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Chairperson's Address

1. Greeting

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 invention 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.

2. Introduction to the IAFICO

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. You can see their photos on the website (www.iafico.org). The second annual meeting, 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 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.

3. Research & activity 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. 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.

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.

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Jung, Hong Joo

Professor, SKK University, Seoul, Korea

jungprokorea@gmail.com

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www.eirfc.com

Can Regulations Improve Financial Information and Advice?

Tennyson, Sharon[†]

ABSTRACT

Many governments are considering strengthening regulations for financial advisors. New regulations have been enacted in a number of countries, including the United Kingdom, Australia, the Netherlands, Singapore, and United States. Many other countries, including Canada and the European Union as a whole, are actively considering new regulations. Interest in these policies reflects both the disappointing progress on improving consumers' financial literacy, and the recognition of significant conflicts of interest in these markets. This article discusses rationales for regulatory reform and considers various approaches to reform.

Keywords: financial advisors, consumer protection, financial advice regulation

I. Background

Due to the increasing sophistication of retail financial markets, and in response to trends including rising household debt burdens, aging populations and public pension reforms, governments around the world have focused on promoting consumer financial literacy (OECD, 2016). In 2003 the OECD established a major program on financial literacy and financial education, to promote international efforts to raise consumer financial literacy (Padoan, 2008). Research, practice and policy aimed at enhancing consumer knowledge and behaviors in financial markets proliferated. By 2008 an International Federation on Financial Education (INFE) had been established, with membership representing 80 countries and over 200 government bodies (INFE, 2009). *The Economist* magazine likened the public policy focus on consumer financial education to a "global crusade" (April 3, 2008).

The 2008 global financial crisis assured continuing attention to the issue, as many observers cited consumers' lack of financial literacy as a contributing cause (INFE, 2009). At least 14 G-20 nations and 21 European nations adopted "national strategies" to promote financial literacy (Griffony and Messy, 2012). A number of national central banks (e.g., Brazil, France, Latvia) have introduced money museums with interactive educational displays designed to improve financial literacy (OECD, 2016). The Programme for International Student Assessment (PISA) added a financial literacy assessment component in 2012, to provide educators and policymakers insights into the financial knowledge and skills of high school students (see discussion in Lusardi, 2015).

With this came a notable shift in emphasis toward promoting financially responsible behaviors. In 2008 the OECD Deputy Secretary characterized his organization's efforts in financial education as motivated by the belief that "financial literacy and awareness clearly promotes economic growth and wellbeing, by expanding the quality of available financial services, and by enhancing the ability of individuals to more effectively use these services for their best interest" (Padoan, 2008). However, a 2016

[†] Cornell University
Editor for Journal of Consumer Affairs
sharon.tennyson@cornell.edu

OECD report on financial education in Europe noted “As can be expected, most national strategies for financial education in Europe share the same goal of strengthening financial literacy, fostering responsible financial behavior, and increasing financial resilience of individuals by improving their financial literacy.” (OECD, 2016, p. 31). As a result of the crisis, financial literacy is now seen as important not only for economic growth and individual empowerment, but for stability of the financial system.

The crisis also rekindled interest in the need for financial consumer protections. In 2011 the OECD published a set of six high-level principles for consumer financial protection (OECD, 2011). The 2016 OECD report on financial education strategies in Europe included a substantial section on consumer financial protection policies, and characterized the report as providing an overview of innovative policies “at the intersection of financial education, financial consumer protection and financial inclusion”(OECD, 2016, pg.7). The World Bank’s International Finance Corporation (IFC) established a “responsible finance” initiative in 2010, and characterized responsible finance as resting on three pillars: consumer financial literacy, industry self-regulation, and robust consumer protections (responsiblefinance.worldbank.org); and governments around the world have augmented consumer financial protections in recent years.¹

II. Markets for Financial Advice

Financial advisors and sales agents are an important source of information for consumers, but are also in a position to exploit consumers’ lack of information. A recent review of academic literature in this area concludes that there is substantial evidence of bias and conflicts of interest in markets for financial advice (Burke et al., 2015). The history of financial advice scandals provides additional evidence of bias in perhaps more practical and measurable terms (e.g. Steen et al., 2016).

Whether advisors and agents provide useful information

has also been called into question. The behavioral finance literature documents that stock analysts and advisors suffer from many of the same biases common to consumers and investors, including overconfidence and herding behavior (e.g. Menkhoff et al., 2013). Analyst stock recommendations do not fare well in tests against market returns (Baker and Dumont, 2015; Hackethal et al., 2011). Bluethgen et al. (2008) find a high degree of quality variation in investment advice provided by independent financial advisors in Germany, and Anagol et al. (2015) find evidence that poor advice from insurance agents in India may reflect limited product knowledge among the agents themselves.

Of course, the received value of advice must be measured in relation to the decisions that an individual investor would take without it. Bhattacharya et al. (2012) and Hung and Yoon (2010) find that those who seek financial advice tend to benefit, but many who could potentially benefit do not act on professional advice that is unsolicited. Gaudecker (2015) finds little significant effect of financial advice on investment choices of most households, but one exception is that low-numerate households who do not utilize financial advice make significantly poorer choices.

Some studies find that comprehensive financial advice – as distinct from advice about specific investment choices – may add value due to portfolio diversification effects, savings effects, and financial management effects (Blueghthen et al., 2008; Montmarquette and Vienne-Briot, 2015). Winchester and Huston (2015) find significant benefits along a spectrum of financial preparedness (greater retirement savings, better use of employee benefits, and larger emergency funds) for middle income households who receive comprehensive financial advice, but no benefits from focused investment advice. Consistent with this result, Montmarquette and Vienne-Briot (2015) find no immediate benefits to households from using a financial advisor, but that households who receive professional advice for at least four years have greater net worth. Gains are associated with higher savings rates and a greater allocation of wealth to non-cash assets.

Unfortunately, the social significance of advisors may be limited by selection into the use of advisor. Most studies find that individuals with high financial capability are more likely than less financially capable individuals to seek advice (Cacagno, 2012; Collins, 2012; Robb et al., 2012). Studies also find that financial advice is more

¹ For example, the United Kingdom and the United States have both established new financial consumer protection regulators (Financial Conduct Authority and Consumer Financial Protection Bureau, respectively).

likely to be sought by highly educated and wealthier individuals (Hackethal et al., 2012; Marsden et al., 2011). Bachmann and Hens (2015) expand on these findings by showing that behavioral and emotional capabilities in investing (e.g. the ability to avoid common psychological biases) are positively associated with financial advice-seeking.

Low financially literate individuals may be less likely to seek financial advice because they lack ability to judge the quality of the advice that they receive. Moreover, they may believe that the quality of advice they receive will be poor. Theoretical research shows that financial advisors may have greater incentive to offer high quality advice to more financially literate clients (Inderst and Ottaviani, 2012; Bucher-Koenan and Koenan, 2015). Empirical work by Bucher-Koenan and Koenan (2015) and others shows that advice quality does indeed vary across clients based on external signals of financial sophistication including education and gender (Oehler and Kohlert, 2009; Anagol et al., 2013).

These findings highlight significant deficiencies in participation and outcomes in markets for financial advice. Results which show that markets for information and advice do not serve the interests of the most vulnerable consumers and investors make it particularly important to find policy solutions to current problems. A commitment to meaningful and consistent regulation and enforcement is needed to assure that financial advisors and agents play a positive role in supporting consumer decision-making.

III. Regulatory Design Considerations

The shared perspective of most observers is that consumer education will not solve information failures in the financial advice system,² and that regulations must accept and account for consumers' limitations. How ex-

actly to do so is the more complicated problem. A primary tension in regulatory policy is to design regulations that provide sufficient protections but do not greatly reduce market efficiency or create other unintended and unwanted consequences. This tension arises because regulatory prohibitions on seller behaviors or limits on product offerings, are often discovered to have unintended negative consequences.

An alternative to direct prohibitions is to focus regulations on improving information, for example through mandated disclosures. Mandating disclosure does not restrict seller behaviors or limit the set of available products. Requiring sellers to reveal information that may otherwise be difficult to obtain provides consumers the opportunity to improve their choice behavior Shaffer, (1999). However, the practical effectiveness of mandated disclosures is often limited, since consumers may have difficulty understanding disclosures due to information complexity or decision biases (Trebilcock, 2003). The specific format, wording and amount of information disclosed has been shown to have a significant effect on whether consumers understand and use the information (Verplanken & Weenig, 1993; Wansink, 2003 ; Gathergood, 2012). As a result, recent regulatory practice emphasizes the importance of considering the research evidence on consumer decision processes when designing disclosures (Bertrand and Morse, 2011 ; Garrison et al., 2012).

The trend toward developing "libertarian-paternalistic" policies (Camerer et al., 2003) or "nudges" (Thaler and Sunstein, 2008) is an example of this approach. Such policies are intended to aid consumers who are in need of protection while not reducing choice or affecting outcomes for more sophisticated consumers. Successful policies in the consumer finance realm include automatic enrollment of employees in firms' pension plans (Madrian and Shea, 2000), and the "Save More Tomorrow" plan which increases employees' pension contributions by allowing them to precommit to increase their contributions after their next pay raise (Thaler and Benartzi, 2004).

Market and experimental evidence shows, however, that design success for "nudge" policies is no more assured than for traditional policies. For example, various nudge-based programs aimed toward increasing savings among low-income families have generally produced disappointing results (e.g., Bronchetti et al., 2013; Despard et al., 2016; Loibl et al., 2016). Credit card billing disclosures that were redesigned specifically to increase con-

² An alternative view is that in order to be successful financial education must start at a young age. The OECD and INFE both call for mandatory financial education in schools. The U.S. Financial Literacy Education (FLEC) 2011 strategic plan has articulated the theme of "Starting Early for Financial Success" and recently sponsored an academic symposium to address this theme (see the special issue of *The Journal of Consumer Affairs*, Spring 2015).

sumers' monthly payments by providing suggested payment amounts have little effect on the target consumer population (Jones et al., 2015) and may cause some consumers to reduce rather than increase monthly payments (Navarro-Martinez et al., 2011; Salisbury, 2014). These outcomes demonstrate that nudges may not always be sufficient, and may be particularly ineffective in solving complex policy problems (Selinger and Whyte, 2012).

Other research raises the specter of nudges being ineffective due to the ability of firms to neutralize or distort them. Willis (2004) contends that the law requiring banks to require consumer opt-in to automatic overdraft protection (rather than overdraft protection being the default) was ineffective in changing consumer behavior because banks – who profit from overdraft fees – were able to frame the choice using language that confused or frightened consumers. Willis maintains more generally that nudges will not be a successful policy tool when “(1) motivated firms oppose them, (2) these firms have access to the consumer, (3) consumers find the decision environment confusing, and (4) consumer preferences are uncertain” (Willis, 2004, p. 1155). Applying similar reasoning, Barr et al. (2008) argue that regulations need to be “behaviorally informed”, taking into account not only decision biases of consumers but also firms' incentives in maintaining or changing those biases.

IV. Recent Approaches to Advisor Regulation

The above considerations are important in designing regulatory policies toward financial advisors, and examples of recent policies adopted in these markets illustrate the potential difficulties faced in regulation. With regard to direct prohibitions, recent regulations to prohibit commission-based sales (shifting to fee-based compensation from clients) for financial services agents and advisors have raised concerns about unintended consequences. There appear to be several potential unwanted effects of the commission ban. First, survey evidence suggests that consumers prefer commission-based relationships with financial advisors and sales agents (Burke et al., 2015), which might lead consumers to forego advice-seeking under fee-based systems. Moreover, theoretical work

suggests that removing commission payments for agents and advisors may give financial services firms incentives to bypass the advisor/agent channel and market directly to unsophisticated consumers. Empirically, Ring (2016) argues that the UK ban on commission payments has led to a significant “advice gap” caused by both of these effects: not only are some consumers opting out, but financial advisors are targeting only high-wealth customers for advice, and banks are exiting the mass market (p.9).

Other policies suggest that nudges may be ineffective in markets for advice, due to the complex choice environment and the trust relationship established between advisors and consumers. For example, many jurisdictions have begun requiring advisors to inform clients if they are compensated by commissions from the product provider. This is intended to debias consumers' from excessive trust in the advice given by the advisor. Experimental evidence shows, however, that many consumers are willing to follow the (bad) advice of a biased agent even in the presence of a conflict-of-interest disclosure (Carmel et al., 2015). Other experiments suggest that conflict-of-interest disclosures may permit advisors to internally justify providing biased advice, leading to a greater propensity for bias (Cain et al., 2011).

