurers ($F_c$), cost of government regulating the market ($C_g$) and reputation and trust loss from consumers ($L_2$). The government only has the motivation to regulate the market when the penalty government charges from internet insurers is more than its regulating cost ($C_g < F_c$). $C_g$ might be too big to bear when there is a serious information asymmetry problem between supervision department and insurers. $L_2$ functions similarly to $F_c$, it guarantees that the government has the motivation to regulate the market.

Consumers' strategy is affected by $C_m$ and $F_m$. If $C_m > F_m$, there is no benefit of complaining, so the consumers would prefer "not complain" strategy. On the other hand, consumers can affect other parties' behavior by changing their confidence level in government ($L_2$) and the sensitivity of insurance demand to information (S). That means if insurers don't disclose enough information, the revenue loss caused by sales volume decreasing might be unbearably big. It will push insurers to disclose enough information (like Scenario 4) when S is too large for insurers. $L_2$ functions similarly to S: when the penalty charged by government $F_c$ is not enough to motivate the government to regulate the market, $L_2$ can work as a supplement and push the government to regulate (like Scenario 1).

## C. ESS discussion

The evolutionary stability can be analyzed to conclude an evolutionarily stable strategy (ESS) justification under different circumstances, as detailed below. In each scenario, no party would have the motivation to change current behavior and the system will stay stable.

Scenario 1: $C_m < F_m$, $F_c + F_m + S < C_i$

In this case, based on Table 3 and Table 4, $X_3(0,1,0)$ is the only asymptotic stable point. The phase diagram is shown as Figure 1. This means, internet insurance firms would choose not to disclose enough information to consumers, while even though the government chooses to regulate information disclosure of insurers, consumers are still not satisfied and choose to complain about it. This situation occurs because even if the penalty government charges internet insurers is more than its regulating cost ($C_g < F_c$), and the compensation consumers get from insurers is more than their complaining cost ($C_m < F_m$), the summation of total fines paid by the insurers and revenue loss is less than the cost of disclosing sufficient information ($F_c + F_m + S < C_i$). That is to say, this situation is caused by insufficiency of regulation, or low information sensitivity of consumers, or information disclosure cost being too high.

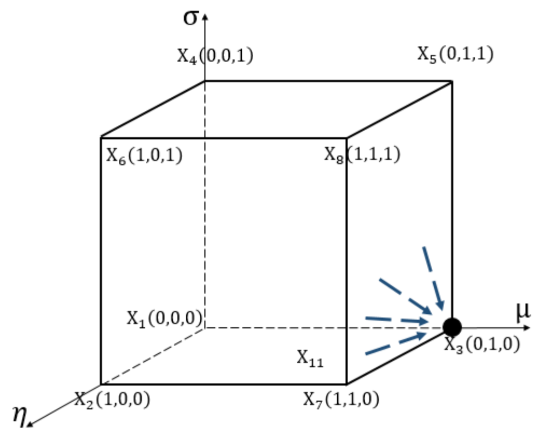


**Figure 1.** Phase diagram of scenario 1

Scenario 2: $F_m < C_m, F_c < C_i - S < F_c + F_m$

Scenario 3: $F_m < C_m, F_c + F_m < C_i - S$

In both scenario 2 and scenario 3, $X_5(0,1,1)$ is the only asymptotic stable point. The phase diagram is shown as Figure 2. That means, the system will be stable with (not Disclosing, Regulating, not Complain) strategy under these circumstances. The insurers choose not to disclose enough information because the cost of disclosing is larger than the summation of penalties paid to government and revenue loss from consumers ($C_i > F_c + S$). The government has the motivation to regulate the market because the penalty government charges from internet insurers is more than its regulating cost ($C_g < F_c$). However, consumers would choose "not complain" strategy because the compensation they can get is less than their complaining cost ($F_m < C_m$). That is to say, even though the government is regulating the market, the supervision is not enough

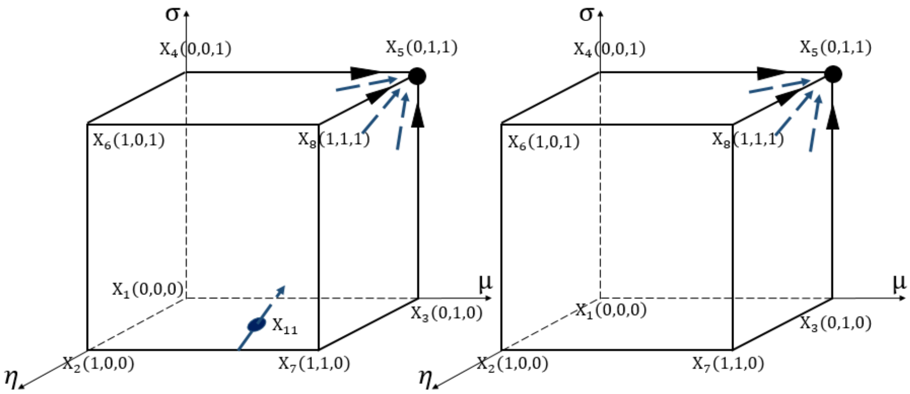


**Figure 2.** Phase diagram of scenario 2 (left) and scenario 3 (right)

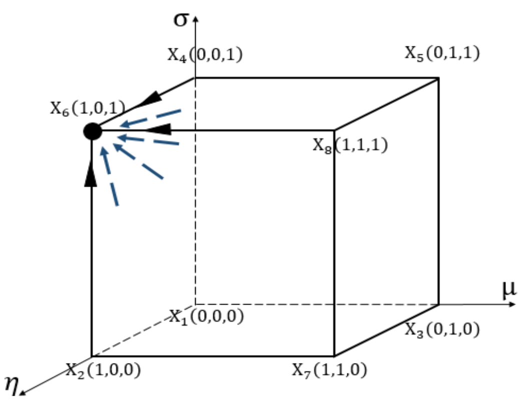


**Figure 3.** Phase diagram of scenario 4

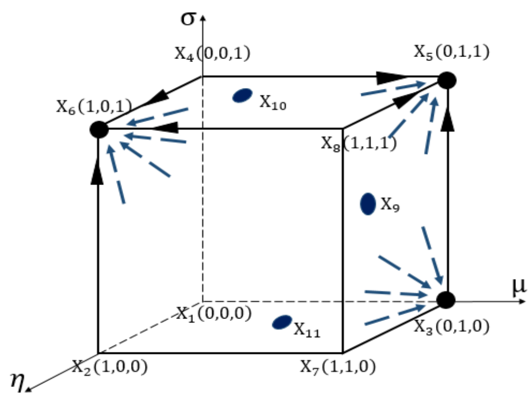


**Figure 4.** Phase diagram of all stable points

to push insurers to disclose enough information. Meanwhile, the supervision from consumers is not enough either (S is not big enough), and it might also be the case that the consumers are easily satisfied. Therefore, it is not a good stable state because insurers tend to not disclose enough information and consumers' rights are not well protected.

Scenario 4: $C_i < S$

$X_6(1,0,1)$ is the only asymptotic stable point in this scenario. The system would be stable with (Disclosing, not Regulating, not Complain) strategy. The phase diagram is shown as Figure 3. In this case, the insurers would choose to disclose enough information to consumers, because the revenue loss caused by sales volume declines is larger than the cost of disclosing ($C_i < S$). And if the insurers choose not to disclose enough information, they might also have to pay a government penalty. Considering insurers are voluntarily disclosing enough information, the government doesn't have the motivation to regulate, thus the government would choose "not regulating" strategy. On the other hand, once the insurers choose to disclose enough information, the consumers would tend to be satisfied. This is a relatively good stable state because the market is regulating itself, and the government doesn't need to spend extra money on supervising information disclosure.

## D. Summary

(1) There are only three possible stable strategy combination from long-term perspective (as shown in Figure 4). That is, $X_6$ (Disclosing, not Regulating, not Complain), $X_3$ (not Disclosing, Regulating,

Complaining) and $X_5$ (not Disclosing, Regulating, not Complain). That means, under these three circumstances, nobody would have motivation to change their strategies, new comers of this market would also follow these strategies.

(2) When insurers do not disclose enough information, the government always tends to choose to regulate the market. However, when the government regulates insurers' disclosure, no matter how strictly the government regulates, there would always be occasions that insurers choosing "not disclosing" strategy.

(3) The quantity of information insurers disclose mainly depends on the cost (or profit) of disclosing. The penalty from the government would motivate insurers to disclose more information, but it is consumers' buying decision (S) that ultimately compel insurers to disclose enough information to consumers.

# Ⅵ. Application to China and Japan

The results of the theoretical analysis may be adapted to explain different situations in different countries. Here we consider China and Japan. For instance, China has become one of the most advanced internet insurance markets because of its developed mobile payment systems, and it is still developing very rapidly. According to INZURER(2018)'s report, 10 of the top 100 InsurTech firms in 2018 are located in China, while that number of Japan is zero. However, as shown in Table 6, in the year of 2017, consumer complaints are much less in Japan than in China, which may indicate that consumers in Japan are more easily satisfied than in China. Governments in both Japan and China tend to regulate the market due to their East Asia culture background. But in China, because of the rather short history of the insurance industry and the rapid growth of internet insurance, regulation is less sufficient than Japan, and the internet insurers are inclined to not disclose enough information. However, Japan's insurance industry has a very long history, and FSA (Financial Services Agency) of Japan is one of the strictest supervisors in the world. According to the data provided by the Life Insurance Association of Japan and the General Insurance Association of Japan[1], complaints about information disclosure are less than 13% of total complaints number. Thus, we can conclude that the internet insurers in Japan are inclined to disclose enough information. Therefore, the current situation in China is more similar to $X_3$ (not Disclosing, not Regulating, Complaining) and situation in Japan is more similar to $X_8$ (Disclosing, Regulating, not Complain).