Licensing requirements may also provide insufficient incentives for high quality advice. Licensing imposes minimum entry and continuing education standards, professional and ethical standards, and provides a vehicle for monitoring and enforcement of behavioral standards. Theoretically, licensing standards may raise service quality through sorting effects or through incentive effects (or both). The sorting benefits are premised on the adverse selection model of unobservable quality first proposed by Akerlof (1970) and elaborated in the licensing context by Leland (1979). In this view licensing can be viewed as a screening device for quality, which enables consumers to distinguish high-quality from low-quality goods or services. Potential incentive benefits of licensing were first elaborated by Shapiro (1986), in a model which assumes that licensing raises required human capital investments of service providers. In turn, providers will have greater incentives to provide high quality services in order to protect the rents from those investments.³

³ This result relies on the additional assumptions that licensing restricts entry of competitors and that a reputation effect of service quality

In practice, empirical studies of licensing often find little or no positive effects of licensing on the quality of professional service provision (Kleiner, 2000), and many argue that licensing serves only to protect professionals from competition. Nonetheless, results vary across studies (Kleiner and Kudrle, 2000) and some recent studies find that licensing improves service quality (e.g. Law and Kim, 2005; Rigby et al., 2007). Others show more nuanced effects of licensing, including lower received quality after accounting for lower rates of professional use due to restricted supply (Carroll and Gaston 1981), and licensing standards that do not correctly target low-quality practitioners for exclusion (Goldhaber 2007).

Lex et al. (2015) study the effects of introducing agent licensing in German insurance markets, in a study which appears to be the first examination of licensing of financial advice providers.⁴ The study notes that the licensing law resulted in a large reduction in the number of agents in the market, with at least 30 percent of agents exiting, which suggests that the regulations imposed meaningful requirements.⁵ These agent exits are exploited by the authors by the authors as a means of identifying the effects of licensing on average quality of services, using pre-versus-post comparisons.

The authors find little evidence of either a beneficial sorting effect or incentive effect of licensing on agent quality. The pre-regulation quality measures of agents who left the market are not significantly different than those of agents who remained in the market after licensing became required. The largest difference between exiting and remaining agents was volume of business, with part-time or less productive agents more likely to exit. Comparing the post- and pre-licensing quality measures for those agents who remained in the market shows only minor evidence of quality improvements. The patterns in the data suggest that consumer search intensity increased as a result of agent licensing, and customers of exiting

agents were particularly likely to search. Because exiting agents were not of lower quality than those who remained, and because licensing dramatically reduced the number of agents in the market, the benefits of this search to consumers are unclear.

V. Discussion

Nearly two decades of focus has yielded little progress on improving consumers' financial literacy, at least among adult populations. Academic reviews of the evaluation of financial education programs show at best small effects on knowledge and behaviors (Miller et al., 2014; Collins and O'Rourke, 2010; Willis, 2008). The INFE concludes that "major hurdles to financially capable behaviours appear to lie in the psychological habits, culture, family and social and economic background of individuals as well as on their related perceptions of risks and financial issues" (INFE, 2009, p. 17).

The question of whether regulation of financial advisors can alleviate problems associated with unobservable advice quality is therefore especially important for consumer welfare and for the functioning of consumer financial markets. Consideration of the market problems and proposed regulations shows that the regulatory design problem is fraught with difficulties. In particular, the pressing need for regulatory oversight of financial advice arises from deficiencies in consumer financial literacy that in turn drive the need for financial advice. Many observers correctly note that the quality of financial advice is a credence good for uninformed consumers. This implies that financial literacy and financial advice are complements rather than substitutes (Collins, 2012), and that regulation of the financial advice industry will be insufficient to improve outcomes for vulnerable consumers and investors (Bachmann and Hens, 2015; Schwarcz and Siegelman, 2015). Efforts to create simplified financial products (Bar-Gill and Warren, 2008), bias-free private market rating systems (Meyr and Tennyson, 2015), or government-provided financial information platforms (Schwarcz and Siegelman, 2015) may yield more widespread benefits.

provision for each service provider develops over time (Darby and Kami 1973; Klein and Leffler 1978). The latter assumption could be relaxed if the licensing authority monitors quality and has the authority to ban a low-quality provider from the market.

⁴ Licensing in Germany requires independent insurance agents to meet minimum entry standards that include passing a licensing exam. Agents are required to hold professional liability insurance and to be in good ethical and financial standing, and face standards regarding the advice and information provided to clients.

⁵ This estimate is based on a comparison of GDV Annual reports in 2009 and 2010 as reported in Lex et al. (2015).

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Marketing Channels and Underwriting Service Quality of Life Insurance

Chen, Tsai-Jyh[†]

ABSTRACT

This paper investigates the relationship between marketing channels and underwriting service quality with focus on two major channels: salesperson and bancassurance. Based on the data of life insurance in Taiwan, the empirical analysis shows that the traditional salesperson channel has competitive advantages in underwriting service quality. This result supports the coexistence of salesperson and bancassurance because previous literature indicated bancassurance more cost-efficient than a salesperson. The empirical result shows that insurers with more dependence on salesperson channel present lower complaint ratio and higher contract persistency due to better service quality. The empirical result also indicates that service quality has a significantly positive impact on insurer's reputation. This finding implies that the insurers with more dependence on bancassurance should take additional competitive strategies to maintain the long-term customer relation.

Keywords: insurance marketing, bancassurance, salesperson, service quality, corporate reputation

I. Introduction

Several countries passed new laws to permit the integrated operations due to the trend of liberalization in financial markets. For example, the Gramm-Leach-Bliley-Act passed in the U.S. in the year 1999 allowed the financial institutions to combine business of banking, insurance, and securities. Taiwan following the global trend, enacted the Financial Holding Company Act in 2001 which facilitated the expansion of business in the financial institutions. The liberalization of financial market provokes the renovation in regulations and products, from both consumer and supplier sides. The internet technology has reduced the searching cost for consumers in shopping financial products. For certain life insurance products, consumers

can shop on-line directly without contacting any salespersons. On the other side, financial institutions intend to increase profits through integrating business, such as cross-selling of insurance products by banks.

Insurance marketing traditionally relies on the solicitors who are employees of insurance companies, brokerage, or agency because insurance products require intensive service. Different marketing channels may present competitive advantages in cost saving or business volume. For example, direct marketing through telephone or other media can reduce the commission expenses, but the employed salespersons may have advantages in maintaining customer relation and selling complicated products with large premiums.

Bancassurance is a new form of marketing in the history of the insurance business, compared to the salesperson channel. Bancassurance is one of the most important renovations in financial market during the process of liberalization. The early development of bancassurance

[†] National Chengchi University
tjchen@nccu.edu.tw

began in the European market in 1980's and then followed by other areas in the world during the past 30 years. In Taiwan, the expansion of bancassurance has been fast and prominent since it was permitted in the market in 2002. Life insurance marketing in Taiwan traditionally relies on the employed salespersons of the insurers, but it has changed dramatically in recent years. As shown in table 1, the market share of the premium incomes of new business through bancassurance expands to more than 50% in 2013 and becomes the primary marketing channel for life insurance.

The definition of bancassurance is not unique. Initially, it refers to selling insurance products through banks, but recently this term can be referred to all kind of cooperation between banks and insurers. Staikouras (2006) considers bancassurance is simply a distribution channel to sell insurance. However, some literature regards bancassurance as a cooperation or cross-selling between banks and insurers. Klein (2001) and Swiss Re (2007) both regard bancassurance as the cooperation of banks and insurers to provide insurance products to the bank's customers.

From the viewpoint of strategic management, bancassurance can be interpreted as an integration of business strategies to compete in the financial market because it may increase consumer's satisfaction as well as financial institution's value. Shah and Salim (2011) indicate that bancassurance can raise a bank's revenues in addition to interest incomes. Gonulal, Goulder and Lester (2012) argue that bancassurance is an effective approach for the insurers to increase their business. On the other hand, Beltratti and Corvino (2008) consider that banks and in-

surance companies maintain structural differences in the demographic issues, the composition of liabilities, and the scale of operations, so as to limit the extent of convergence.

In insurance terminology, marketing is equivalent to production (Webb et al., 1984) and is a critical process in insurance operations. A right marketing channel is definitely crucial for an insurer to compete in the market. The evidence of the fast expansion of bancassurance implies certain advantages for this channel, compared with the traditional approaches. The possible advantages of bancassurance include (1) expanding the potential insurance consumers, (2) reducing an insurer's marketing cost, and (3) increasing consumer's satisfaction in wealth management.

Conceptually bancassurance seems beneficial to consumers, insurers, and banks (Bryan, 1997), but the empirical evidence is diverse due to its short history in the market. Okeahalam (2008) suggests that bancassurance may reduce service fees and prices. However, Maenpaa and Voutilainen (2011) do not support the trend of one-stop shopping because they find small and medium-sized enterprise (SME) customers tend to acquire banking and insurance services from separate providers.

In practice, insurance products require intensive service due to the complicated contract terms and pricing factors. Consumers usually do not shop the products voluntarily but are persuaded to buy them because they cannot understand the insurance contracts. Therefore the underwriting service quality is critical for consumers to purchase insurance products. Constantinescu (2012) studies the influence of bancassurance on the service quality and suggests

Table 1. Market Share of 1st-year Premiums from Various Distribution Channels.

Year	Salesperson ¹ (%)	Bancassurance (%)	Mail Order ² (%)	Agency and Broker (%)	Total (%)
2006	58.6	35.7	1.0	4.70	100.0
2007	60.7	34.4	0.8	4.10	100.0
2008	48.2	47.8	0.7	3.30	100.0
2009	31.0	65.4	0.6	3.00	100.0
2010	28.8	68.0	0.6	2.60	100.0
2011	39.0	57.0	1.0	3.00	100.0
2012	39.0	56.0	1.0	4.00	100.0
2013	38.0	57.0	1.0	4.00	100.0

Source: Taiwan Insurance Institute.

Notes: 1. Salesperson: insurance solicitors employed or contracted by the insurers. 2. Mail Order: telephone, the internet, newspaper and other media.

that the advantages of bancassurance depend on several factors, including the partners' size, the applicable regulations, the development of the market, and the institutional model of partnership. Therefore there is no guarantee for bancassurance to be successful. We need more studies about the impact of marketing channels on the service quality in insurance underwriting.

The purpose of this paper is to investigate the effect of marketing channels on the underwriting service quality of life insurance in Taiwan, with emphasis on two major channels: salesperson and bancassurance. Because consumers usually are persuaded to buy insurance instead of shopping automatically, the solicitor's service and knowledge are critical for their purchase decisions. It is interesting to study the competitive advantages of traditional salesperson channel when facing the new challenges of bancassurance. In practice, underwriting service quality is strongly associated with consumer's complaints, contract persistency, and insurer's reputation. Bennett and Gabriel (2001) indicate that service quality has an important contribution to a long-term relationship and customer trust which is critical for retaining business and corporate reputation.

Bryan (1997) suggests that bancassurance can contribute to insurers' operational efficiency due to the reduction in commissions. However, a more concerned issue is whether bancassurance reduces underwriting service quality due to the reduction in expenses. Traditionally insurance marketing requires intensive customer service and professional knowledge of insurance products. Nowadays consumers can search product information easily through internet technology, which may reduce the need for salesperson's service. If this is true, then bancassurance will become even more popular. Otherwise, traditional channel of salespersons can coexist in the market.

This paper applies means test, multiple regression and factor analysis, with the data of life insurance in Taiwan during 2004-2013 to study the relationship between marketing channels and underwriting service quality. The empirical result suggests that salespersons have a competitive advantage in underwriting service quality, but bancassurance is more cost efficiency. This evidence supports the coexistence of salesperson and bancassurance. Because good service quality can help maintain long-term customer relationship and consequent business, while lower underwriting expense can increase profitability, each channel presents certain competitive advantages in the

market. The empirical result also indicates that service quality has a significantly positive impact on corporate reputation which is a critical factor for insurance purchase decision. The finding of this paper implies that the insurers with dependence on bancassurance for marketing products should take additional strategies to maintain long-term customer relation.

The remainder of this paper is organized as follows. Section II reviews the previous literature and develops the testing hypotheses. Section III presents sample data and research methodology. The empirical findings are discussed in section IV, and then the conclusions are provided in section V.

II. Literature Review and Hypotheses Development

The marketing channel adopted by an insurance company usually depends on its business policies. When the consumer protection is more concerned by an insurer, the more resources will be allocated to improve underwriting service quality. Since service quality and its cost may vary with different marketing channels, an insurer usually chooses the marketing channel which is best fit the business objective. Life insurers in Taiwan traditionally sell insurance products through their own employed (or contracted) salespersons. Brokers and agencies (B&A) are not important marketing channels due to the geographical reason. Every year insurance companies recruit many solicitors and then provide them job training and continuing education to sell insurance. However, the rise of bancassurance has changed the distribution of insurance products. The underlying reasons for the insurers to shift marketing channels are unknown. It may result from the insurer's new business policy, or it can be simply due to market competition. No matter what reasons, bancassurance grows fast in the past decade in Taiwan, which implies there exist certain advantages in this new marketing channel. This paper intends to compare the competitive advantages of marketing channels rather than to investigate the background for shifting.

As indicated by Bryan (1997), bancassurance may improve the cost inefficiency in life insurance market. The traditional salesperson channel usually incurs huge acquis-

ition cost due to the sales commissions. Okeahalam (2008) suggests that bancassurance may reduce service fees and prices. Fields, Fraser, and Kolari (2007) find that bancassurance can provide positive gains for the shareholders. Swiss Re (2007) also suggests that bancassurance may reduce transaction cost for the consumers. According to the literature, it is expected that bancassurance can reduce underwriting expenses because of the reduction in providing service, compared to traditional salesperson channel. Thus the testing hypothesis is:

H1: Underwriting expenses increase (decrease) when insurers depend on more on salespersons (bancassurance) in marketing their insurance products.

Although cross-selling through bancassurance helps to expand insurance business, previous literature (Bryan, 1997) argues that underwriting service by banks cannot be as good as by salespersons because bank tellers lack the knowledge of insurance products. As most consumers are induced by the solicitors to demand insurance products, instead of shopping automatically, the solicitor's competence and selling tactics can influence service quality and buyers' perception of trust. Sandhu and Bala (2011) analyze the customers' evaluation of the service quality of life insurance and find that proficiency, physical and ethical excellence, and functionality is the top three important factors for evaluation. Since bank teller usually sells simple insurance products with limited knowledge, it is doubtful whether bancassurance can provide service with quality equivalent to the salespersons of insurance companies.

Kumar, Manjunath, and Shivashankar (2012) indicate that service quality implies customer's judgment regarding a product's overall excellence or superiority. Choudhury (2013) studies the relation between perceived service quality and customers' purchase intentions for banking products and finds that reliability is the crucial determinant. Insurance shopping is especially connected with the trust on insurers because it is an intangible product. Intensive service is always required in the underwriting process, and service quality is critical to insurance consumption decision.

Barrese, Doerpinghaus, and Nelson (1995) show that independent agencies provide better service for auto insurance than direct writers. Berger, Cummins and Weiss

(1997) also suggest independent agencies have an advantage in service quality than the exclusive agents and employees. However, the service quality of bancassurance is still unknown yet due to the short history of this marketing channel. Therefore this paper tries to compare service quality between bancassurance and salesperson channel.¹ Since consumers' satisfaction will be higher for better service quality, their complaints about the insurers with good service are expected lower. Since salesperson usually can provide more service than a bank teller, the testing hypothesis is as follows.

H2: Consumers' complaints increase (decrease) when insurers depend on more on bancassurance (salespersons) in marketing their insurance products.

Dawkins and Reichheld (1990) consider that delivering quality service is an essential strategy for success in today's competitive business environment. Anderson, Fornell, and Lehmann (1994) define customer satisfaction as an overall evaluation based on the consumption experience with a good or service over time. It is believed that higher service quality can increase customers' trust on the product or its supplier, which is important for long-term buyer-seller relationship. Crosby, Evans, and Cowles (1990) argue that trust is a critical component of relationship marketing for the customers' future interaction with the salespersons.

Life insurance product itself has a long-term orientation in the buyer-seller relationship. The insurance contracts usually extend more than ten years. In insurance operations, selling insurance products can not guarantee the profitability for insurers because the acquisition cost in the early policy years may deplete the premiums. Only the persistent policies can generate profits for insurers through the continuing premium incomes and the consequent investment gains. Guenzi and Georges (2010) show that trust in the salespersons has a positive impact on a customer's intentions to re-buy. Holden (1990) suggests that salesperson characteristics (e.g., attitude and expertise), in addition to the product, can influence customers' trust on the supplier. Furthermore, Venetis and Ghauri

¹ According to table 1, the insurance business from other marketing channels such as B&A and mail order is trivial, and their data are unavailable. Therefore, the analysis only focuses on salesperson and bancassurance.

(2004) suggest that service quality has an important contribution to long-term relationship and customer retention. Therefore, if salespersons can provide better service, it is expected that insurers can retain more customers through this marketing channel. In insurance industry the long-term customer relation is usually measured by contract persistency. Therefore this paper tests the following hypothesis.

H3: Contract persistency increases (decreases) when insurers depend on more on salespersons (bancassurance) in marketing their insurance products.

Since the value of insurance product arises from the insurer's promise to pay benefits, consumers' trust and confidence on the insurer is a decisive factor in purchasing decision. To have trust or confidence, a new buyer may listen to the recommendation from his/her families or friends. Because insurance shopping is not as frequent as food shopping, consumers cannot learn a supplier through repeated purchasing experience. Usually, corporate reputation can influence customer's trust, as indicated by Bennett and Gabriel (2001). Therefore the recommendation from other people is not negligible for an insurer to obtain and retain customers. Vegholm (2011) shows that corporate reputation can help maintain marketing relationship with customers for the banks.

Lemmink, Schuijf and Streukens (2003) indicate that service quality is one of the influential factors for building corporate reputation. Since insurance underwriting always involves intensive service, service quality is crucial to the insurer's reputation and long-term relationship with customers. If marketing through salespersons is superior to bancassurance in service quality due to their expertise on insurance selling, the corporate reputation of insurers relying on salespersons must be better. That is, the service quality from salespersons will be more impressive to consumers than that from bancassurance, which in turn makes a reputation for the insurers. Therefore the testing hypothesis is:

H4: Corporate reputation increases (decreases) when insurers depend on more on salespersons (bancassurance) in marketing their insurance products.

III. Sample and Research Methodology

A. Sample and Data

The sample used for the empirical study includes the life insurance companies in Taiwan during 2004-2013, and the data are retrieved from several public sources. The data of marketing channels are collected from Risk Management and Insurance Magazine (RMIM)² and Taiwan Insurance Institute. The data to measure underwriting service quality include underwriting expense, complaint ratio, dispute ratio, and contract persistency, which are collected from Taiwan Insurance Institute and Financial Supervisory Commission. The data for firm characteristics and financial variables are retrieved from the annual reports of insurance companies.

The measurement of corporate reputation is represented by the ranking of "the most recommended" insurers surveyed by RMIM. Corporate reputation usually is regarded as a composite of understanding, perception, and belief about the activities of business. There is no unique measurement for corporate reputation in the literature, as summarized by Gatzert (2015). This paper follows Roberts and Dowling (2002), which uses "America's Most Admired Corporation" surveyed by Fortune magazine to represent corporate reputation. Therefore the ranking of "the most recommended insurers" surveyed by RMIM is used as the proxy for corporate reputation. RMIM surveys are based on a sample of around 1500 randomly chosen life insurance customers every year, with 95% confidence interval, and maximum sampling error is 2.5%. The customers evaluate the insurers based on ten aspects of their operations, including service after sales, efficient claim adjusting, honest operation, salesperson's quality, financial strength, insurance products, corporate popularity, social performance, no negative news, and affiliation to a financial holding company. The ranking is an integrated measurement and regarded as a sound and reliable index. It has been performed for more than twenty years (since 1993) and is well recognized in Taiwan insurance market.

² RMIM is the leading magazine of insurance in Taiwan, like A. M. Best Review in the US.

B. Research Methodology and Variables

In order to study the competitive advantages in service quality of different marketing channels for life insurance, this paper applies several analytical methods. First, this paper conducts Pearson correlation between the marketing channels and underwriting service quality. The variables to measure service quality include complaint ratios for loss-adjusting and other reasons, loss-adjusting dispute ratio, and contract persistency. Second, the insurers strongly relying on salespersons (bancassurance) to sell insurance products are compared with other insurers for their underwriting performance, based on t-test for means and Wilcoxon test for medians. That is, the insurers with more than 50% of the premium incomes of new contracts from salespersons (bancassurance) are compared with those relying on other channels to sell insurance.

Next, this paper applies OLS multiple regression analysis to investigate the effect of marketing channel on underwriting performance, including business expenses, service quality, and corporate reputation respectively. The OLS regressions may provide some insights for the impact of marketing channels. Since underwriting performance may be influenced by other firm characteristics as well as marketing channels, this paper selects some control variables for the firm characteristics such as organizational form and financial strength. The OLS models for the testing hypotheses are as follows.

$$\ln Exp_{it} = \alpha_1 + \beta_1 Channel_{it} + \sum \beta_j FirmCharacteristics_{ijt} + \varepsilon_{it} \quad (1)$$

$$Satisf_{it} = \alpha_2 + \lambda_1 Channel_{it} + \sum \lambda_j FirmCharacteristics_{ijt} + v_{it} \quad (2)$$

$$Repute_{it} = \alpha_3 + \phi_1 Channel_{it} + \sum \phi_j FirmCharacteristics_{ijt} + \omega_{it} \quad (3)$$

In equation (1) dependent variable *lnExp* is the natural logarithm of business expense which is non-commission expenditure for insurance business and may influence underwriting service quality. The explanatory variable *Channel* is the percentage of premiums of new contracts from specific marketing channel such as salesperson (*Sales*), bancassurance (*Bank*), agency and broker (*Agency*), and mail order (*Mail*). In equation (2), the dependent variable *satisf* is consumer satisfaction measured by complaint ratios, dispute ratio, and contract persistency respectively. The complaint ratios *Cmplnt* is the number of total complaints to the number of policies.

The total complaint ratio can be further distinguished into a complaint related to loss-adjusting *Coa*, and complaint not related to loss-adjusting *Cona*. Dispute ratio *Dispute* is the ratio of the number of lawsuits for loss-adjusting to the number of loss-adjusting applications. Contract persistency rates *P13* and *P25* are ratios of insurance policies remain effective after issued for 13 months and 25 months. Equation (3) is to investigate the relationship between insurer's corporate reputation *Repute* and marketing channel. The variable for corporate reputation *Repute* is measured by the ranking of "the most recommended insurers" surveyed by RMIM. Since the best insurer is ranked 1 and the worst is around 30³, this paper transforms the rank to score by the formula, *Repute* = (30 - rank), to avoid the reverse relationship between reputation and other variables.

Higher underwriting service quality requires more business expenditure spent by the insurer. Consumers' complaints and contract termination frequently result from unsatisfied service quality which cannot be observed directly. Conceptually the effect of service quality on insurer's expense and consumers' satisfaction can be expressed as the following equations.⁴

$$\ln Exp_{it} = \mu_1 + \theta_1 Quality_{it} + \sum \theta_k factor_{ikt} + \varepsilon_{it} \quad (4)$$

$$Cmplnt_{it} = \mu_2 + \psi_1 Quality_{it} + \sum \psi_k factor_{ikt} + \varepsilon_{it} \quad (5)$$

$$P13_{it} = \mu_3 + \tau_1 Quality_{it} + \sum \tau_k factor_{ikt} + \varepsilon_{it} \quad (6)$$

Then the latent variable *Quality* for the unobservable service quality can be extracted by way of factor analysis (Johnson and Wichern, 1998).

This paper considers the insurer's reputation as a final outcome of the overall underwriting performance. The marketing channel may result in different service quality. Consumers are not expected to recommend an insurer if they were not satisfied with that insurer, which implies

³ The number of life insurers in Taiwan is about 28-30 during the years 2004-2013. The rank for the worst one is the number of insurers in that year.

⁴ The variables for measuring consumer satisfaction with underwriting service in equation (2) includes six variables, *complt*, *coa*, *cona*, *dispute*, *p13* and *p25*. However, *coa* and *cona* are components of *complt*, and *p25* is highly related to *p13*. Besides, dispute may result from insurance contract itself instead of service quality. Therefore, only *complt* and *p13* as well as *lnexp* are taken for factor analysis.

Table 2. Summary of the Sample Statistics

Variable	N	Mean	Std Dev	Minimum	Maximum
<i>Sales</i>	208	35.845	35.355	0	100.0
<i>Bank</i>	208	44.742	34.623	0	100.0
<i>Agency</i>	208	14.034	24.662	0	100.0
<i>Mail</i>	208	5.045	13.543	0	75.55
<i>lnExp</i>	293	7.094	1.260	3.562	9.978
<i>Cmplnt</i>	292	0.288	0.375	0	2.714
<i>Coa</i>	292	0.105	0.157	0	1.462
<i>Cona</i>	292	0.183	0.314	0	2.651
<i>Dispute</i>	290	0.021	0.048	0	0.645
<i>P13</i>	277	88.796	11.305	0	99.66
<i>P25</i>	271	81.757	13.257	0	99.67
<i>Repute</i>	287	15.185	8.217	0	29.0
<i>Debtr</i>	294	95.144	14.038	8.967	139.51
<i>lnPremNC</i>	296	14.994	3.304	0	19.255
<i>FHC</i>	318	0.160	0.368	0	1.0
<i>FI</i>	318	0.447	0.498	0	1.0

service quality related to the corporate reputation of an insurer. Thus this paper extends the empirical investigation to study following relationship.

$$Quality_{it} = \alpha_1 + \beta_1 Channel_{it} + \sum \beta_j FirmCharacteristics_{it} + \varepsilon_{it} \quad (7)$$

$$Repute_{it} = \alpha_2 + \lambda_1 Quality_{it} + \sum \lambda_j FirmCharacteristics_{it} + \nu_{it} \quad (8)$$

Several firm characteristics variables are selected based on previous literature. Debt ratio (*Debtr*) is an important measure for the financial strength of an insurer because consumers are always concerned with the solvency of insurance policy. The natural logarithm of premium incomes of new contracts (*lnPremNC*) is taken to measure the business size of an insurer.⁵ There are two dummy variables for the organizational form of insurers. The first one is *FHC* to indicate an insurer being a subsidiary of a financial holding company in Taiwan, and *FHC*=1 if yes, otherwise=0. *FHC* background implies stronger financial strength and cross-selling opportunity due to the affiliated bank. The other dummy variable *FI* is to indicate an insurer owned by a foreign insurer with more

than 50 % of equities, and *FI* = 1 if yes, otherwise = 0. Foreign insurers usually have smaller firm size and different marketing approaches. The definitions of variables are listed in the appendix. The summary of statistics for the sample used in the empirical analysis is listed in table 2.