**Table 6.** Situation of consumer complaints in China and Japan in 2017[2]

| | China | Japan |
|---|---|---|
| complaints number per billion-dollar premium | 175.6 | 18.8 |
| complaints number per thousand-policy | 4.7 | 2.2 |
| complaints number per thousand- figure | 0.9 | 0.8 |

Based on the evolutionary game model, the current situation in China is unstable in the long run, as shown in Figure 4. That means that any disturbance would change the situation in an unpredictable direction. The reason for this situation is mainly because of insufficient regulation under overgrowth of the internet insurance market. The regulator in China cannot change policies quickly enough in such rapidly changing industry, and is also unwilling to regulate too harshly in order to protect the vitality of this industry. Besides, consumers in China do not trust insurance agents as much as themselves[3], and they are more high-tech savvy, price sensitive and brand independent. Both insurers and consumers are more willing to take risks.

Although internet insurance in China is taking off very fast, with insurers not disclosing and consumers being unsatisfied, it is not a good occasion for future development of the internet insurance market. Therefore, changes to move to a stable equilibrium might be needed. This paper proposes the following suggestions.

(a) Lowering the cost of disclosing information would make insurers more willing to disclose enough information to consumers. Insurers could lower the cost by simplifying and modularizing services and

[1] Data of life insurance are from https://www.seiho.or.jp/contact/report/; data of non-life insurance are from http://www.sonpo.or.jp/news/statistics/adr/

[2] Data of China are from website of CIRC, data of Japan are from FSA and Life Insurance Association of Japan, where complaints number per thousand-policy and per thousand-figure are derived from life insurance data. Premiums derive from Swiss Re (2018) Sigma No 3/2018.

[3] According to China Internet Insurance Development Report 2017, 28.9% of the interviewees believe that buying insurance without agents is actually the merit of internet insurance.

products. The authority could also lower that cost by better communicating with insurers and making a better industry standard.

(b) The government can enhance the regulation of information by raising the standard of “enough” information and increasing the penalty for insurers who violate it.

(c) Enhancing consumers’ education so that consumers make their buying decisions not based on price only, but also their needs. Consumers need to be able to interpret information provided by insurers and learn to only buy if enough information is disclosed.

Based on the evolutionary game model, the current situation in Japan is also unstable, as shown in Figure 4. Any disturbance would change the situation in an unpredictable direction. The market might stop developing and shrink until it disappears. There are two main possible reasons for this situation. One is that the regulation may be too strict. The standard of “enough” disclosure is too high, and the fines are unbearable. The other reason might be that S is too high. In Japan, insurance agents have a long history and high acceptance. According to Lifenet’s investigation (Lifenet, 2011), 52.3% of the interviewees believe that buying insurance without talking with agents is the biggest demerit of internet insurance. Consumers care more about the companies’ brand than about cheap prices. They are also risk averters, with 51.7% of the interviewees worried about their personal information security online and 51.5% worried that their insurance knowledge is not enough to make decisions by themselves. Therefore, proper guidance of this market is necessary. For the healthier development of the internet insurance market in Japan, this paper proposes the following suggestions.

(a) The government should appropriately loosen regulation, and since innovation can effectively lower disclosing cost and help with consumer education, authority should also encourage innovation of internet insurance. For example, lowering standards for traditional insurance companies entering the internet insurance market, or giving internet companies more access to insurance market.

(b) The regulation of information disclosure should not only focus on the quantity, but also the quality. The information provided for internet insurance and traditional insurance should be comparable. The insurance companies should also try to simplify and modularize their products, make them easy to understand. That will also lower the cost of disclosing information and make internet insurance business more appealing.

(c) Enhance consumers’ education to give consumers more confidence in making their own decisions. Their rational decisions would benefit the development of this market.

## Ⅶ. Conclusion

This paper focuses on information asymmetry problems in the internet insurance market. Compared to traditional insurance, insurance provided through internet channel is usually simpler and modularized. That means, different from traditional insurance, it is the insurers instead of consumers who have the information advantage. Without agents fulfilling information duty, consumer protection could be more difficult than traditional insurance. Most papers are studying this problem from legal or normative perspectives; there is little research using economic analysis, especially behavior strategy studies based on game theory. This paper employs three-party evolutionary game theory to study how the quantity of disclosed information provided by insurers affects the behaviors of the government and consumers, and how insurers react to their strategies.

On the basis of the research above, there are only three possible stable long-term equilibriums, which are (Disclosing, not Regulating, not Complain), (not Disclosing, Regulating, Complaining) and (not Disclosing, Regulating, not Complain). Amongst the three, (Disclosing, not Regulating, not Complain) would be the best for healthy development of internet insurance industry. Comparison of China and Japan suggests that China’s situation is similar to (not Disclosing, not Regulating, Complaining) and Japan’s situation is similar to (Disclosing, Regulating, not Complain). Neither of these are stable equilibriums. Suggestions for changes in China and Japan to move to a healthy stable equilibrium are provided based on analysis of the model variables that are shown to affect strategies.

However, this paper still has two limitations. Firstly, this paper puts more consideration on the information advantage of insurers, the information advantage of consumers or moral hazard is not involved. Another limitation is that this study only considers the effect of quantity of information. The quality of information is not involved. Future extensions of this research could be developed in several directions. Firstly, the effect of quality of information might be incorporated into this model. Furthermore, some empirical analysis could be done on the basis of this model.

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Received/ 2019. 10. 02
Revised/ 2019. 12. 01
Accepted/ 2019. 12. 01

# A Review of the past five years of the IAFICO (2014-2019)

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## Ⅰ. Introduction of the IAFICO

### A. Raison d'etre of the IAFICO[1]

The role of financial development cannot be overemphasized. Although mainly focusing on the size of the financial market, financial development has been proven to affect income growth as well as income redistribution, putting to rest the suspicion of the role of financial development by some scholars over several decades. Moreover, economic crises, which are now occurring more frequently, have highlighted the importance of financial stability and safety in maintaining a sustainable economy. While financial development contributes to economic growth through efficient allocation of financial resources, they also influence income disparity by benefiting low income classes relatively more than others.

Financial development, in fact, is more associated with quality improvement than with quantity growth in financial services. Precisely speaking, quality is more important than quantity in financial development as development may reduce demand for financial services by providing fewer financial resources to satisfy consumers' needs and wants, or by increasing their opportunity sets given the same amount of financial resources. In addition, we should distinguish 'development' from 'growth' in order to discriminate the quality and quantity measures.

Financial development can be not only a defensive protection measure against financial crisis but also an indispensable ingredient for economic and social development that benefits all economic and social classes. Generally speaking, financial underdevelopment may hurt the low income class more than the high income class and vice versa, as we observed amid recent financial crises. A well-functioning financial market can provide stability and a stepping stone for a sustainable economy and society.

Financial development in a market economy should bring well-informed consumers and providers of financial services together. Consumers can compare financial products and services based on information available to them and select a long-term contract with the expectation that the contract will continue until maturity. Sellers of the products can also target their ideal customer group, taking into consideration their competitive advantages and limited human and financial resources and offering their products and services to attract their target consumers.

Indeed the reality is different from this ideal situation of perfect and complete information. In the 1970's, Spencer (1973) and Rothschild/Stiglitz (1976) published seminal papers on information asymmetry in the labor or financial market, assuming that consumers (or employees) are more knowledgeable than companies. At the time, consumers, not companies, suffered due to asymmetric information, being forced to rely on contract type offers - in particular, the low risk group of consumers was subject to consequential loss from information asymmetry.

It was not until four decades later that the opposite argument arose with evidence of uninformed financial consumers and the necessity of their protection in the global society. Both civil society and government unanimously support consumer financial protection in spite of the minority still complaining about financial consumer fraud. This unimaginable change between the 1970s and the 2010s may be attributable to the unprecedented in-

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[1] https://www.iafico.org/about

vention of a number of new and complicated financial products after financial liberalization in the 1980s, leading to a free exchange regime, liberal interest rate systems, and the growth of derivative markets coupled with the slow development of consumer literacy or familiarity with service providers.

Among all kinds of contemporary services, in fact, I may well say that the consumption of financial services and that of medical services are the most critical in terms of the impact on human life and the level of information asymmetry between consumers and service providers. Medical doctors serve and treat their patients with dominant knowledge distance to safeguard the health and well-being of patients, while financial intermediaries do the same to safeguard their customers' wealth and well-being in a similar environment. Medical service is similar to financial service in modern times in terms of complexity and impact on consumers, and thus both are subject to serious consideration in consumer agencies worldwide. One difference between the two is that financial complaints may be so common and wide spread, for example amid financial crisis, as to lead to class action, while medical complaints may not reach similar proportions. In this regards, the importance of financial consumer protection cannot be overemphasized.