IV. Empirical Results

Table 3 exhibits the Pearson correlations of marketing channels and the measurements of underwriting service quality. The result shows that business expense is positively related to salesperson but negatively related to the other three channels. This result is consistent with the outcomes of other quality variables. As expected, the more expense spent by an insurer usually implies the better service. The ratios of complaint and dispute are significantly and negatively related to the salesperson, while the contract persistency and reputation are significantly and positively related to salesperson. On the other hand, the Pearson correlations between quality measurements and bancassurance are opposite to those based on salesperson. Most of the correlations for the agency

⁵ Instead of total assets, this paper takes premiums for the insurer size because premiums are more relevant to underwriting service. These two variables are highly correlated and thus should not be included together in a model.

Table 3. Pearson Correlation between Marketing Channel and Service Quality

	<i>lnExp</i>	<i>Cmplnt</i>	<i>Coa</i>	<i>Cona</i>	<i>Dispute</i>	<i>P13</i>	<i>P25</i>	<i>Repute</i>
<i>Sales</i>	0.487*** (<.001)	-0.261*** (<.001)	-0.207** (0.003)	-0.199** (0.004)	-0.139* (0.049)	0.173* (0.016)	0.189** (0.009)	0.479*** (<.001)
<i>Bank</i>	-0.137* (0.050)	0.154* (0.028)	0.116 (0.100)	0.122+ (0.082)	0.111 (0.117)	-0.095 (0.190)	-0.115 (0.115)	-0.200** (0.005)
<i>Agency</i>	-0.409*** (<.001)	0.094 (0.183)	-0.011 (0.873)	0.120+ (0.089)	-0.022 (0.760)	-0.030 (0.677)	-0.054 (0.462)	-0.313*** (<.001)
<i>Mail</i>	-0.179* (0.010)	0.117+ (0.096)	0.264*** (<.001)	-0.005 (0.940)	0.118+ (0.094)	-0.194** (0.007)	-0.131+ (0.071)	-0.216** (0.002)

Correlation coefficients are listed with p-values in the parentheses. $\rho(\text{sales, bank}) = -0.7021$; $\rho(\text{sales, agency}) = -0.287$; $\rho(\text{sales, mail}) = -0.289$; $\rho(\text{bank, agency}) = -0.384$; $\rho(\text{bank, mail}) = -0.022$.

Significance levels: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. The correlations among the variables of underwriting service quality are omitted.

channel are insignificant although their signs are similar to those of bancassurance. The result for mail channel also similar to that of bancassurance, except for the insignificantly negative relation with the complaint ratio of non-adjusting (*Cona*).

The result of table 3 provides an initial insight that marketing channels do influence the underwriting service quality; however, their effects are unknown. This paper conducts a further compariso of service quality for the insurers with differentiated dependence on salespersons (bancassurance).⁶ First, the insurers are separate into two groups based on their new business: less than 50% of the new business from salespersons, and otherwise. The result of table 4a, according to the t-test on means, shows that insurers with less than 50% of new business from salespersons present significantly worse service quality in all the measurements, such as higher ratios of complaint and dispute and lower persistency. Consequently, the reputation of the insurers relying less on salespersons is lower than that of the other group. The Wilcoxon tests on medians also indicate that there is a significant difference between the two groups of insurers in terms of business expense, complaint ratio, and corporate reputation between the two groups of insurers.

Table 4b is the comparison between the insurers with new business relying on bancassurance. The outcomes of t-test and Wilcoxon test are consistent. That is, the insurers with more than 50% of new business from bancassurance incur significantly lower business expense and

higher complaint ratio. The contract persistency is also higher for the group of insurers with less bancassurance. Consequently, the reputation of the insurers with less dependence on bancassurance is higher than the other group. Although the differences in detailed complaint ratios, dispute ratio, and 13-month persistency are insignificant, they still show consistent signs. In general, these empirical evidences suggest that marketing channels can have a significant impact on the underwriting service quality and corporate reputation of an insurer.

The regression analyses for the relationship between underwriting service quality and marketing channels are shown in tables 5a and 5b for salesperson and bancassurance respectively. The result indicates marketing through salespersons has a significantly positive impact on business expense, but a negative impact if through bancassurance. This outcome supports hypothesis 1 that insurers may incur more business expense when relying on salespersons to distribute insurance products. The result implies that bancassurance does have competitive advantages in saving business expenses

The debt ratio is negatively related to business expense, which implies insurers with better financial strength can spend more in underwriting service. Premiums of new business have a significantly positive relation with business expense as expected because selling more contracts require more underwriting service. FHC background also is significantly and positively related to business expense, which probably is due to better financial strength. The background of FI does not have a significant relation to business expense. The results of tables 5a and 5b are consistent for these variables of firm characteristics.

The empirical result shows that the marketing channels

⁶ The following paragraphs omit the discussions on agency and mail order because the market shares of these two channels are quite small (see table 1) and their impacts are insignificant.

Table 4a. Comparisons of Service Quality between Insurers - Salesperson

Variable	Sales<0.5 Mean (std.dev)	Sales \geq 0.5 Mean (std.dev)	t Value Pr> t	Wilcoxon Z Pr > Z
<i>lnExp</i>	6.7282 (1.0578)	7.9187 (1.1794)	-7.36*** (<.001)	6.61*** (<.001)
<i>Cmpln</i>	0.3039 (0.3841)	0.1525 (0.1053)	4.25*** (<.0001)	-2.64** (0.008)
<i>Coa</i>	0.1059 (0.1790)	0.0624 (0.0519)	2.61* (0.010)	-1.05 (0.295)
<i>Cona</i>	0.1979 (0.3216)	0.0901 (0.0770)	3.67*** (<.001)	-1.91+ (0.056)
<i>Dispute</i>	0.0253 (0.0646)	0.0130 (0.0139)	2.10* (0.037)	-0.92 (0.358)
<i>P13</i>	89.1253 (10.5009)	91.7086 (4.6429)	-2.35* (0.019)	1.50 (0.134)
<i>P25</i>	81.9969 (12.4939)	85.2759 (6.8438)	-2.34* (0.020)	1.54 (0.1232)
<i>Repute</i>	12.5426 (7.2532)	20.1972 (7.5017)	-7.06*** (<.001)	6.35*** (<.001)
Sample size	134	71		

Significance levels: + p<0.10; * p<0.05; ** p<0.01; *** p<0.001.

Table 4b. Comparisons of Service Quality between Insurers - Bancassurance

Variable	bank<0.5 Mean (std.dev)	bank \geq 0.5 Mean (std.dev)	t Value Pr > t	Wilcoxon Z Pr > Z
<i>lnExp</i>	7.3295 (1.3813)	6.9343 (1.0240)	2.34* (0.020)	-2.41* (0.016)
<i>Cmplnt</i>	0.2006 (0.2833)	0.3075 (0.3578)	-2.35* (0.020)	1.97* (0.049)
<i>Coa</i>	0.0742 (0.0749)	0.1093 (0.2003)	-1.62 (0.107)	0.418 (0.676)
<i>Cona</i>	0.1264 (0.2681)	0.1982 (0.2658)	-1.91+ (0.057)	1.938+ (0.053)
<i>Dispute</i>	0.0161 (0.0180)	0.0264 (0.0741)	-1.34 (0.184)	-0.869 (0.385)
<i>P13</i>	91.2126 (4.6423)	88.8756 (11.7075)	1.81+ (0.072)	-0.619 (0.536)
<i>P25</i>	84.7523 (7.0894)	81.5613 (13.6252)	2.01* (0.046)	-1.130 (0.259)
<i>Repute</i>	16.8447 (8.6373)	13.5773 (7.3695)	2.87** (0.005)	-2.861** (0.004)
Sample size	107	98		

Significance levels: + p<0.10; * p<0.05; ** p<0.01; *** p<0.001.

significantly influence the complaint ratios. The salesperson has a significantly negative impact on the complaint ratios, no matter the complaints are loss-adjusting related or not. On the other hand, bancassurance has a significantly positive relation with the complaint ratios. This evidence supports hypothesis 2 and suggests that salesperson pro-

vides better underwriting service. The opposite effect on complaints from the two marketing channels indicates the competitive advantages of salesperson in underwriting service. Most of the firm characteristics variables are not significantly related to complaint ratios, except for the FI background. The foreign insurers in Taiwan are

Table 5a. Regression Result for Underwriting Service Quality - Salesperson

	<i>lnExp</i>	<i>Cmplnt</i>	<i>Coa</i>	<i>Cona</i>	<i>Dispute</i>	<i>P13</i>	<i>P25</i>	<i>Repute</i>
<i>Intercept</i>	4.475*** (<0.001)	-0.046 (0.814)	0.018 (0.848)	-0.064 (0.704)	0.026 (0.499)	88.247*** (<0.001)	82.552*** (<0.001)	11.946** (0.003)
<i>Sales</i>	0.014*** (<0.001)	-0.003*** (<0.001)	-0.001** (0.003)	-0.002** (0.003)	-0.0002 (0.124)	0.034* (0.055)	0.045* (0.035)	0.093*** (<0.001)
<i>Debtr</i>	-0.013** (0.009)	0.003 (0.128)	0.006 (0.515)	0.002 (0.156)	0.0001 (0.774)	-0.041 (0.536)	-0.036 (0.663)	-0.192*** (<0.001)
<i>lnPremNC</i>	0.218*** (<0.001)	0.005 (0.543)	0.002 (0.573)	0.003 (0.691)	-0.001 (0.566)	0.425 (0.298)	0.337 (0.504)	1.284*** (<0.001)
<i>FHC</i>	0.601*** (<0.001)	-0.132* (0.044)	-0.047 (0.128)	-0.084 (0.132)	0.015 (0.188)	1.242 (0.504)	0.690 (0.763)	0.6737 (0.592)
<i>FI</i>	0.087 (0.543)	0.142** (0.008)	0.060* (0.018)	0.082* (0.072)	0.003 (0.747)	-5.916*** (<0.001)	-7.684*** (<0.001)	-3.298** (0.002)
<i>Adj-R2</i>	0.5694	0.1361	0.0833	0.0684	0.0036	0.1523	0.1493	0.4966
F-value (p-value)	54.95*** (<0.001)	7.37*** (<0.001)	4.67*** (<0.001)	3.97** (0.002)	1.14 (0.338)	7.90*** (<0.001)	7.67*** (<0.001)	40.27*** (<0.001)
Sample size	205	203	203	203	202	193	191	200

Regression coefficients are listed with p-values in the parentheses. + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 5b. Regression Result for Underwriting Service Quality - Bancassurance

	<i>lnExp</i>	<i>Cmplnt</i>	<i>Coa</i>	<i>Cona</i>	<i>Dispute</i>	<i>P13</i>	<i>P25</i>	<i>Repute</i>
<i>Intercept</i>	4.851*** (<0.001)	-0.106 (0.596)	-0.002 (0.983)	-0.104 (0.542)	0.017 (0.658)	90.557*** (<0.001)	85.171*** (<0.001)	13.802*** (<0.001)
<i>Bank</i>	-0.015*** (<0.001)	0.002** (0.001)	0.001* (0.022)	0.002* (0.010)	0.0001 (0.159)	-0.030 (0.1226)	-0.037 (0.121)	-0.096*** (<0.001)
<i>Debtr</i>	-0.019*** (<0.001)	0.004* (0.048)	0.001 (0.323)	0.003+ (0.075)	0.0002 (0.561)	-0.066 (0.337)	-0.066 (0.435)	-0.221*** (<0.001)
<i>lnPremNC</i>	0.308*** (<0.001)	-0.010 (0.234)	-0.003 (0.459)	-0.007 (0.324)	-0.002 (0.196)	0.602 (0.136)	0.579 (0.248)	1.838*** (<0.001)
<i>FHC</i>	0.659*** (<0.001)	-0.132* (0.049)	-0.046 (0.145)	-0.086 (0.132)	0.015 (0.194)	1.158 (0.537)	0.497 (0.830)	1.090 (0.398)
<i>FI</i>	0.159 (0.275)	0.135* (0.013)	0.058* (0.024)	0.077+ (0.097)	0.003 (0.775)	-5.924*** (<0.001)	-7.729*** (<0.001)	-2.806*** (0.008)
<i>Adj-R2</i>	0.5614	0.1128	0.0660	0.0563	0.0016	0.1464	0.1399	0.4843
F-value (p-value)	53.23*** (<0.001)	6.14*** (<0.001)	3.86** (0.002)	3.41** (0.006)	1.07 (0.381)	7.59*** (<0.001)	7.18*** (<0.001)	38.38*** (<0.001)
Sample size	205	203	203	203	202	193	191	200

Regression coefficients are listed with p-values in the parentheses. + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

smaller in asset size and employee number, compared with the domestic insurers. Instead of hiring salespersons, the foreign insurers usually rely on bancassurance, agency, and mail order to distribute their insurance products. Therefore it is not surprising that FI background is positively related to complaints.

The regression analysis for dispute ratio shows that neither marketing channels nor firm characteristics are relevant variables. This outcome probably arises from

the unfitness of the model since the explanation power (adj-R2) is low and the F-value is insignificant. The lawsuits for loss adjustment are usually connected with insurance contracts and loss-adjusting judgment which are less relevant to marketing channels. Although theoretically, the solicitors may mislead the consumers in interpreting insurance contracts to pursue their sales commissions, this phenomenon is unusual in practice due to the regulation for twisting.

The marketing channel of the salesperson has a significantly positive impact on contract persistency, either *P13* or *P25*. This result suggests that salesperson has a contribution in maintaining customers which is probably due to better service. Since the effect bancassurance is negative but insignificant, it is hard to claim that more dependence on bancassurance will reduce contract persistency. Therefore, the empirical evidence supports hypothesis 3 that contract persistency increases with the dependence on salesperson; however, it does not significantly decrease with the dependence on bancassurance. This finding suggests that salesperson marketing has comparative advantages in maintaining customers, which probably arise from more intensive service and long-term relationship. The firm characteristics variable *FI* has a significantly negative impact on contract persistency, which is consistent with the result for complaint ratios. The policyholders may terminate the insurance contracts if they have more complaints. As indicated in the above, foreign insurers in Taiwan usually distribute their products through channels other than salespersons. This evidence reinforces the contribution of salespersons in maintaining customer relationship.

The regression result of insurer's reputation shows that reputation is significantly and positively related to salesperson but negatively related to bancassurance. Thus hypothesis 4 is supported. This finding is consistent with the previous cases since complaint ratios are lower (higher) for insurers relying on salespersons (bancassurance). In addition to marketing channels, the corporate reputation of insurers is also affected by the firm characteristics. The higher debt ratio implies weaker financial strength, and foreign insurers usually have smaller asset size. Therefore insurer's reputation is negatively related these two variables. Premiums for new business have a positive relation with corporate reputation because consumers prefer to buy insurance from the insurers with a good reputation. FHC background does not contribute to insurer's reputation even though the affiliation with banks implies better financial support.

In summary, the overall results suggest that marketing channel has a strong relation with underwriting service quality, and salesperson presents better outcome in quality measurements than bancassurance. Additionally, the insurer's reputation is influenced by the marketing channels because underwriting service quality is an important determinant of corporate image.

To further investigate the relationship between marketing channel and underwriting service quality, this paper applies factor analysis to draw the latent variable of service quality through business expense (*lnExp*), complaint ratio (*Cmplnt*), and contract persistency (*P13*). The standardized scoring coefficients for (*lnExp*, *Cmplnt*, *P13*) are (0.45049, -0.47902, 0.47867). The regression analysis of underwriting service quality (*Quality*) and marketing channels is shown in table 6. The result indicates that service quality has a significantly positive relation with the salesperson and a negative relation with bancassurance, which supports previous findings. Debt ratio has a negative impact on service quality which is probably due to the insufficient financial resource. Premiums for new business are positively related to service quality since consumers usually prefer insurers with better service. Service quality also related to organizational background. FHC background positively influences service quality as predicted because of the support from affiliated financial institutes. FI background negatively influences service quality because the foreign insurers are small-sized and relying on marketing channels other than salespersons.

To consider the combined effect of marketing channel and firm characteristics, the interaction terms are included in the regression models. The result in table 6 shows that the explanation powers (adj-R²) of the models with interaction terms increases just marginally. Due to multicollinearity, most of the variables are insignificantly related to service quality⁷. Therefore marketing channel itself can be a determinant of service quality and the interaction with other firm characteristics does not enhance or mitigate the quality.

Finally, this paper analyzes the relationship between corporate reputation and service quality to investigate the connection between marketing channel, service quality and insurer's reputation. The result in table 7 shows that service quality has a significantly positive impact on corporate reputation no matter under the channel of salesperson or bancassurance. The relationship between salesperson and reputation is significantly positive, and it is significantly negative under bancassurance, which is consistent with the findings in tables 5a and 5b. The effects of firm characteristics are similar to the previous result,

⁷ The variance inflation factors (VIF) in model 1b for the variables *Sales*, *Sales*×*Debt* and *Sales*×*lnPremNC* are 396.94, 211.30 and 109.772. Similar situation exists for the bancassurance channel.

Table 6. Regression Result for Underwriting Service Quality

	Quality Ia	Quality Ib	Quality IIa	Quality IIb
<i>Intercept</i>	-2.683** (0.002)	-1.822 (0.126)	-1.895* (0.028)	-4.220** (0.001)
<i>Sales</i>	0.010*** (<.001)	-0.017 (0.538)		
<i>Bank</i>			-0.010*** (<.001)	0.039 (0.131)
<i>Debtr</i>	-0.006 (0.255)	-0.007 (0.446)	-0.014* (0.012)	-0.001 (0.917)
<i>lnPremNC</i>	0.198*** (<.001)	0.154** (0.001)	0.251*** (<.001)	0.292*** (<.001)
<i>FHC</i>	0.330* (0.029)	0.214 (0.330)	0.335* (0.031)	0.565 (0.108)
<i>FI</i>	-0.315* (0.012)	-0.592** (0.001)	-0.306* (0.017)	0.430* (0.036)
<i>Channel×Debtr</i>		0.00002 (0.931)		-0.0003 (0.199)
<i>Channel×lnPremNC</i>		0.001 (0.134)		-0.001 (0.384)
<i>Channel×FHC</i>		0.002 (0.754)		-0.007 (0.197)
<i>Channel×FI</i>		0.007* (0.038)		-0.016*** (<.001)
Adj-R2	0.4700	0.4770	0.4498	0.4940
F-value	34.70*** (<.0001)	20.26*** (<.0001)	32.07*** (<.0001)	21.61*** (<.0001)
Sample size	191	191	191	191

Regression coefficients are listed with p-values in the parentheses. * p<0.05, ** p<0.01, *** p<0.001.

The variable *Channel* in the interaction terms means *Sales* in model Ib and *Bank* in model IIb.

and thus the discussion is omitted. The model Ia of table 7 has much higher explanation power than the model in table 5a where only *sales* is included. This result implies service quality, as well as marketing channel, can influence an insurer's reputation. The model Ib in table 7 shows that the interaction of salesperson channel and service quality also has a significantly positive impact on the reputation. This model Ib also shows even higher explanation power than the model Ia. Since the multicollinearity is not significant and the explanation power increases,⁸ the result implies that the salespersons with good service quality can further raise the insurer's reputation. The impact of bancassurance on corporate reputation remains negative as shown under model IIa, which is consistent with the finding in table 5b. The

interaction between bancassurance and service quality has a significantly negative relation with reputation. Again, the multicollinearity is not significant and the explanation power of the model increases.⁹ Because the insurers using bancassurance present lower service quality as indicated in the previous findings, the interaction of bank channel and service quality together will further reduce the insurer reputation.

The overall empirical findings suggest that marketing channel does have a significant connection with underwriting service quality. The traditional salesperson channel can provide better service to insurance consumers than bancassurance. The underwriting service quality, in turn, is an important determinant of corporate reputation for the insurers.

⁸ The VIFs of (*quality*, *sales*, *quality×sales*) are (2.29, 1.68, 2.55)

⁹ The VIFs of (*quality*, *bank*, *quality×bank*) are (6.15, 1.49, 4.72)

Table 7. The Effect of Underwriting Service Quality on Reputation

	<i>Repute</i> <i>Ia</i>	<i>Repute</i> <i>Ib</i>	<i>Repute</i> <i>Ila</i>	<i>Repute</i> <i>Ilb</i>
<i>Intercept</i>	2.415 (0.715)	6.612 (0.303)	6.820 (0.301)	9.535 (0.138)
<i>Quality</i>	3.357*** (<.001)	2.436*** (<.001)	3.434*** (<.001)	6.339*** (<.001)
<i>Sales</i>	0.052*** (<.001)	0.028* (0.029)		
<i>Bank</i>			-0.059*** (<.001)	-0.051*** (<.001)
<i>Debt</i>	-0.140** (0.002)	-0.116** (0.007)	-0.182*** (<.001)	-0.165*** (<.001)
<i>lnPremNC</i>	1.626*** (<.001)	1.213*** (<.001)	1.898*** (<.001)	1.581*** (<.001)
<i>FHC</i>	-1.287 (0.261)	-1.304 (0.234)	-1.071 (0.350)	-0.960 (0.386)
<i>FI</i>	-1.570 (0.101)	-1.830* (0.046)	-1.364 (0.151)	-2.045* (0.030)
<i>Quality</i> × <i>Sales</i>		0.061*** (<.001)		
<i>Quality</i> × <i>Bank</i>				-0.046*** (<.001)
Adj-R ²	0.6192	0.6515	0.6238	0.6484
F-value	51.41*** (<.001)	50.67*** (<.001)	52.41*** (<.001)	50.00*** (<.001)
Sample size	187	187	187	187

Regression coefficients are listed with p-values in the parentheses. * p<0.05, ** p<0.01,*** p<0.001.

V. Conclusion

Bancassurance becomes the dominant marketing channel for life insurance in Taiwan even though it has prevailed for just about ten years. The traditional channel of employed (or contracted) salespersons gradually loses their marketing power to bancassurance. Although bancassurance may have competitive advantages in saving commission cost or expanding the business to bank customers, it also raises questions about the bank teller's professional capability in providing insurance products. Previous literature has debated on the advantages of bancassurance, especially the cost efficiency. As more and more cost-saving marketing channels for insurance arise, such as internet or telephone marketing, the value of traditional salespersons for insurance marketing becomes an important issue to study since this channel usually requires higher acquisition cost.

This paper investigates the relationship between mar-

keting channels and underwriting service quality. The empirical analyses are emphasized on two major channels: traditional salesperson and bancassurance. According to the empirical analysis, the salesperson channel has competitive advantages in underwriting service quality which are measured in complaint ratios, contract persistency, etc. This evidence can support the coexistence of salesperson and bancassurance because each channel presents its competitive advantage: bancassurance is more cost efficiency but salesperson holds better service quality.

The empirical result shows that the insurers with more dependence on salesperson channel present lower complaint ratios and higher contract persistency, which implies better underwriting service quality. The empirical result also indicates that service quality has a significantly positive impact on corporate reputation. Therefore the reputation of insurers with more dependence on salesperson channel is higher than that of others. Since corporate reputation is a critical factor for consumers to select an insurer, it is expected that salesperson remains an important

marketing channel in the insurance market even if it may incur higher acquisition cost.

This paper provides the empirical evidence that bancassurance has a negative relation with underwriting service quality and consequently influences the reputation of insurers. This finding implies bancassurance is not as good as salesperson in maintaining long-term customer relationship. The insurers with dependence on bancassurance for marketing products should take additional strategies to maintain customer relation so as to have long-term competitive advantages in the market. However, there is a caveat in interpreting the findings. Although this paper indicates a strong connection between marketing channel and underwriting service quality, it does not imply that marketing channel itself is a cause for service quality. The insurer's business policy for consumer protections may affect the resource allocation for improving service quality and then marketing approach. That is, an insurer intending to provide more service to customers may prefer salesperson channel and spend more expenses. Otherwise bancassurance is adopted. The selection of marketing channel and its service quality both may be affected by the insurer's business policy. Although the empirical result is consistent with the theoretical arguments in previous literature, there are some limitations of this research. First, the history of bancassurance in Taiwan is short (only around ten years), and its operational approach continues being modified. Therefore the empirical findings in this paper may not always stay in the future insurance market. Second, the data for underwriting expenses include all kinds of operational expenses except for commissions. This paper cannot distinguish the sources of expenses, for example, management expense or claim adjusting expense, and thus it cannot tell how to improve the cost inefficiency for the salesperson channel. Third, the impacts of service quality on new business volume and profitability are not discussed in this paper. The future studies may investigate the relationship among these elements and analyze the contribution of underwriting service quality to the insurance business.

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Appendix

Table A1. Definition of Variable

Variable	Definition
$Bank_{i,t}$	= premium incomes of new contracts from bancassurance / total premium incomes of new contracts of insurer i in year t
$Sales_{i,t}$	= premium incomes of new contracts from salesperson / total premium incomes of new contracts of insurer i in year t
$Cmplnt_{i,t}$	= no. of complaints / no. of contracts in force of insurer i in year t
Coa	= no. of loss-adjusting complaints/ no. of contracts in force of insurer i in year t
$Cona$	= no. of not loss-adjusting complaints/ no. of contracts in force of insurer i in year t
$Dispute_{i,t}$	= no. of lawsuits for loss-adjusting / no. of loss-adjusting applications of insurer i in year t
$lnExp_{i,t}$	= ln (business expenses) of insurer i in year t
$P13_{i,t}$	= ratio of insurance policies remain effective for 13 months after issued by insurer i in year t.
$P25_{i,t}$	= ratio of insurance policies remain effective for 25 months after issued by insurer i in year t.
$Repute_{i,t}$	= 30 - RMIM Ranking of insurer i in year t
$Debt_{i,t}$	= total liabilities / total assets of insurer i in year t
$lnPremNC_{i,t}$	= ln (premium incomes of new contracts) of insurer i in year t
$FHC_{i,t}$	= 1 if insurer i in year t is a subsidiary of a financial holding company, otherwise = 0.
$FI_{i,t}$	= 1 if insurer i in year t with more than 50% of equities hold by a foreign insurer, otherwise =0.