## B. Mission of the IAFICO[2]

The IAFICO aims to serve as a global platform for sharing information, knowledge on "Financial" products and services, regulations and supervision, institutions and culture, education and training in order to reasonably serve financial consumers' interests and well-being as well as to facilitate long-term financial development from an impartial perspective. Headquartered in Seoul, Korea, the academy was founded in December 2014 by a dozen Asian professors interested in the above issues. The first official annual conference, held on Jeju Island, Korea, could include about 80 attendees from about fifteen countries.

The IAFICO conducts research on financial consumers from a global perspective - probably the first of its kind, while the Korean Academy of Financial Consumers (www.kafc.org), created in 2010, is the first organization with the same research agenda, but mainly in a local context. So to speak, the IAFICO is the international version of the KAFC, which is very unique in the Korean academic society that performs research on finance, insurance, or consumer science, without relies on financial support from the financial service industry. For the sake of impartiality, the IAFICO shuns relationships with for-profit corporations in the industry and prohibits its president from serving as an outside director for any bank, security broker, insurance company and so on. In principle, the IAFICO is to be run by individual academic members and to be financed by the members and by several non-profit organizations in the financial sector.

The IAFICO was created to do research on financial consumers from a global perspective. As far as I understand, the financial consumer has never been a research agenda except at the KAFC as noted above. The academy examines consumers using financial services provided by banks, stock brokers, insurers, credit cards, etc. in all countries worldwide. Across countries, we compare the consumers, products, services, distribution channels, providers, rules and laws and other institutional structures surrounding consumers. Consumers may share commonalities or may differ from each other, some experiences may be portable to other countries and some countries may have impeccable products or institutions that other countries should emulate.

As for financial consumers, financial products and services, financial systems and regulations, financial distributors, there are huge differences across countries. We can find various attitudes toward consumption and saving, risk and return, investment and insurance in different countries, as much as the differences in the culture of financial intermediaries and financial supervision systems, which may be path-dependent. For instance, Korea appears to have a larger power distance between financial supervision agencies and the supervised groups than other countries, while the Japanese financial watchdog takes a stricter position regarding their charge than their Korean counterpart. Moreover, Korean insurance salespersons emphasize self-interest more than those in other countries, to the disadvantage of financial consumers. Some countries show longer term orientation to financial contracts than other countries.

Some differences should be reduced sooner or later to improve the financial market structure or facilitate economic growth, while others may not or cannot be resolved. As a decisive factor for national prosperity, as noted

[2] Also from www.iafico.org

by Acemoglu and Robinson in the book Why Nations Fail (2013), Institutions or motivation-generating systems may be changed more easily than cultures or people, providing another path to development or growth for the countries concerned. According to a Chinese proverb, a wise man or country learns from others' mistakes and failures as well as from their success stories. Many experiences and ideas can be shared among first movers and their followers.

For instance, many developing countries strive to mimic extraordinarily successful strategies and experiences related to the Korean economy, for which the main characteristic comes from hard pressure on the financial service sector to maintain stability in order to generate capital for growth in the real economy sector. To be honest, I am not so sure whether the unbalanced growth strategy was the best solution that could be shared with other emerging economies or not, as the Korean financial service sector is still lacking comparable competitiveness in such real sectors as automobile, electronics and ship-building. Another serious situation in the Korean financial system was the handling of the financial crisis amid the Asian crisis in the late nineties, with the increase of the interest rate to attract foreign capital flow, resulting in huge unemployment and corporate bankruptcies. This kind of solution has not been applied since to avoid the subsequent financial crisis. Instead, a completely opposite solution has been provided in the form of financial easing and lower interest rates. China is a good example of a country that enjoys the slow follower's advantage as far as the financial system is concerned.

## Ⅱ. Five Year Review of the IAFICO activities[3]

### A. Conferences (Global Forum for Financial Consumers, GFFC)

#### *1. 2014 GFFC*

Being held on December 14 and 15th 2014 at Sungkyunkwan University, the first GFFC meeting was so small that we should call it a workshop rather than a conference, which nevertheless played a pivotal role as an incubating event.

There were about 20 academicians in the gathering from six countries to present six paper presentations - Korea (Hongjoo Jung, Kyunjoo Lee, Junghai Yoon, Changhee Han, Donghan Chang, Sangwook Nam, Chul Choi, Sungsook Kim, Sangrae Park), Japan (Hongmu Lee, Satoshi Nakaide, Mariko Nakabayashi, Nobuo Nakamura) , China (Xian Xu, Xinli Liu, Yao Yi), Indonesia (Rofikoh Rokhim), Malaysia (Ahcene Lahsasna), and Taiwan (Tsai-Jyh Chen). Most of them are still participating on the IAFICO activities.

With six paper presentations, the meeting mainly aimed to discuss its future conference rather than the year meeting, enabling to fix venue of the 2015 official conference in Jeju city, Korea. The first attendee group heavily worked in early 2015, exchanging emails with each other, in order to name the organization in an easy to pronounce way (i.e., IAFICO) and to set up the bylaw (constitution)


**Photo 1.** the 1st Global forum for Financial Consumers at Sungkyunkwan University (2014)
(on December 14th, 2014 at Room No. 33527, Business School, Sungkyunkwan University, Seoul, Korea)

**Table 1.** Summary of the 2014 GFFC

| When | December 14-15, 2014 |
|---|---|
| Where | SungKyunKwan University (Business School), Seoul, Korea |
| Subjects | The 1st International Sustainability Conference - open to public |
| Number of Presentations | 6 |
| Countries attending | China, Indonesia, Japan, Malaysia, Republic of Korea, Taiwan |

3 I owe photo collection and data summary in this section to Soyoung Lim and Sunghyun Bae.

of the organization. Professor Satoshi Nakaide, a law professor, did a great job for the latter work, in particular. Serving as founders of the IAFICO, some of the first meeting attendees that continue to be serving even today as executive committee members, make it a rule to have a dinner in the evening right before every annual conference.

*2. 2015 GFFC*

2015 GFFC, the official annual conference of the IAFICO 2015, could have been held at Jeju National University, thanks to professors Jungsook Kim and Junghai Yoon. The university, located in the northern part of Jeju island, offered its nice university guesthouse with a fine view and a few beautiful lecture halls in the International Convention Center to the newly born international academic society.

Many new members joined the young organization - Andy Schmulow from Australia, Yehuda Kahane from Israel, .Sankarshan Basu from India, Robert R. Kerten from Canada, Sharon Tennyson, Jing Ai and Clifford Robb from USA, Muhamad Mamun from Bangladesh, Dongmei Chen from China, Man Cho, Kyunghwan Kim, Seungdong You, Sojung Park, Sungin Jun, Seunghan Ro, Jongku Kang, Minyoung Cho, Junghyun Sohn, Youngkyu Lee, Myungchang Lee, Hyungbin Eun, Sangeun Han from Korea.

Noticeably, moreover, we had several foreign ambassadors locating in Seoul Korea to introduce what is going on with financial consumers in their home countries of such continents as Latin America and Africa. During the conference, they had a special lecture of John Lee, CEO of the Meritz Asset Management Corporation, Korea, emphasizing long-term saving through long-range stock investment (in buy-and-hold strategy) which was not popular then in Korea. And Andrew Barret, CFO of the Orange Life insurance Co. flew from Seoul to make just a 15 minutes discussion and flew back to enjoy weekend with his family.

The city, so-called one of the Seven Wonders in the world, was blessed with tens of global academicians in financial consumer science. After the conference was over, they went to see the beauty of the Jeju and had a barbeque party at spacious gallery farm of professor Tongwon Kim, being surprised to see the size of the estate and also unusual hospitality of the Korean professor.


**Photo 2.** the 2nd Global forum for Financial Consumers at Jeju National University (2015)\
(on October 31st, 2015 at the International Convention Center, Jeju National University, Jeju, Korea)

**Photo 3.** the 2nd Global forum for Financial Consumers at Jeju National University (2015)
(in November 1st,, 2015 at the International Convention Center, Jeju National University, Jeju, Korea)

**Table 2.** Summary of the 2015 GFFC

| When | October 31 & November 1, 2015 |
|---|---|
| Where | Jeju National University (International Convention Center), Jeju, Korea |
| Subjects | Optimal Risk-Sharing Rules for Financial Consumers |
| Number of Presentations | 27 |
| Countries attending | Bangladesh, Canada, China, India, Indonesia, Israel, Japan, Malaysia, Republic of Korea, Taiwan, U.K., USA |

*3. 2016 GFFC*

The 2016 IAFICO conference was another one held in Korea following the 2015 IAFICO prior to its take-off to abroad in upcoming years. The SKKU hosted the conference with about 60 attendees for 31 presentations. Thanks to its location in the capital city of Korea, Seoul, the organization committee could succeed in inviting a few influential figures from the National assembly and Government of Korea.

Mr. Woonyeol Choi, a former professor of Sogang University and congressman together with Dr. Hyungpyo Moon, chairperson of the Korean Pension Investment Corporation and immediate past Minister of Health and Welfare, came to deliver their keynote speeches in spite of their heavy schedules. And professor Hoyeol Chung of SKK University, a former chairperson of Korean Fair Trade Commission came to moderate a plenary session where Gail Pearson from Australia and James Devenney from Ireland, Takaaki Hattori from Japan and Sungsook Kim from Korea presented new development and challenges for financial consumer protection in their own countries. Professor Devenney introduced a U.K. debate on fairness of banking industry where low credit people inevitably pay higher or more interest to the banks, while professor Pearson, president of IACL (International Academy of Consumer Law) explained new trend of consumer law led by the United Nations.

In addition to those speakers that I mentioned above, there were also many more new presenters or discussants in the year 2016. Vincenzo Senatore from Italy, Martin Dierker from Germany, Alss Alaaabed and Siti Muawanah Lajis from Malaysia, Jeanette Madamba from Philippine, Naoyuki Yoshino, Mari Yamauchi from Japan, Kyungoo Kim, Paul Kim, Jinhyung Lee, Hyunsang Sohn, Soyoung Park Jaiseop Lee, Jinsoo Lee, Seungryul Ma, Hyunah Kim, Namsoo Choi from Korea. Among them, I specially remember Dr. Jaeiop Lee and Professor Martin Dierker, who met in a session as a presenter and discussant to surprise each other by the fact that Korea had the largest poverty ratio of the aged group of population and the question why Korean did not make more effort to innovate pension system to the benefit of the poor old generation who contributed to economic growth of Korea, Although they both attended the conference by invitation of the IAFICO, they found it unexpectedly valuable to be there after the conference.


**Photo 4.** the 3rd Global forum for Financial Consumers at Sungkyunkwan University (2016)
(on November 4th, 2016, in the International Hall, SKKU,)

**Photo 5.** the 3rd Global forum for Financial Consumers at Sungkyunkwan University (2016)
(on November 4th, 2016 in the International Hall, SKKU,)

**Table 3.** Summary of the 2016 GFFC

| When | November 4-5, 2016 |
|---|---|
| Where | SungKyunKwan University (International Hall), Seoul, Korea |
| Subjects | Financial Consumer Protection in Globalization |
| Number of Presentations | 31 |
| Countries attending | Australia, Bangladesh, China, Ireland, India, Indonesia, Italy, Japan, Malaysia, Philippines, Republic of Korea, Taiwan |

*4. 2017 GFFC*

The first IAFICO conference at the other country than Korea was held at the top notch Chinese university in Shanghai, the economic capital of China, with a liberal academic culture and tradition. Thanks to the fine beginning of international venue, the 2 years old IAFICO could continue to be hosted at nice universities thereafter.

The IAFICO was so grateful to the Fudan University as it dared to host the young academic conference, although it might looked like an extraordinary and ambitious organization. In addition, the University funded most of conference expenses including meals and venue rental fees.

About 25 graduate students from Sungkyunkwan university (from Graduate School of Global Insurance and Pension) also attended the 2017 GFFC and enjoy sightseeing of Shanghai (Enjoying world famous Shanghai crab and the Fudong river cruise) with academic members of the IAFICO. They said that presentations on Chinese Fintech development were very interesting and impressive.

Mr. Qinghai Yao, then president of the Insurance Society of China, was the President of the 2017 GFFC conference and of course the IAFICO as well as the representative host of the conference. The Insurance Society of China, a public entity, represents all the insurance professors in China, similar to the ARIA meeting in the U.S.A. or the E.G.R.I.E in the European Union.

And professor Xian Xu was the vice president of 2017 and the conference organization committee chairperson who took care of most practical works to prepare for the conference. The young and promising insurance professor procured a very generous funding inside and outside of the university and an impressive auditorium with multi monitors combined to show a very big picture, displaying high-tech electronics of China. Now Xian is running the one and only Insutech research center in China as well as serving as chairperson of insurance department of Fudan University. A group photo was taken outside the conference hall with pre-arranged chairs in the frontline, and the photos were printed and distributed at once on the date when they were taken, showing efficient and quick Chinese system. And the conference information was also printed in red inside the photos for our easy remembrance. To take a group photo is somewhat Asian style, of group culture. It also became a tradition of the IAFICO.


**Photo 6.** the 4th GFFC at Fudan University, Shanghai China (2017)
(on November 3rd, 2017 in front of Think Tanks Building, Fudan University)

**Photo 7.** the 4th GFFC at Fudan University, Shanghai, China (2017)
(on November 3rd, 2017 inside the Think Tanks Building, Fudan University)

**Table 4.** Summary of the 2017 GFFC

| When | November 3-4, 2017 |
|---|---|
| Where | Fudan University, Shanghai, China |
| Subjects | Financial Consumer, Society and Global Development |
| Number of Presentations | 23 |
| Countries attending | Bangladesh, Canada, China, France, Indonesia, Japan, Laos, Malaysia, Poland, Republic of Korea, Taiwan, |

Professor Xu invited a nationally well-known Fudan professor Lijian Sun to moderate the opening session with professors Hanam Phang, Sharon Tennyson, Sangho Kim and Mr. Qinghai Yao to share their knowledges and insights with attendees. Staff and students in the Fudan University served foreign guests so nicely that everyone could very stay very pleasantly during the conference period. Great thanks went to the organization committee members of the Fudan University - Mr.Xian Xu, Zhijie Zhao, Hongrui Zhu, Tao Wu, Hanjia Lyu.

*5. 2018 GFFC*

The 2018 IAFICO was hosted by the Waseda university, a very prestigious private university in Tokyo Japan with more than 120 years history. Professor Hongmu Lee, originated from Korea, was the key host and the president of the GFFC 2018 on the Fourth Industrial Revolution and Financial Consumer Protection to prepare for everything

In the opening ceremony, then newly elected president and professor Aiji Tanaka and the Indonesian Minister of Finance, Dr. Sri Mulyani Indrawati (by online) delivered their congratulatory remarks to all the IAFICO participants at the opening ceremony moderated by professor Satoshi Nakaide.

The president Tanaka, the first president of Waseda University with doctoral degree from abroad, was such a humble and friendly professor as to lead the group in folding their legs a bit for back standers during photo session. Obviously, Ms. Sri gave a quite impressive and informative speech showing her extensive knowledge and vision obtained through the World Bank and elsewhere. As a token of our appreciation, professors Lee, Hongmu and Rofikoh Rokhim presented them with a new book of the IAFICO, An International Comparison of Financial Consumers (edited by professor Tsai Jyh Chen).

There were three plenary sessions on the first day (July 27, 2018) where professor Maji Rhee served as the master of ceremony - moderated by Michelle Kelly-Louw (U. of South Africa), So Jung Park (Seoul National U.), and Eduardus Tandelilin (U. of Gadjah Mada) respectively. The sessions were colorfully presented by renowned scholars or experts such as Yoshihiro Kawai, Eiichiro Kawabe, Jacek Lisowski, Piotr Manikowski,


**Photo 8.** the 5th GFFC at Waseda University, Tokyo, Japan (2018)
(On July 7th, 2018, at the International Conference Center, Waseda University)

**Photo 9.** the 5th GFFC at Waseda University, Tokyo, Japan (2018)
(On July 7th, 2018, in the International Conference Center, Waseda University)

**Table 5.** Summary of the 2018 GFFC

| When | July 27-28, 2018 |
|---|---|
| Where | Waseda University (International Conference Center) , Tokyo, Japan |
| Subjects | The Fourth Industrial Revolution and Financial Consumer Protection |
| Number of Presentations | 42 |
| Countries attending | Bangladesh, China, Germany, India, Indonesia, Japan, Laos, Poland, South Africa, Republic of Korea, Switzerland, Taiwan, USA, Vietnam |

Dongmei Chen, Michael Powers, Shinichi Yoshikuni, Long Quang Trinh, Ken Kawai, Pamouane Phetthany, Mz Mamun, and Rofikoh Rokhim.

Besides, the IAFICO had many new member-speakers from Japan, Germany, China, Korea, Indonesia, and Switzerland. During the wonderful conference, sponsored by the Waseda University pursuing globalization, member attendees and guests from countries far way could stay at hotels near the university and enjoy delicious sushi and other Japanese cuisine. In the evening of the July 28, some participants went to a Japanese hot spring near professor Hongmu Lee's private residence with their pocket money in order to congratulate on the successful conference. Professor Lee hoped that he could invite the IAFICO again to Japan before he retires from the Waseda.

*6. 2019 GFFC*

The 2019 GFFC, the 6th year conference, was recorded as the largest one in terms of the number of attendees, 350 people. The University of Gadjah Mada (abbreviated as the UGM) is one of the best three universities of Indonesia and the only one in Indonesia having business school with the international AACSB accreditation. The conference was held in a large auditorium with a photo on its high wall of the Indonesian president, Mr. Joko Widodo, one of the university alumni. The room was also equipped with two small and beautiful artificial garden in front, specially prepared for the IAFICO conference.

Professor Eduarudus Tandelilin and his staff members including Dr. Leo Wardhana made a wonderful job to prepare for the 2019 conference in every inch, while the Asian Development Bank Institute (led by the dean Yoshino Naoyuki) financially supported it a lot for international guests. .Eduardus was a really entertaining gentleman to make his coworkers and students happy to be with him, who also made attendees laugh and relaxing in the opening ceremony by saying that one of the reason why we should enjoy a conference is that there is a delicious free lunch.

Dr. Leo, who got his Ph.d in Europe, fulfilled his hard task of conference preparation carefully and successfully to end up with providing even special T-shirts to staff members and BOD members of the IAFICO. Understanding the IAFICO well since his first attendance in the year 2016, Dr. Yoshino Naoyuki of the ADBI attended the 2019 conference as presenter, as moderator, as commentator, also as sponsor. He is expected to continue to participate on and contribute to the IAFICO as an energetic and enthusiastic scholar on Asian Development.