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Financial Sophistication and Credit Card Behaviors Revision

Robb, Cliff^{1†} and Patryk Babiartz²

ABSTRACT

The present study explored consumers' use of credit cards with an emphasis of the role that financial knowledge plays in behavior. Both objective and subjective measures of subjective financial knowledge were included in predictive models of seven unique credit card behaviors. Behaviors explored included comparing cards during the acquisition phase, paying off cards in full, revolving a balance, making minimum payments, paying late payment fees, paying over the limit fees, and taking cash advances. Results indicated that financial knowledge was a useful predictor of behavior, though different knowledge types were more or less effective as predictors depending on the behavior analyzed. An additional series of analyses was conducted controlling for emergency saving ownership. Implications are discussed.

Keywords: Financial knowledge, credit cards, financial sophistication, consumer behavior

1. Introduction

An abundance of empirical research has considered how consumers make financial decisions in the context of increasingly sophisticated financial markets. Theoretically, individuals' understanding of financial markets and instruments should directly impact subsequent market behaviors and decisions. In general, the literature has borne this out, noting strong associations between knowledge and effective money management (Babiartz & Robb, 2013; Collins, 2007; Haynes-Bordas, Kiss, & Yilmazer, 2008; Hilgert, Hogarth, & Beverly, 2003; Lusardi & Mitchell, 2011; Robb, 2011; Robb & Woodyard, 2011; Scott, 2010). In many of these studies, greater levels of financial knowledge were associated with more positive financial behaviors, such as having emergency

savings, credit card use, and retirement preparedness. Notable findings have been identified for measure of objective financial knowledge as well as for measures of subjective financial knowledge, with some studies indicating that subjective knowledge may be a more effective predictor of some financial behaviors (Robb & Woodyard, 2011; Xiao, Tang, Serido, & Shim, 2011). Accordingly, a number of studies have further highlighted negative behaviors among less financially sophisticated consumers (Ausubel, 1991; Lusardi, 2008; Soman & Cheema, 2002). However, research indicates that the observed associations between knowledge and behavior are not necessarily automatic (Braunstein & Welch, 2002). This is often contributed to the complex nature of financial decision-making (and decision-making processes in general) as knowledge may be one of many salient factors in the decision process.

Knowledge itself is a complex concept, as studies have articulated differences between objective and subjective financial knowledge across a number of financial decision-making domains (Allgood & Walstad, 2013; Robb & Woodyard, 2011; Robb, Babiartz, Woodyard, & Seay,

^{1†} Kansas State University
cliffrobb@ksu.edu

² University of Georgia

2015; Xiao et al., 2011). Some research has indicated that subjective knowledge may be more important as a predictor of certain financial behaviors (Robb & Woodyard, 2011; Xiao et al., 2011). However, more recent studies have considered adjusting the empirical model to account for objective knowledge relative to one's subjective knowledge to provide a more nuanced picture of financial sophistication as it relates to behaviors (Allgood & Walstad, 2013; Robb et al., 2015; Xiao, Chen, & Chen, 2014).

II. Review of Literature and Theoretical Background

Credit card utilization has long been a topic of interest to researchers and policy makers in the area of consumer finance, due not only to their ubiquity (Stango & Zinman, 2009), but also for the size of the industry, as revolving consumer debt was over \$937 billion based on data from the Federal Reserve (2016). There is a strong body of research detailing connections between financial knowledge and credit card use, particularly among college student populations (Borden et al., 2008; Chen & Volpe, 1998; Cude et al., 2006; Robb, 2011; Robb & Sharpe, 2009; Xiao et al., 2011). Much of this interest was driven by exponential growth of credit cards among college students, though recent trends indicate changing patterns of credit card use and ownership in the wake of the CARD Act (2009). Interestingly, data from earlier studies of financial literacy suggest that college students are not much different from other adult populations (Braunsberger, Lucas, & Roach, 2004).

A number of studies have explored the connection between financial knowledge and credit card behavior among samples of the adult population (Allgood & Walstad, 2013; Gross & Souleles, 2002; Heidhues & Koszegi, 2010; Mottola, 2012; Ricaldi, 2015). Gross and Souleles (2002) raised the question of whether credit card balances were not more often reflective of behavioral rather than liquidity issues. In effect, naïve consumers might be inclined to rely on credit cards more easily, even in cases where alternative (possibly less costly) resources exist to meet a given need. This argument has found some support in later studies, as less sophisticated

(less literate, or naïve) consumers have been noted as being more likely to over-borrow and to subsequently pay penalties (Heidhues & Koszegi, 2010). Ricaldi (2015) identified less knowledgeable consumers as being more likely to be solvent revolvers (or those having available funds that could be applied to revolving debt). In an exploration of gender differences in financial literacy, Mottola (2012) also noted significant differences in credit card use habits based on financial knowledge when comparing males and females. Data indicated that observed gender-based differences in credit card use might be explained by knowledge differentials, and that literacy improvements may result in more profound changes for women.

One of the most comprehensive analyses of credit card use behavior among adults in the United States was conducted by Allgood & Walstad (2013), as they identified five separate credit card behaviors: always paying a card balance in full; revolving a balance; making only the minimum payment; late payment fees; and over the limit fees. In addition to exploring a number of credit card habits, the authors took advantage of the fact that the 2009 National Financial Capability Study (NFCS) offered two separate measure of financial literacy. Whereas some of the questions dealt with objective financial knowledge, there was also a question designed to assess individuals' subjective financial literacy. Findings from the combined measure of financial knowledge indicated significant behavioral differences among the four groupings, with the most dramatic differences noted when those in the high objective-high subjective category were compared with those in the low objective-low subjective category.

The present paper is strongly influenced by the previous work of Allgood and Walstad (2013) and Robb et al. (2015). Utilizing the first (2009) and second (2012) waves of the NFCS, six (6) core credit card behaviors are analyzed along with a measure of individuals' search behavior. In addition to the five behaviors explored by Allgood and Walstad (2013), we consider consumer utilization of the cash advance feature. Allgood and Walstad (2013) argued that cash advance behavior is distinct from other credit card behaviors and may not be as influenced by consumers' financial knowledge (and thus exempt from their study). Cash advances are often needed in times when cash is short and a need is immediate, much like title loans or payday loans (though this feature may often be less costly than these alternatives based on annualized

percentage). Work by Robb et al. (2015) indicated that financial knowledge is strongly related to these borrowing behaviors, particularly when controlling for financial sophistication and objective need. For example, individuals who scored low on the objective knowledge measure but high on the subjective measure (classified as over-confident in their financial knowledge) were far more likely than even the least sophisticated consumers (those scoring low in both knowledge dimensions) to utilize payday loans or other high cost borrowing alternatives in the market. This effect was magnified when individuals' objective need for financial relief was assessed, as over-confident consumers who reported having an emergency fund were even more likely to report utilization of alternative financial services. The present paper includes cash advance behavior in light of these previous findings on overconfidence, as similar mechanisms are hypothesized to be at work. The concept of objective need is further explored with other credit card behaviors as a part of this work, as a series of models were run controlling for emergency fund ownership.

The present analysis also adds a dimension of consumer activity related to credit card acquisition. The question of whether consumers made comparisons when searching for their most recent card assessed the degree to which consumers were aware of product differences in credit markets, and is somewhat suggestive of overall willingness to engage in search activities in financial markets. Since consumers in America experienced a different economic climate in 2012 relative to 2009 (the year of the first survey wave and the focus of previous research on credit card behavior), data from the two periods can be compared to assess whether the link between knowledge and behavior appears to be generally consistent across the two waves of data (data are not longitudinal so it is not possible to examine the consistency for actual respondents from 2009 to 2012).

Assumptions regarding how consumers interact with their environment are an important component for consideration here. Under the Neoclassical economic framework, consumers are utility maximizers who effectively weigh all relevant costs and benefits when making choices. Thus, use of credit cards is a reflection of this maximization process, and decisions to revolve occur in cases where cards are truly the most efficient (or least cost) option available to consumers. Late payment or over the limit penalties are theoretically reflective of true need. This

framework assumes perfect information on the part of consumers, and some theorists have challenged this assertion in recent years in favor of a more forgiving definition of rationality (Simon, 2000). Under a framework of "bounded" rationality, consumers remain forward-looking utility maximizers, but may be hindered in terms of their available knowledge, mental processing ability, or outcome expectations. Individual knowledge becomes an extremely relevant factor in this framework. Credit card decisions are further complicated by timing factors, as individuals must make reasonable forecasts of future resources and utility to effectively utilize these tools. The present study considers card use decisions in the context of bounded consumer rationality, acknowledging that different levels of knowledge may be an influential factor for consumer behaviors. Prior research has raised issues regarding how credit cards might prove challenging for more naïve consumers, as less sophisticated users may be inclined to greater levels of consumption (Feinberg, 1986) or view credit limits as an implicit signal of what is affordable (Soman & Cheema, 2002). Based on the previous findings from the credit card literature and assumptions of bounded rationality, the following hypothesis was considered:

Hypothesis 1: More knowledgeable consumers (defined as those scoring high the objective measure) will demonstrate more favorable credit card behaviors relative to less knowledgeable consumers.

As noted in the review of literature, objective knowledge is but one component of the decision making process. Previous research incorporating subjective financial knowledge indicated that peoples' self-assessment of what they know can have strong predictive power in analyses of financial behavior. Based on these findings, the following hypothesis was developed:

Hypothesis 2: More confident consumers (those scoring high on the subjective measure) will demonstrate more favorable credit card behaviors relative to less confident consumers.

In many cases, the first two hypotheses are limited in that they only approach each dimension of financial

knowledge separately. More recent studies have indicated that the dynamic relationship between the two is worth exploring in more detail, as the real impact of high objective knowledge may be influenced by the level of one's subjective knowledge and vice versa. Previous studies have noted particularly concerning findings among consumers who have low levels of objective knowledge, but high levels of subjective knowledge (over-confident). As a result, the following hypotheses were postulated:

Hypothesis 3: Consumers scoring high on the measure of subjective knowledge and low on the measure of objective knowledge will demonstrate less favorable credit card behaviors relative to the least sophisticated consumers (those scoring low on both measures).

Hypothesis 4: More financially sophisticated consumers (defined as those scoring high on both knowledge measures) will demonstrate more favorable credit card behaviors, *ceteris paribus*.

III. Data and Method

Data for the present analysis were taken from the 2009 and 2012 NFCS state-by-state surveys sponsored by the United States' Financial Industry Regulatory Authority (FINRA) Investor Education Foundation. Each of the survey waves collected a unique sample of roughly 500 adults (age 18 or over) from each state, including the District of Columbia, resulting in a pooled sample of 53,655. Given the focus of the present study, data were censored to account for credit card ownership, resulting in a final sample size of 34,451. Each of the survey waves centered on the goal of understanding consumer financial capability in the United States, which was explored through questions on a number of financial topics and behaviors.

For the credit card behaviors of interest, each of the seven (7) selected behaviors was assessed in a binary (yes/no) format. Logistic regression was used to assess the likelihood of consumers responding affirmatively to

each question. A model utilizing an index variable comprising of the sum of indicators of "bad" credit card behaviors was also estimated. In addition to the base models of card behavior controlling for knowledge, a series of analyses was conducted controlling for whether individuals reported having an emergency fund or not. This was of particular interest for behaviors related to late payments, and taking cash advances (liquidity constraint assumptions), but can be explored in the context of all six card use behaviors (credit card search behavior was excluded from this set of analyses). It was believed that the presence of emergency savings would be a signal of available resources, and help further differentiate individuals based on responsible use of credit cards based on objective need.

IV. Dependent Variables: Credit Card Behavior

Individuals' credit card use behavior was assessed by seven statements, with six of those statements asking individuals to reflect on their experience with cards over the past year. Respondents were asked to indicate either yes or no, to each of the following statements: 1) I always paid my credit cards in full; 2) In some months, I carried over a balance and was charged interest; 3) In some months, I paid the minimum payment only; 4) In some months, I was charged a late fee for late payment; 5) in some months, I was charged and over the limit fee for exceeding my credit line; and 6) In some months, I used the cards for a cash advance. In addition, respondents were asked whether they had made comparisons between different cards from more than one company when obtaining their most recent card (yes or no). In addition to the analysis of separate credit card use behaviors, an equally weighted index was created to measure the extent of "bad" behaviors. The index variable was calculated as the sum of indicators for (1) carrying over the credit card balance and paying interest, (2) paying minimum payment only, (3) being charged late fees, (4) being charged over the limit fees, and (5) using credit cards for cash advance.

V. Independent Variables

Objective financial knowledge. Respondents were presented five separate questions designed to assess their objective financial knowledge in the form of product knowledge and numeracy. These questions were structured either in multiple choice (1-3) or true/false (4-5) formats. The questions included in the survey are included below:

1. "Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?"
2. "Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?"
3. "If interest rates rise, what will typically happen to bond prices?"
4. "A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less."
5. "Buying a single company's stock usually provides a safer return than a stock mutual fund."