Turning back to the 2019 program of the IAFICO, I should recall with my honor the wonderful opening ceremony showing great people such as Mr. Marimuthu Nadason (President of the Consumers International, CI), professor Wimboh Santosa (Chairperson of the Indonesian FSA, OJK), President Panut Mulyono (Rector of the UGM), notwithstanding professor Sharon Tennyson (Cornell U.), dean Yoshino Naoyuki (ADBI), dean Eko Suwardi (FEB UGM), and myself. Both Mr. Nadason, representing the CI, the umbrella organization of international consumer activist groups, and Mr. Santosa made natural and impressive speeches without relying on their official draft, looking like professors in university classroom with smiles on their faces. Professor Sharon Tennyson's speech on the role of academicians and policymakers in financial consumer protection was very insightful and coordinating with other attendees with differing backgrounds in the opening session, which was moderated by Professor Eddy Junarsin with his pleasantly big voice.

Succeeding the session, three plenary sessions went on with moderators Naoyuki Yoshino, Sharon Tennyson and Man Cho. The speakers in the sessions included Sankarshan Basu, Phouphet Kyophilavong, Daw Tin Tin Htwe, You Kyung Huh, Gianni Nicolini, Dinh Thi Thanh Van, Paul Selva Raj, Shanuka Senarath, Muhammad Mamun, Md. Zahid Hossain, Irwan Adi, Rofikoh Rokhim,

**Table 6.** Summary of the 2019 GFFC

| When | August 19-20, 2019 |
|---|---|
| Where | Gadjah Mada Unviersity, Yogyakarta, Indonesia |
| Subjects | Reshaping Investment and Financing through Digital Innovation |
| Number of Presentations | 41 |
| Countries attending | Argentina, Bangladesh, Brazil, Chile, China, India, Indonesia, Israel, Italy, Laos, Malaysia, Myanmar, Sri Lanka, Republic of Korea, UK, USA, Vietnam |

Melia Retno Astrini, Supeni Anggraeni Mapuasari, and Ahmad Maulin Naufa. Of course, the next day had more speakers and presentations than the first day, who I am sorry not to mention all here. During the conference, the attendees could visit a few world-famous religious sites, Borobudur Temple of the Buddism and Prambanan temple of the Hinduism in harmony or in balance which Indonesia is known to emphasize in daily life as a moral virtue. The 2019 conference in the Yogjakara left many things to attendees including beautiful reminiscence like an Indonesian Sunset. (The reason why I could write more about the 2019 conference than the other ones is that I still have a fresh memory about it)


**Photo 10.** the 6th GFFC at the Gadjah Mada University (2019)
(On August 19th, 2019 in the Auditorium, Faculty of Economics and Business, UGM)

**Photo 11.** the 6th GFFC at the Gadjah Mada University (2019)
(On August 19th, 2019 in the Auditorium, Faculty of Economics and Business, UGM)

## B. Membership of the IAFICO

The IAFICO, the one and only global academic institution concerning financial consumers, was created by several Asian scholars who share similar opinions regarding the Importance of Financial Consumers in the global and regional economy, under-emphasis of financial consumers in current financial systems, existing forums focusing on business or regulatory perspectives, the necessity of cross-country comparison of experiences, ideas, or best practices from the standpoint of financial consumers. The original founders and members of the academic institution aim to share relevant information, either successes or failures, for financial development, to discuss financial issues in an impartial manner from the perspective of financial consumers, to find long-/short-term solutions for economic and social development, and to collectively suggest solutions to common issues across countries.

The number of the IAFICO's individual members has gradually grown from its inception. The year 2015 saw that its first official members numbered 58, increasing about 15% to 20% each year. As of the end of 2019, the number is expected to be about 125, of which 70% are Korean and the others are of about 20 different nationalities. The year 2019 was so pleased to get many new individual members from differing countries.

When it comes to institutional members, the academic society has four members - Korea Financial Supervision Service (FSS), Korea Deposit Insurance Corporation (KDIC), International Academy of Consumer Law (IACL), Korean Academy of Financial Consumers. The last two academic members agreed to cooperate with the IAFICO, sharing ideas and information while sending delegates to their official conferences. In lieu of this, Ms.Youkyung Hur, a lawyer, attended the IACL in Indianapolis in 2019.

**Table 7.** Membership changes of the IAFICO

| Year | Newly Registered Members | Total Registered Members |
|---|---|---|
| 2015 | 58 | 58 |
| 2016 | 12 | 70 |
| 2017 | 15 | 85 |
| 2018 | 22 | 107 |
| 2019(in October) | 14 | 121 |

## C. Finance and Accounting of the IAFICO

Like any other academic society, the IAFICO's regular members include university professors and academicians in principle, but membership is open to consumer activists, regulators as individual members to maintain the neutrality of the organization and some non-profit organizations as institutional members. Guests consisting of business representatives, other interest groups, or non-members may attend conferences or be invited as speaker, but lack voting rights.

Although the IAFICO get membership fees and BOD member donations, they do not go back to the payors, but to attendees from developing countries, as most of the members from industrialized countries pay for their travel expenses. And journal publication did not cost much as the journal was printed mostly by online. Moreover, the last three conferences received sufficient local supports.

## D. Journal of the IAFICO (International Review of Financial Consumers, IRFC)

The first journal of the IAFICO has been successfully published after more than a year's work, mainly thanks to our respected editor, professor Man Cho, and eminent authors across borders. The journal, an official venue to share our research and opinions, is going to serve as a knowledge base and a symbol of the IAFICO, and is growing with an increasing number of paper submissions and journal subscriptions. In addition to theoretical and empirical research, cases, notes, reviews and other financial consumer related surveys can be included in the journal, either in the regular issue or in special issues. As the journal targets an internationally recognized or listed audience, keeping an eye on the rules and principles adopted in other journals, the editorial board or authors may have to follow somewhat strict or ethical rules in writing, submission, reviewing, editing or publishing. Hopefully, nevertheless, that differential burden can be compensated by becoming an eminent journal in the near future. (www.eirfc.com)

## E. Book project

After a few years collective efforts of the IAFICO members, led by professor Tsai-Jyh Chen (National Chengchi University, Taiwan), the IAFICO could write and publish a book 'An International Comparison of Financial Consumer Protection' at the Springer (see below), a major global publishing company. The book project was culmination of efforts made by 13 country members to contribute to the IAFICO itself and a symbol of membership and partnership across the core members. Formatted by a standard contents and sequence, the book has 14 chapters of the same structure as the others except the 1$^{st}$ chapter for interdiction written by professor Chen.

Specially permitted by the Springer, a Korean publisher (P & C Media) could publish the book's special and local edition only available within Korea (in blue cover below) at a competitive price, about at 20 US$ per copy. A few universities in Korea could use the book as a text book in graduate course in finance or in consumer economics. Also the Korean edition might be used to promote the IAFICO to public and its original book which is priced around at 120$ at the Amazon. The inexpensive copies could be distributed for free to all the IAFICO members after the IAFICO bought 100 copies from the local publisher at 10$ per copy. In addition, it was early 2019 that the IAFICO held a special seminar in a joint Social Science Conference to make presentations of the book chapters and to share knowledge therein with members and outsiders attending the conference.

As the book project was found to be moving and successful in many respects, several members suggest to continue that kind of project afterwards. Why not in the future ?

**Table 8.** Revenues, Expenditures, Remaining Balance (in Korean Won, KRW; approximately 1US$=1,150 KRW)

| Year | Revenue | Expenditure | Remaining Balance |
|---|---|---|---|
| 2015 | 39,091,400 | 19,956,720 | 19,024,258 |
| 2016 | 35,374,258 | 14,062,230 | 21,380,966 |
| 2017 | 30,069,116 | 14,818,000 | 24,256,097 |
| 2018 | 44,647,342 | 13,328,753 | 31,117,589 |
| 2019(in October) | 51,580,131 | 15,848,077 | 35,732,554 |

**Table 9.** Authors and their Papers of the IRFC

| Volume and Number | Author(s) | Authors' Nationality | Title of Paper |
|---|---|---|---|
| Vol.1 No.1 | Sharon Tennyson | U.S.A. | Can Regulation Improve Financial Information and Advice? |
| | Tsai Jyh Chen | Taiwan | Marketing Channels and Underwriting Service Quality of Life Insurance |
| | Robert Cliff, Patryk Babiarz | U.S.A. | Financial Sophistication and Credit Card Behaviors Revision |
| | Young Man Lee, Jun Hyung Kim, Hyun-Ah Kim, Man Cho | Republic of Korea | Wealth Composition and Drawdown Patterns of Retirees a Comparative Study |
| | Cherie Chen, Morrison Schachler | United Kingdom | Investigation of Variation between Risk Attitude and Investment Biases |
| | Muhammad Mamun | Bangladesh | Customers' Perception Of Ethical Issues In Corporate Governance Of Islamic Banks In Bangladesh |
| Vol.2 No.1 | Hong Joo Jung | Republic of Korea | Rationale, Past and Future of Financial Consumer Protection |
| | Muhammad Mamun | Bangladesh | The Effectiveness of Microinsurance in Bangladesh |
| | Vincenzo Senatore | Italy | Financial Consumers and Applicable Provisions a European and Italian Perspective |
| | In Mu Lee, Hong Joo Jung, Patricia Born | ROK, ROK, U.S.A. | Insurance Market Development and Income Inequality |
| | Jeanette Madamba, Arnie-Gil DLR.Hordejan | Philippine | Perspectives in Development Finance and Overseas Development Assistance (ODA) in the Philippines |
| | Rofikoh Rokhim, Ruri Eka Fauziah Nasution, Melia Retno Astrini | Indonesia | The Good Practice in Marketing Microinsurance Product : Evidence from Indonesia |
| Vol.2 No.2 | Jean Paul Louisot | France | Development of Mutual Insurance in France : 1960-2017 |
| | Man Cho, Seung Dong You, Young Man Lee | Republic of Korea | Financial Consumer Protection in the Household Lending Sector: An Assessment of the Korean Experience |
| | Melia Retrno Astrini | Indonesia | Understanding Gen Y and Their Complaint Behavior towards Bank |
| | Wardatul Adawiyah | Indonesia | The Willingness to Invest Under The New Compensation Limit of Investor Protection Fund in Capital Market : Evidence from Indonesia |
| Vol.3 No.1 | Andrew Schmulow | Australia | Regulating the Regulator : Improving Consumer Protection under a Twin Peaks Regulatory Framework |
| | Rofikoh Rokhim | Indonesia | Encouraging Microcredit through Group Guarantee Loan Moder: The Success Story of MEKAAR Program in Indonesia |
| | Ida Ayu Agung Faradynawati | Indonesia | The Impact of Perceived Risk and Trust on Consumer Intention to Use FinTech Payment in Indonesia |
| Vol.3 No.2 | Gi Jin Yang | Republic of Korea | Crypto-assets and Financial Consumer ; A Review of Surrounding Legal Issues |
| | Muhammad Mamun | Bangladesh | Citizens' Perspective of Corporate Social Responsibility(CSR) ; Are They Societal or Promotional? |
| | Shinichi Yoshikuni | Japan | Financial Education Renaissance in Japan and the Role of CCFIS ; A Policy Commentary |
| Vol.4 No.1 | Seung Ryul Ma | Republic of Korea | Evaluating Borrower's Net Yield in Long-Term Fixed Rate Mortgage Loans in Korea |
| | Jai Seop Lee | Republic of Korea | The Impact of Fiscal Conservatism ; A Case Study of the 2007 National Pension System Reform in Korea |
| | Do Yeon Kim, Hong Joo Jung, Bo Hyun Kim | Republic of Korea | How Does Medical Expenditure Affect Economic Development? ; Evidence from OECD Countries |
| Vol.5, No.2 | Gianni Nicolini | Italy | The Assessment of Financial Literacy: The Case of Europe |
| | Tin Tin Htwe, PhD, Nay Zin Win | Myanmar | Investment Behavior of Women Business Owners in Myanmar |
| | Shao Jie | Japan (China) | How does the Quantity of Disclosed Information Provided by Insurers Affect Entity Behaviors in Internet Insurance Market? A Study Based on Tripartite Evolutionary Game Analysis between Government, Insurance Companies and Consumers |
| | Hongjoo Jung | Republic of Korea | A Review of the past five years of the IAFICO (2014-2019) |

**Table 10.** Authors and their book chapters in the book project (2018)

| Chapter | Country | Author |
|---|---|---|
| 1 | Taiwan | Tsai-Jyh CHEN |
| 2 | Australia | Andrew SCHMULOW, James O'HARA |
| 3 | Bangladesh | Muhamad MAMUN |
| 4 | Canada | Robert KERTON, Idris ADEMUYIWA |
| 5 | China | Xian XU |
| 6 | France | Jean-Paul A. lOUISOT |
| 7 | Indonesia | Rofikoh ROKHIM, Wardatul ADAWIYAH, Ida Ayu Agung FARADYNAWATI |
| 8 | Italy | Vincenzo SENATORE |
| 9 | Japan | Hongmu LEE, Satoshi NAKAIDE |
| 10 | Korea | Hongjoo JUNG, Misoo CHOI, Youkyung HUR |
| 11 | Malaysia | Ahcene LAHASASNA |
| 12 | Spain | Montserrat Guillen, Jorge M. Uribe |
| 13 | Taiwan | Jan-Juy LIN |
| 14 | U.S.A. | Patricia BORN |


**Photo 12.** Book Covers of the book project (2018)
of the global edition (in orange color) and Korean edition (in blue)

## Ⅲ. A Suggestion for Future of the IAFICO

An academic society, in my opinion, may be sustainable if it has good people, ideas and money - eminent members, sufficient financial resource, and crucial research agenda. Luckily the IAFICO has all the three things together - it has had outstanding human resources, sufficient and qualified funding, and on-going or expanding research topics. Interestingly each one of the three things may bring the other two to academic community, if it is so attractive. Some successful organizations might begin with good people, while others start with one of the other two resources, in order to grow like a snowball.

First of all, the 5-year-old academic society has attracted growing number of dedicated academicians and experts, who I cannot name all here from finance, economics, consumer science, law, and so on. And management team was so competent (in particular, Miss Soyoung Lim who worked 5 years long for administration of the IAFICO and for publication of its journal, IRFC) and blessed that it might not have any disastrous events so far. So to speak, Professor Man Cho (our former editor of the journal and incoming chairperson), professor Sharon Tennyson (our new editor and frequent speaker at previous conferences), and professor Rofikoh Rokhim, Muhamad Mamun, Hongmu Lee, Satoshi Nakaide, Xian Xu should be acknowledged as major contributors among all the significant participants.

For further development in quality and growth in quantity, the IAFICO needs to attract more scholars and experts in its research area, that is financial consumers, from all over the world although it had to center now on Asia due to its origin. As the academic community recently began to draw attention from South America and Europe, it may increase the number of new members and their nationalities over years.

If possible, without loss of its impartial identity, the IAFICO may also invite more institutional members - universities, academic societies, research centers, public institutions, international organizations, or consumer unions, which may bring human resources, financial resources and research agenda. Up to now, the IAFICO has benefited from Sungkyunkwan university, Fudan University, Waseda University, Asian Development Bank Institute, International Academy of Consumer Laws, Korean Academy of Financial Consumers, Financial Supervisory Service of Korea, Korea Deposit Insurance Corporation as supporting institutions. While maintaining friendly relationship with them, nevertheless, the IAFICO can extend organizational networks with more institutions including international organizations such as the Consumers International, World Bank, and so on.

Second, when it comes to research agenda, the IAFICO has maintained financial consumer protection, development finance, ethical management of financial institution, innovation in finance, and social safety net. Although not exhaustive, they represent main theme that most of members conduct their research focusing on at least within the academy and its journal.

As the IAFICO stands for the International Academy of Financial Consumers, it uniquely aims to do address the people, financial consumers, rather than consumer finance or finance that most of other academic institutions do. That is, the IAFICO cares people, consumers, more specifically financial consumers. As the members are to care people rather than simply dry academic discipline, they can go on to develop various research agendas with the cool head and warm heart in offering solutions for evolutionary financial system and for supporting those who may be left behind. There are a lot of information to develop for better tomorrow and to share between the north and the south, notwithstanding between north and north as well as south and south. The IAFICO can bridge those countries and researchers one way or another.

Recently many countries are approaching to legal restructuring for financial consumer protection as a way to reduce potential economic damage to the consumers from any financial crisis or to prevent any crisis from taking place. For instance, Korea is enacting a new law for financial consumer protection. In this circumstance, the IAFICO may launch special legal projects or research group for a country specific institutional issue. Multinational group of researchers can be a unique asset of the IAFICO to collectively utilize in order to develop a reasonable solution without much difficulty and to enjoy a special learning opportunity from each other.

Last but not he least, financial resource is an important element for successful management of the IAFICO, which kept its general policy for self-funding for normal members and possible support of those who are coming from emerging economies, as far as travel expense payment is concerned. And the IRFC, our journal, has not costed much for publication or printing, owing to dependence on electronic printing system. And as indicated above, universities or international organization has provided sufficient financial support to hold the conference successfully. As long as the IAFICO maintained its impartiality, specialty and dignity in its global academic arena, I guess and hope, it can maintain financial sustainability for journal publication or conference meetings. In that sense, financial issue stay behind human resource and research agendas.

Once again, I wish the best of luck to all the IAFICO members, with our new chairperson Man Cho and new editor Sharon Tennyson and their new team. Once again, great thanks go to Miss Soyoung Lim who devoted five years for development of the IAFICO.

## References

www.iafico.org Websites
IAFICO GFFC proceedings 2014~2019

# Editorial Principles

## 1. Mission

**The International Review of Financial Consumers (IRFC)** aims to offer a communication platform for scholars, regulators, and practitioners to share their latest academic research on financial consumers and related public policy issues in both advanced economies and emerging market countries. All theoretical, empirical, and policy papers of relevancy are welcome, with the following as the topics to cover:
① protection for financial consumers
② business ethics of financial institutions
③ market discipline of financial industries
④ corporate social responsibility of financial institutions
⑤ renovation or innovation of law and regulations related to financial consumption
⑥ public policies for financial consumption
⑦ fair trading of financial products
⑧ dispute resolution for financial consumption
⑨ case studies of best practices for financial consumption
⑩ international comparison on any of the above topics

## 2. Publication schedule and contents

**IRFC**, the affiliated journal of the International Academy of Financial Consumers (IAFICO), will be published twice a year - April and October each year - and will pursue to be the first international academic journal focusing on the research related to financial consumers. As the contribution of financial consumption becomes increasingly important to the national economy for most countries, how to maintain an efficient and equitable financial market is an imminent issue for research. The trend of globalization and liberalization policies has reinforced the challenges in financial markets. Not only the financial instruments become more complicated and hard to understand by the public, but also the frequent changes in regulations and business practices cause confusions to the financial consumers. Consumption disputes regarding the financial products have drawn attention by the media in recent years. IRFC attempts to serve as a forum to publish and share original and innovative research, both academic and policy-oriented, on all the above issues.