For each of the five questions, individuals were coded according to the number of correct answers they provided, with a possible range from 0-5 for the objective financial knowledge index.

Subjective Financial Knowledge. In addition to the five objective knowledge questions, both waves of the NFCS included a single question asking individuals to assess their own financial knowledge. Specifically, respondents were asked the following question: "On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?"

Financial Sophistication. For the present analysis the objective and subjective financial knowledge scores were further assessed in relation to each other (i.e., the role of subjective financial knowledge was explored controlling for objective knowledge level and vice versa). Four mutually exclusive dummy variables were generated from the data based on individuals' scores on the two knowledge indexes, including: 1) high objective and high subjective knowledge; 2) high objective and low subjective knowledge; 3) low objective and high subjective knowledge;

and 4) low objective and low subjective knowledge. To facilitate development of these four categories, individuals were classified as scoring high or low on each index based on sample median scores. For the NFCS sample, the median objective knowledge score was 3, whereas the median subjective financial knowledge score was 5. Further detail on the breakdown of scores across categories can be found in Robb et al. (2015).

Other Independent Variables (controls). In addition to the knowledge factors discussed above, the present study included a number of sociodemographic and behavioral controls in the analysis. The selected control variables include survey year, age, gender, education level, marital status, number of children, homeownership status, labor force participation, race, health insurance ownership, household income, whether individuals experienced an income shock in the past year, risk tolerance, difficulty paying bills, emergency savings for 3 months, bank account ownership, use of alternative financial services (e.g., payday loans), and state of residence.

VI. Results

A. Descriptive Statistics

Appendix A includes weighted descriptive statistics for the pooled (2009 and 2012) sample, as well as a breakdown for each of the separate waves. Overall, roughly 74% of the surveyed population owned at least one credit card. Among that 74%, a little more than one-third (35%) reported comparing different credit card offers for their most recent card acquisition. More than half (54%) of the respondents reported sometimes revolving a positive balance from one month to the next, whereas the remaining 46% reported always paying their credit card in full. Looking at the more costly credit card behaviors, 37% of cardholders reported paying only the minimum payment sometime, 21% indicated being assessed late payment fees, and about 12% of the sample reported paying over the limit fees or taking a cash advance. The index of bad credit card behaviors averaged at 1.36. Just under half (47.5%) of the sample population indicated having an emergency fund to cover up to 3 months of expenses.

Descriptive statistics for financial knowledge are pro-

Table 1. Descriptive Statistics for Card Holders' Financial Knowledge

	Full sample	Has credit card
Financial knowledge (total correct)	2.94	3.18
Financial knowledge (subjective)	5.04	5.21
High Objective, High Subjective	0.19	0.23
High Objective, Low Subjective	0.22	0.25
Low Objective, High Subjective	0.18	0.18
Low Objective, Low Subjective	0.40	0.34

Table 2. Descriptive Statistics for Card Holders' Financial Knowledge based on Seven Card Behaviors.

	Has credit card and ...						
	Compared credit card offers on latest card acquisition	Always pays credit card balance in full	Sometimes revolves credit card balance	Sometimes pays minimum credit card balance only	Sometimes pays credit card late payment fees	Sometimes pays credit card over-the-limit fees	Sometimes uses credit card cash advance
Financial knowledge (total correct)	3.35	3.34	3.14	2.90	2.89	2.75	2.85
Financial knowledge (subjective)	5.42	5.45	5.07	4.99	4.88	4.91	5.17
High Objective, High Subjective	0.28	0.30	0.19	0.15	0.13	0.11	0.17
High Objective, Low Subjective	0.25	0.23	0.26	0.23	0.25	0.22	0.20
Low Objective, High Subjective	0.21	0.20	0.17	0.19	0.19	0.22	0.26
Low Objective, Low Subjective	0.26	0.26	0.38	0.43	0.44	0.44	0.37

vided in Table 1, and sub-sample comparisons are available controlling for the seven credit card behaviors in Table 2. Consumers who report owning at least one credit card score higher on the measure of objective knowledge and rate their own financial knowledge higher than the full sample, though among cardholders there is significant variation in knowledge scores. Notably, lower objective knowledge is generally associated with more costly credit card behaviors (i.e., paying over the limit fees or making minimum payments). Alternatively, those who compared cards or always paid their balance in full scored the highest on both knowledge measures. Looking at the financial sophistication scores, a much smaller percentage of respondents who reported high cost credit behaviors such as paying over the limit fees are in the high objective-high subjective category, whereas the opposite is true for the low objective-low subjective category.

B. Multivariate Analyses

For the initial analysis, three separate models were

run for each of the seven credit card behaviors in question. Each of the estimated models contained all characteristics listed in the descriptive statistics table (Appendix A) as control variables, as well as a dummy variable indicating the year when the NFCS survey was collected. The critical difference was in how knowledge was controlled for. Model I controlled for objective financial knowledge, model II accounted for subjective financial knowledge, and model III accounted for individuals' financial sophistication (combined measure). Table 3 presents a summary of the critical knowledge effects from all of the separate analyses (full results for each of the seven variables available upon request). For consumer credit card search behavior (whether they compared cards), the impacts of both objective (model I) and subjective (model II) financial knowledge were consistently positive for this behavior. In the model of financial sophistication, all of the other categories were more likely to compare cards relative to the low-low category. The second set of models in Table 3 assessed whether consumers reported always paying their credit card balance in full. Objective financial knowledge was not significant as a predictor (model I),

though subjective financial knowledge was positively associated with paying cards in full in model II. In model III, each of the sophistication categories was positively associated with paying in full when compared to the low-low reference group.

In looking at whether consumers sometimes revolve a balance, objective knowledge was positively associated with revolving whereas subjective knowledge was inversely related to revolving behavior. Compared to the low-low group, those scoring high on both knowledge measures were less likely to report sometimes revolving. Individuals classified as high objective-low subjective were more likely to report revolving a balance compared to the low-low group, whereas low objective-high subjective respondents were not statistically different. Both objective (model I) and subjective (model II) financial knowledge were inversely associated with the payment of late fees. In model III, all of the sophistication categories were less likely to pay a late fee than those in the low-low knowledge grouping. A similar pattern was noted for paying over the limit fees on cards, as those with either higher objective or subjective knowledge scores were less likely to pay fees of this type (models I and II). In looking at the four sophistication categories, only the high objective-high subjective category was significantly different from the low-low reference category, with those in the high-high being less likely to pay over the limit fees. For cash advance behaviors, objective knowledge alone (model I) was noted as being inversely associated with taking a cash advance, whereas the opposite effect was noted for subjective financial knowledge in model II. Turning to the sophistication categories, only the two mixed categories were significantly different from the reference category of low-low knowledge. Specifically, those with high objective-low subjective knowledge were less likely to employ the cash advance feature, whereas those in the low objective-high subjective category were more likely to take a cash advance.

Finally, the last panel of Table 3 reports estimation results from the proportional-odds ordered logistic regressions that utilize the sum of “bad” behaviors as the dependent variable. Findings pointed to the negative effects of both subjective and objective financial knowledge on the level of unfavorable credit card behaviors. Results for the measures of financial sophistication indicated that, compared to low-low category, both groups of respondents characterized by high objective knowledge were less in-

clined to engage in “bad” behaviors, and there was no statistically significant difference between the reference category and respondents in the high objective-low subjective group. Compared to the low objective-low subjective category, the magnitude of the negative effect on the sum of unfavorable behaviors was the highest for the high-high category.

C. Multivariate Analyses, Reduced Sample

As noted in the methods section above, each of the six selected credit card behaviors was also explored in a separate model with the analysis sample reduced to individuals who reported having emergency saving. Results for the critical knowledge effects are presented in Table 4. In the first analysis (pay balance in full), the significant effect of knowledge was noted for all models. Both the objective and subjective knowledge was positively associated with paying cards in full regularly, and all groups of financial sophistication showed greater likelihood of paying balance in full than the low subjective-low objective knowledge category. Among the respondents who have resources available in the form of an emergency fund, the sign associated with the effect of objective knowledge on revolving a card balance changed from positive to negative. Additionally, for the measures of financial sophistication, those categorized as high objective-low subjective were no longer significantly different from the reference group. Whether individuals made the minimum payment or not was not changed when controlling for emergency fund ownership. Objective financial knowledge was no longer significant as a predictor of late payment behavior once the estimation samples were limited to individuals with emergency accounts. In addition, the high objective-low subjective category was not significantly different from the low-low group. Over the limit fee behavior displayed a somewhat different effect, as subjective knowledge was found to be not significant in the modified model. Being part of the high objective-low subjective grouping was inversely associated with paying over the limit fees among individuals with emergency fund holding. Subjective financial knowledge was not statistically significant as a predictor of cash advance behavior in the models where emergency fund ownership was controlled for, and those in the high objective-low subjective grouping were no

Table 3. Results Summary for Logistic Regressions of Credit Card Behaviors.

	Model I		Model II		Model III	
	N = 35,837		N = 35,628		N = 35,628	
	Odds	Coeff.	Odds	Coeff.	Odds	Coeff.
Dependent Variable: Compared Offers						
Objective Knowledge	1.088	0.085***				
Subjective Knowledge			1.192	0.175***		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					1.601	0.471***
High Obj.-Low Sub.					1.265	0.235***
Low Obj.-High Sub.					1.488	0.397***
Dependent Variable: Always Pay Balance in Full						
Objective Knowledge	1.012	0.012				
Subjective Knowledge			1.108	0.102***		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					1.302	0.264***
High Obj.-Low Sub.					1.087	0.083*
Low Obj.-High Sub.					1.313	0.272***
Dependent Variable: Sometimes Revolve						
Objective Knowledge	1.037	0.037***				
Subjective Knowledge			0.941	-0.061***		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					0.838	-0.176***
High Obj.-Low Sub.					1.060	0.058†
Low Obj.-High Sub.					0.953	-0.049
Dependent Variable: Sometimes Pay Minimum Only						
Objective Knowledge	0.915	-0.089***				
Subjective Knowledge			0.965	-0.036***		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					0.719	-0.330***
High Obj.-Low Sub.					0.810	-0.211***
Low Obj.-High Sub.					0.961	-0.039
Dependent Variable: Sometimes Pay Late Payment Fees						
Objective Knowledge	0.954	-0.047***				
Subjective Knowledge			0.864	-0.147***		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					0.632	-0.458***
High Obj.-Low Sub.					0.924	-0.079*
Low Obj.-High Sub.					0.794	-0.230***
Dependent Variable: Sometimes Pay Over the Limit Fees						
Objective Knowledge	0.938	-0.064***				
Subjective Knowledge			0.944	-0.058***		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					0.739	-0.302***

High Obj.-Low Sub.			0.931	-0.072
Low Obj.-High Sub.			1.068	0.065
Dependent Variable: Sometimes Take Cash Advance				
Objective Knowledge	0.932	-0.070***		
Subjective Knowledge			1.046	0.045**
Financial Sophistication (Ref: Low-Low)				
High Obj.-High Sub.			0.945	-0.057
High Obj.-Low Sub.			0.885	-0.123*
Low Obj.-High Sub.			1.311	0.271***
Dependent Variable: Sum of "Bad" Behaviors (Proportional-odds Ordered Logit)				
Objective Knowledge	0.969	-0.032 ***		
Subjective Knowledge			0.934	-0.068 ***
Financial Sophistication (Ref: Low-Low)				
High Obj.-High Sub.			0.755	-0.281***
High Obj.-Low Sub.			0.934	-0.068*
Low Obj.-High Sub.			0.961	-0.040

Significance levels are: *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$. All models additionally include control variables for respondent's age, gender, education, marital status, number of children, home ownership, labor force participation, race, health insurance coverage, household income, recent experiences of income shocks, attitude towards taking financial risks, indicators of financial difficulties, having emergency savings, having a bank account, and indicators for recent utilization of alternative financial services such as auto title loans, payday loans, tax refund anticipation checks, pawn shops, or rent-to-own stores.

longer significantly different from the reference category of low objective-low subjective knowledge. Finally, the role of objective and subjective knowledge on the amount of "bad" credit card behaviors was similar in the sample of respondents with emergency savings and the full sample.

D. Discussion and Conclusions

Credit cards remain a critical tool for consumers in a modern economy, offering easy access to short term borrowing at a reasonable cost. However, these tools can be troublesome for consumers if they are not used effectively, and costs can quickly become a financial burden if consumers are not mindful of their spending habits. Conceptually, the seven credit card behaviors explored can be divided into two categories. One category can reasonably be considered as positive credit card use behaviors, and it includes comparison shopping for cards as well as always paying off the balance in full each month. The other category can be viewed as more negative credit card behaviors, as they entail the accrual of additional costs for consumers in the forms of interest or penalties. This category includes sometimes revolving a balance, making only the minimum payment, paying late fees, paying over the limit fees, and utilization of the cash

advance feature.