## 3. On ethics for research

The range of research misconducts
① Misconducts related to academic research (“misconducts” hereafter) means that fabrication, falsification, plagiarism, unfair showing of papers' author, during research proposal, research performing, research report and research presentation,

etc. It is as follows.

1) "Fabrication" is the intentional misrepresentation of research results by making up data or research result.

2) "Falsification" is the distortion of research contents or results by manipulating research materials, equipment and processes, or changing or omitting data or results.

3) "Plagiarism" is the appropriation of another person's ideas, processes or results, without giving appropriate approval or quotation.

4) "Self-plagiarism" is the reusing a large portion of their own previously written research.

5) "Unfair showing of papers' author" is not qualifying people, who have been contributing to research contents or results scientifically, industrially and politically, as an author without just reason, or qualifying people, who have not been contributing the same, as an author with an expression of thanks or respectful treatment.

6) Obstructing investigation about misconducts of their own or others, or harming an informant.

7) Action which is out range of usually acceptable in the course of the research.

8) Action which is suggestion, pressure or threat to others to do the above things.

## 4. On plagiarism

Types of plagiarism

Following two forms are defined the representative action of research misconducts (Plagiarism).

① Using the original author's idea, logic, unique terms, data, system of analysis without indicate the source.

② Indicating the source but copying the original paper's words, idea, data and so on without quotation marks.

# Author Guidelines

## General

The IRFC publishes rigorous and original research related to protection of financial consumers. IRFCs shall be published twice a year, in April and in October. Papers submissions shall be accepted throughout the year. Editorial Board will evaluate manuscripts in terms of research contribution to the field and paper's quality. Research area includes but is not limited to the following topics:

1. Protection for financial consumers
2. Business ethics of financial institutions
3. Market discipline of financial industries
4. Corporate social responsibility of financial institutions
5. Renovation or innovation of law and regulations related to financial consumption
6. Public policies for financial consumption
7. Innovation or fair trading of financial products
8. Dispute resolution for financial consumption
9. Case studies of best practices for financial services or their consumption
10. International comparison of protection for financial consumers.

## Publication Ethics

When authors submit their manuscripts to IRFC for publication consideration, they agree to abide by IRFC's publication requirements. In particular, authors confirm that:

- The manuscript is not under review for publication elsewhere, and will not be submitted to another publication entity during the review period at IRFC
- The empirical results of the manuscript have not been previously published.
- The manuscript has not previously been submitted to IRFC for review. Submission of manuscripts previously presented at a conference or concurrently considered for presentation at a conference does not disqualify a manuscript from submission to IRFC.
- Working papers, prior drafts or final versions of the submitted manuscripts posted on a website will be taken out of it during the review process for the purposes of blind review.

## Submission Fee

There is no fee for a submission of an article at the IRFC journal.

# Preparing a Manuscript for Submission

1. Papers must be submitted in Microsoft Word format. The structure of the work should be as suggested by the Publication Manual of the American Psychological Association 6 edition:
   - Title
   - Author's name and institutional affiliation
   - Author note
   - Abstract
   - Introduction
   - Method
   - Results
   - Discussion
   - References
   - Appendices and supplemental materials.

2. Manuscripts should be written as concisely as possible without sacrificing meaningfulness and clarity. They should be no longer than 40 double-spaced pages with one-inch margins and Times New Roman 12-point font, including references, tables, figures and appendixes.

3. Submitted papers should be in English, with grammar, spelling and punctuation thoroughly checked.

4. Make sure lettering and sizing of your manuscript, as well as bullet points and numerals are uniform.

5. The title page must include the title of the paper and an abstract of no more than 200 words. Indicate not more than seven key words after the abstract.

6. Please provide author name(s) contact information in a separate page.

7. Sections, including introduction, should be numbered in Roman numerals. Subsection headings should be in letters, e.g. A, B, C.

8. Tables must be typewritten, not in the form of pictures, and given Arabic numerals. They should have a descriptive name following the table number. Tables can be placed either after the text in the paper or in appendix section, if too detailed.

9. Figures must be given Arabic numbers as well and must not include any explanatory materials, which should go to the legend or to the caption. Captions should include a brief description of the figure. Please ensure that figures are of as high quality as possible.

10. The last section of a paper should include main conclusions of the research.

11. References should be placed at the end of the paper. All references must be in the style of American Psychological Association 6th edition, the basics can be found here. Make sure all in-text citations are presented in the reference list. The examples of reference entries are as follows:

*For monographs:*

Henderson, J. (2012). *Health economics and policy* (5th ed.). Mason, OH: South-Western, Cengage Learning.

*For contributions to collective works:*

Leonidou, L. (Eds.). (2018). Advances in global marketing: A research anthology.

*For periodicals:*

Nam, S. (2006). A study on the causality between the insurance and economic growth, *Korea Insurance Journal* 74, 169-197.

## Communication

With any issues regarding the publication of your paper, please email the IRFC Editor, Professor Sharon Tennyson, at irfc@cornell.edu.

## Review Process

- Initial review process
  When a manuscript is first received, the editor makes a preliminary screening of a manuscript to assess whether it fits the criteria of IRFC's mission and publication principles.

- Normal review process
  For each manuscript that passes the initial review stage, the editor assigns one qualified reviewer from the IRFC's Editorial Board and one other qualified reviewer. All submissions will be blind reviewed.

# Research Ethics

We are committed to publishing only high quality research. Our policy on research ethics is based on recommendations of the Committee on Publication Ethics (COPE). COPE is an internationally recognized non-profit organization, dedicated to educating editors and publishers in publication ethics. Hence, authors are encouraged to study the IRFC's ethics principles and abide by them.

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Authorship misconducts (or "misconducts") may include fabrication, falsification, plagiarism, unfair representation of some authors. Misconduct may occur during research proposal, research performing, and research report and research presentation. By submitting their manuscript, authors confirm they are not engaged in any of these actions:

1) Fabrication is the intentional misrepresentation of research results by making up data or research result.
2) Falsification is the distortion of research contents or results by manipulating research materials, equipment and processes, or changing or omitting data or results.
3) Plagiarism is the appropriation of another person's ideas, processes or results, without giving appropriate approval or quotation. We define two types of plagiarism:
   3.1) Using the original author's idea, logic, unique terms, data, system of analysis without indicating the source.
   3.2) Indicating the source but copying the original paper's words, ideas, data and so on without quotation marks.
4) Self-plagiarism is the reusing of a large portion of author's own previously written research.

## Other misconducts include:

5) Indicating as authors those who did not contribute but are credited ("guest", or "gift" authorships), and those who contributed but are not credited ("ghost" authors).
6) Obstructing investigation of their own or other authors' misconducts.
7) Pressure on, suggestion or threat to others to do the above things.
8) Any other action which is usually unacceptable in the course of research.

In case that the Editorial Board reveals or suspects any misconduct, it will contact the author for clarification or contact an author's institution for further investigation. Allegations of ethical misconducts may lead to rejection of the manuscript submitted for publication. If an ethical misconduct is revealed after publication of a manuscript, the article may be retracted or removed. We encourage authors and readers of the Journal to notify the Editorial Board of any alleged misconducts. The Board will keep the names of those who have notified anonymous.

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## Research Ethics

Authors should comply with all standards adopted by their institution and industry in relation to research involving hazards, human or animal objects. If a manuscript contains images or personal data of individuals participating in the research, authors should have individuals' consent and ethics committee approval. When submitting an article, an author should provide necessary statements of compliance.

## Fundamental Errors

If an author identifies any significant error in their paper after its publication, it is the author's responsibility to notify the Editorial Board promptly. Authors should provide their assistance in implementing retractions or corrections of the paper. We also encourage readers to notify the Board should they identify any errors in the published materials.

# Bylaws of the International Academy of Financial Consumers (IAFICO)

March 31, 2015
First revision on April 19, 2016
Second revision on September 30, 2019

## Section 1 General Provisions

### Article 1 (Official Name)

The official name of this academic society shall be the "International Academy of Financial Consumers (IAFICO hereafter)".

### Article 2 (Registered office and Branch offices)

The registered office is to be in Seoul, South Korea. Branch offices may be established in provincial cities in Korea or overseas should the need arise.

## Section 2 Objectives and Undertakings

### Article 3 (Objectives)

*Pending

The IAFICO is a non-profit association aiming at promoting and developing at an international level collaboration among its members for the study of various issues relating to financial consumers, including its education, legislation, creation of best practices, supervision, and policy advancement to contribute to the development of the global economy and financial market, through investigation or research into financial consumers, and other academic activities.

### Article 4 (Undertakings)

The following activities shall be carried out in order to achieve the objectives of the IAFICO.

1. Publication of journal and other literature
2. Hosting of academic conferences
3. Additional undertakings corresponding to the objectives of the academic society which are deemed necessary at the board of directors meeting or the general meeting

## Section 3 Membership

### Article 5 (Requirements and Categories)

The IAFICO shall have following categories of membership:

① Individual member
Individual members are categorized further into a regular member or an associate member.

1. Regular member shall be a specialist in the area such as finance, consumer studies, economics, management, law, or education etc, and must be a full-time instructor at a domestic or overseas university, a researcher at a research institute with equivalent experience, or should hold equal credentials to those mentioned previously, and shall become its member by the approval of the board of directors. Regular members attend general meetings and may participate in discussions, hold the right to vote, and are eligible to be elected to a director or other status of the IAFICO.
2. Associate members shall be divided into either a student member, who is a current domestic or overseas graduate school student, or an ordinary member, who works for a financial institution or a related organization. Associate members do not hold the right to vote and are not eligible to be elected to a director or other status of IAFICO.
3. Both regular member and associate member must pay the membership fee to the IAFICO every year.
4. In the case that a decision is made by the Board of Directors to expel a member due to a violation of the objective of the society, or demeaning the society, or in the case that a member fails to pay the membership fees for two years continuously without prior notice, their membership shall be revoked.

② Institutional member

1. Institutional member shall be organizations related to financial consumers who do not damage the impartiality of the IAFICO subject to approval of the Board of Directors. Institutional members do not hold the right to vote and are not eligible for election.
2. Institutional member must pay its membership fee to the IAFICO every year.

## Section 4 Organization

### Article 6 (Designation of Board of Director)

The following Directors are designated to constitute the Board of Directors to run the IAFICO.

1. Chairperson
2. Vice-Chairperson
3. President
4. Vice-President
5. ordinary Directors
6. Auditor

## Article 7 (Election of Board Members and Director)

① The Chairperson, Directors, and Auditors shall be elected or dismissed at the general meeting.
② Appointment of the Directors may be entrusted to the Chairperson pursuant to the resolution of the general meeting.
③ The Vice-Chairperson, President, and Vice-President shall be appointed and dismissed by the Board of Directors.

## Article 8 (General Meetings)

① General meeting shall decide following matters relating to the activities of the IAFICO.
1. Amendments to the Bylaws
2. Approval of the budget and settlement of accounts
3. Election or Dismissal of the Chairman
4. Election or dismissal of Auditors
5. Regulations concerning the duty and rights of members
6. Resolutions regarding items submitted by the President or Board of Directors
7. Other important matters

② The Chairperson must call a regular general meeting at least once a year and report on the undertakings of the IAFICO. Provisional general meetings may also be held by the call of the Chairperson, or at the request of at least a quarter of current regular members, or according to the resolution of the Board of Directors.
③ At a general meeting, a quorum is formed by one third of regular members. However, regular members who are not able to participate in the general meeting in person may be represented by proxy, by entrusting a specific regular member attending the general meeting with their attendance or voting right. In this case the letter of proxy is included in the number of attendees.
④ Resolutions at the general meeting will be made according to the majority vote of the attending members who hold the right to vote.
⑤ In principle, the general meeting shall be held with face-to-face meeting, however, it may be held web-based meeting when needed.

## Article 9 (Auditors)

① The auditors shall audit financial affairs, accounts and other transactions of IAFICO, shall participate in, and may speak at board meeting, and must present an auditor’s report at the regular general meeting.
② There shall be two appointed auditors.
③ Auditors are elected at the general meeting.
④ An auditor shall serve a term of two years and may be reappointed.

## Article 10 (Board of Directors)

① The Board of directors shall be made up of chairperson and fewer than 80 directors.
② The Board of Directors shall decide a plan of operation and establish the budget, in addition to matters on the running of IAFICO.
③ Board meeting requires a quorum of at least one third of current board members. Resolutions at the Board meeting will be made according to the majority vote of the attending members. However, board members

who are not able to participate in the board meeting in person may be represented by proxy, by entrusting another specific board member attending the board meeting with their attendance or voting right.
④ A board member shall serve a term of two years, with a possibility of serving consecutive terms.
⑤ A number of sub-committees or branches in each country or region may be set up under the Board of Directors to support the running of the IAFICO.

## Article 11 (Steering Committee)

① The Board of Directors may entrust some decisions relating to the conducting of business to the Steering Committee.
② The Steering Committee shall be comprised of the Chairperson, Vice-Chairperson, President, and the heads of each subcommittee.
③ Temporary task forces may be established by the Steering Committee when necessary to run the business of the Steering Committee.

## Article 12 (Chairperson)

① The Chairperson shall represent the IAFICO and chair its general meeting and board meeting.
② There shall be one appointed Chairperson who serves a term of three years.
③ In the case of an accident involving the Chairperson, the Vice-Chairperson shall complete the remaining term of office of less than one year. If it lasts longer than one year, a new Chairperson shall be elected at the general meeting.
④ A new Chairperson should be elected at the general meeting one year prior to the end of the current Chairperson's term of office.
⑤ Should it be judged that it is difficult for the Chairperson to carry out their duty any longer, he or she may be dismissed from their post by the decision of the Board of Directors and general meeting.

## Article 13 (Vice-Chairperson)

① The Vice-Chairperson shall assist the Chairperson, and serve as a member of the Board of Directors.
② The Vice-Chairperson shall serve a term of two years, or the remaining term of office of the Chairperson, whichever is shortest.
③ The Vice-Chairperson shall be elected from one of the regular members at a meeting of the Board of Directors, according to the recommendation of the Chairperson.
④ The Vice-Chairperson may be reappointed.

## Article 14 (President)

① During its term of office, the President shall become the head of the organizing committee supervising international conferences, and serves for a term of one year. The President shall attend the board meeting as a member of the Board of Directors.
② The succeeding President shall be elected by the Board of Directors after considering their ability to organize and host the following year's conferences. The succeeding President shall also attend board meeting as a member

of the Board of Directors.

③ The Board of Directors may elect the next succeeding President should the need arise. The next succeeding President shall also attend board meeting as a member of the Board of Directors.

④ The President, succeeding President, and the following President may appoint a Vice- President respectively by obtaining approval of the Board of Directors.

⑤ The appointment and dismissal of the President is decided at the board meeting.

### Article 15 (Vice-President)

① A Vice-President is a member of the Board of Directors and shall assist the President, supervise applicable international conferences.

② A Vice-President is recommended by the President and shall be approved by the Board of Directors.

③ Multiple Vice-Presidents may be appointed.

④ A vice-President shall serve a term of one year, the same as the term of President.

⑤ In the event of an accident involving the President, a Vice-President shall fulfil the President's duties during the remaining term of office.

### Article 16 (Editorial Board)

① The Editorial Board shall be responsible for editing of journals and other materials to be published by the IAFICO.

② The head of the Editorial Board shall be appointed by the Board of Directors, and shall serve a term of office decided by the Board of Directors.

③ The head of the Editorial Board shall be a member of the Board of Directors.

④ Additional matters concerning the running of the editorial board shall be decided separately by the Board of Directors.

### Article 17 (Advisory Board and Consultants)

① The Chairperson may select individuals who could make a large contribution to the development of the IAFICO, and appoint them as advisors subject to the approval of the Board of Directors.

② The Chairperson may appoint consultants subject to the approval of the Board of Directors in order to receive advice relating to all business matters of the IAFICO, such as development strategies, conferences, research plans, and research projects etc.

③ Advisors and consultants shall serve terms of one year and may be reappointed.

## Section 5 Financial Affairs

### Article 18 (Accounting and Revenue)

① The fiscal year of the IAFICO shall run from the 1st of January to the 31st of December each year.

② The finance required to operate the IAFICO shall be sourced from membership fees, member contributions, society participation fees, and other incomes. Related matters shall be decided by the Board of Directors or the Steering Committee.
③ Should the need arise, the IAFICO may accept sponsored research, donations or financial support from external parties in order to support the business performance of the IAFICO. The Chairperson shall report the details of these at the board meeting.
④ Chairperson should report all the donation from outside and their usage of the year at the IAFICO homepage by the end of March of the next accounting year.

## Section 6 Supplementary Rules

### Article 19 (Revision of the Bylaws)

① Any other matters not stipulated by this Bylaws shall be resolved by the Board of Directors.
② Revision of the Bylaws shall be carried out, by the proposition of the Board of Directors, or at least one-tenth of regular members, at a general meeting where at least one-third of the total regular members are in attendance, or at a provisional general meeting, with the agreement of at least two-thirds of current members.

### Article 20 (Dissolution)

Should the IAFICO intend to be dissolved, it must be decided upon at a general meeting with the agreement of at least two-thirds of current members, and permission must also be received from the Fair Trade Commission. Except for bankruptcy, the dissolution must be registered and reported to the Ministry of Strategy and Finance within three weeks, accompanied by a certified copy of register.

### Article 21 (Residual Property upon Dissolution)

Should the IAFC be dissolved, according to article 77 of the Korean civil law, all remaining assets of IAFICO shall belong to the state, local government, or other non-profit corporations carrying similar objectives.

### Additional Clause

These Bylaws shall become effective from the 1st April 2015

**The International Review of Financial Consumers**

Vol.4 No.2

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| Printed | 2019. 10. 30. |
| Published | 2019. 10. 30. |
| Publisher | Hongjoo Jung |
| Editor | Sharon Tennyson |
| Publishing Institute | The International Academy of Financial Consumers |
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