The data provided strong support for Hypothesis 1, as more knowledgeable consumers (from an objective knowledge standpoint) were noted as engaging in more positive credit card use behaviors. Hypothesis 2 was partially supported, as consumers scoring higher on the measure of subjective knowledge generally engaged in better credit card behaviors. This finding was largely consistent with previous findings suggesting that subjective financial knowledge may be a critical predictor of positive financial behavior (Robb & Woodyard, 2011; Xiao et al., 2011). The positive impact of subjective knowledge was noted across behaviors with the exception of cash advance behavior. In Table 3, those with higher subjective financial knowledge were more likely to report taking a cash advance (subjective knowledge did not remain significant as a predictor of cash advance behavior when controlling for possessing of emergency funds).

Some support was noted for Hypothesis 3, though the weight of the evidence would favor a rejection or modification of this hypothesis. More confident consumers (this includes both categories with high scores on the subjective measure) were more likely to engage in search and to always pay their balance in full relative to the low-low grouping, which ran counter to the assumptions of hypothesis 3. There was some interest in seeing

Table 4. Results Summary for Logistic Regressions of Credit Card Behaviors among Respondents who have Emergency Funds. (N = 16,941)

	Model I		Model II		Model III	
	Odds	Coeff.	Odds	Coeff.	Odds	Coeff.
Always Pay Balance in Full						
Objective Knowledge	1.057	0.055***				
Subjective Knowledge			1.140	0.131***		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					1.402	0.338***
High Obj.-Low Sub.					1.190	0.174***
Low Obj.-High Sub.					1.305	0.266***
Sometimes Revolve						
Objective Knowledge	0.948	-0.053***				
Subjective Knowledge			0.919	-0.084***		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					0.738	-0.304***
High Obj.-Low Sub.					0.930	-0.073
Low Obj.-High Sub.					0.938	-0.064
Sometimes Pay Minimum Only						
Objective Knowledge	0.839	-0.176***				
Subjective Knowledge			0.952	-0.050*		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					0.607	-0.500***
High Obj.-Low Sub.					0.686	-0.378***
Low Obj.-High Sub.					0.953	-0.048
Sometimes Pay Late Payment Fees						
Objective Knowledge	0.959	-0.042				
Subjective Knowledge			0.809	-0.212***		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					0.578	-0.549***
High Obj.-Low Sub.					1.043	0.042
Low Obj.-High Sub.					0.753	-0.283**
Sometimes Pay Over the Limit Fees						
Objective Knowledge	0.812	-0.208***				
Subjective Knowledge			1.077	0.075		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					0.660	-0.416**
High Obj.-Low Sub.					0.758	-0.277†
Low Obj.-High Sub.					1.104	0.099
Sometimes Take Cash Advance						
Objective Knowledge	0.906	-0.099***				
Subjective Knowledge			1.059	0.057		
Financial Sophistication (Ref: Low-Low)						
High Obj.-High Sub.					0.869	-0.140
High Obj.-Low Sub.					0.897	-0.108
Low Obj.-High Sub.					1.255	0.227*

Dependent Variable: Sum of “Bad” Behaviors (Proportional-odds Ordered Logit)

Objective Knowledge	0.912	-0.092 ***		
Subjective Knowledge			0.916	-0.87***
Financial Sophistication (Ref: Low-Low)				
High Obj.-High Sub.			0.684	-0.380***
High Obj.-Low Sub.			0.872	-0.127***
Low Obj.-High Sub.			0.947	-0.055

Significance levels are: *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$. All models additionally include control variables for respondent's age, gender, education, marital status, number of children, home ownership, labor force participation, race, health insurance coverage, household income, recent experiences of income shocks, attitude towards taking financial risks, indicators of financial difficulties, having a bank account, and indicators for recent utilization of alternative financial services such as auto title loans, payday loans, tax refund anticipation checks, pawn shops, or rent-to-own stores.

^a This is the only statistic that is calculated for the entire pooled NFCS sample, other statistics are calculated for credit card holders only.

whether this subjective financial knowledge could be a negative in cases where objective knowledge was lacking (i.e., cases of possible overconfidence). Analysis of consumer use of high cost borrowing instruments like payday loans and auto-title loans suggested that overconfidence could be particularly concerning (Robb et al., 2015). Among many of the negative card behaviors (revolve a balance, minimum payment, and pay over the limit fees), no significant differences were noted between those in the low objective-high subjective category and the low objective-low subjective classification (thus favoring a rejection of H3). Further, more confident consumers were noted as being less likely to pay late payment fees. Support for H3 was noted when looking at cash advance behavior. The results do generally suggest that a distinction be made between cash advance behavior and the other credit card use measures, as the cash advance results were consistent with data from consumer use of alternative financial services (Robb et al., 2015). In the case of cash advance behavior, consumers with low objective but high subjective knowledge are 31% more likely to use this card feature. This is generally supportive of hypothesis 3, and previous explorations of consumer overconfidence with regard to borrowing (Robb et al., 2015), and raises some questions regarding how consumers might classify these different borrowing decisions.

It was hypothesized (H4) that more sophisticated consumers would be more likely to display favorable behaviors (and thus less likely to display costly behaviors), and the results are generally supportive of this assertion. Consistent with the prior findings on card utilization (Allgood & Walstad, 2013), the least knowledgeable (low objective-low subjective) consumers were consistently more likely to demonstrate the least favorable behaviors

when compared to those in the high objective-high subjective category, with utilization of cash advances serving as the one exception. For the model of cash advance behavior, no significant differences were noted between the two extreme categories, however, those in the low objective-high subjective category were more likely to report taking a cash advance compared to the least sophisticated group.

Overall, the initial analysis of credit card use behaviors does not provide as straightforward a picture of knowledge and behavior as has been noted for other financial behaviors. There is a general picture of behavioral improvements associated with higher levels of both objective and subjective knowledge, though the results reinforce earlier assertions that multiple knowledge dimensions may be at work in consumer behavior, and simple models of objective financial literacy may provide an incomplete picture. This narrative is confirmed by estimations that utilize the index of “bad” behaviors, as both objectively- and subjectively-assessed knowledge variables were negatively correlated with the extent of unfavorable behaviors. However, the overconfident consumers (low objective-high subjective knowledge) were not statistically different from consumers with the least amount of both objective and subjective knowledge.

When controlling for emergency saving as a rough indication of financial security, there are some notable differences in the output for four of the six credit card models. Whether individuals always pay their balance in full or sometimes make only the minimum payment were not substantively different for the restricted sample. Among those who reported having emergency funds, objective knowledge was inversely associated with revolving a balance (representing a sign change from the initial

model of all respondents). In other cases, certain knowledge measures transitioned from being significant to being not significant (as was the case for objective knowledge in the model of late payments and subjective knowledge in the models of paying over the limit fees and taking cash advances). Interestingly, when looking at cash advance behavior the story of overconfidence from the original models was reinforced by the results for the restricted sample, as those with low objective-high subjective knowledge were 25% more likely to indicate taking a cash advance.

The present study provides further evidence of the complex association between knowledge and behavior, while also providing some support for the assertion that more knowledgeable consumers experience better outcomes in terms of reported financial behavior. The critical distinction made in this manuscript has to do with exactly how knowledge is defined, as simply having greater objective financial knowledge may not be as effective a predictor of outcomes and behaviors as more sophisticated measures that acknowledge the multi-dimensional nature of this construct. By accounting for both objective and subjective knowledge in an exploration of various unique credit card use behaviors, a more complete understanding of the nuances of consumer decision-making can be achieved. The present findings are not suggestive of consumer overconfidence being a significant concern with regard to most credit card behaviors. Rather, findings are consistent with previous models indicating that naïve consumers are at the most risk for credit card abuse (Ausubel, 1991; Soman & Cheema, 2002). The addition of subjective knowledge provides a more detailed framework from which consumer naiveté can be explored.

Overall, the findings suggest that boosting consumer confidence along with objective knowledge may be beneficial, and that programs that focus exclusively on improving objective knowledge may be limited in their impact on consumers. As noted, the findings do appear to vary based on the behavior being explored as the particular knowledge measures employed had notably different associations when considering cash advance behavior. For cash advance behavior (and presumably other behaviors like it) it appears to be critical that consumers have an accurate understanding of their own financial knowledge to ensure effective financial decision-making, particularly in light of the findings when controlling for emergency saving account ownership.

The present study is not without limitations. Since the analyses are based on cross-sectional data, true causal effects cannot be determined between consumers' financial knowledge and credit card use. Further, results are limited based on credit card behaviors being self-reported by consumers, as there is potential for misrepresentation of behavior or errors in recall or reporting. The objective measure of knowledge, though widely used in the empirical literature, is limited in scope. The use of five relatively simple questions to judge financial knowledge has been employed by a number of other surveys and studies, but that does not mean that it is the most effective or accurate measure. Additional work needs to be done to refine not only the objective measure, but also subjective assessment metrics to ensure the most accurate representation of financial sophistication.

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Appendix

Table A. Weighted descriptive statistics, sample of credit card holders.

Variable	Pooled surveys	2009	2012
Has a credit card ^a	0.7389	0.7482	0.7287
Compared credit card offers on latest card acquisition	0.3472	0.3423	0.3527
Always pays credit card balance in full	0.4567	0.4182	0.4999
Sometimes revolves credit card balance	0.5407	0.5753	0.5019
Sometimes pays minimum credit card balance only	0.3771	0.4022	0.3488
Sometimes pays credit card late payment fees	0.2177	0.2635	0.1659
Sometimes pays credit card over-the-limit fees	0.1225	0.1572	0.0833
Sometimes uses credit card cash advance	0.1233	0.1314	0.1142
Sum of bad credit card behaviors (previous five dummies)	1.36	1.50	1.19
Financial knowledge (total correct)	3.18	3.20	3.15
Interest correct	0.7999	0.8098	0.7888
Inflation correct	0.6839	0.6919	0.6750
Bond price correct	0.3137	0.3048	0.3238
Mortgage correct	0.8085	0.8064	0.8108
Risk correct	0.5730	0.5918	0.5517
Financial knowledge (subjective)	5.21	5.10	5.33
Objective-subjective financial knowledge assessment:			
High Objective, High Subjective	0.23	0.22	0.25
High Objective, Low Subjective	0.25	0.27	0.22
Low Objective, High Subjective	0.18	0.16	0.21
Low Objective, Low Subjective	0.34	0.35	0.32
Respondent's age:			
18-24	0.0982	0.1058	0.0897
25-34	0.1703	0.1644	0.1769
35-44	0.1705	0.1800	0.1597
45-54	0.1949	0.1964	0.1932
55-64	0.1820	0.1748	0.1901
65 or older	0.1841	0.1785	0.1904
Female	0.5017	0.5068	0.4959
Respondent's education:			
No high school	0.0307	0.0194	0.0433
High school	0.2592	0.2570	0.2617
Some college	0.3981	0.4191	0.3743
College	0.1893	0.1864	0.1925
Post grad	0.1228	0.1181	0.1281
Married	0.6696	0.6632	0.6767
Number of children	0.7091	0.7079	0.7105
Homeowner	0.6864	0.6793	0.6944

Labor force participation:			
Works full-time	0.0815	0.0843	0.0783
Works part-time	0.4051	0.3970	0.4142
Self employed	0.0901	0.0926	0.0872
Homemaker	0.0854	0.0829	0.0882
Student	0.0456	0.0501	0.0405
Disabled	0.0329	0.0306	0.0355
Unemployed	0.0613	0.0682	0.0534
Retired	0.1982	0.1942	0.2028
Minority	0.3039	0.2897	0.3199
Covered by health insurance	0.8578	0.8536	0.8626
Respondent's (household) income:			
Income less than \$15K	0.0822	0.0900	0.0733
At least \$15K and less than \$25K	0.0958	0.1040	0.0867
At least \$25K and less than \$35K	0.1110	0.1185	0.1026
At least \$35K and less than \$50K	0.1595	0.1677	0.1503
At least \$50K and less than \$75K	0.2181	0.2146	0.2221
At least \$75K and less than \$100K	0.1364	0.1307	0.1427
At least \$100 and less than \$150K	0.1255	0.1121	0.1406
\$150K and greater	0.0714	0.0624	0.0817
Income shock	0.3226	0.3771	0.2610
Attitude towards risk	4.77	4.54	5.03
Difficulty paying bills:			
Very difficult	0.1261	0.1391	0.1116
Somewhat difficult	0.4219	0.4352	0.4068
Not at all difficult	0.4520	0.4257	0.4816
Has emergency funds to cover 3 months expenses	0.4755	0.4408	0.5146
Has a bank account	0.9834	0.9856	0.9809
In the past 5 years...			
has taken an auto title loan	0.0704	0.0575	0.0847
has taken a "payday" loan	0.0887	0.0697	0.1100
has taken a tax refund anticipation check	0.0574	0.0421	0.0746
has used a pawn shop	0.1045	0.0791	0.1332
has used a rent-to-own store	0.0615	0.0441	0.0812

^a This is the only statistic that is calculated for the entire pooled NFCS sample, other statistics are calculated for credit card holders only.

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Wealth Composition and Drawdown Patterns of Retirees a Comparative Study

Lee, Young Man¹, Jun Hyung Kim², Hyun-Ah Kim³, and Man Cho^{4†}

ABSTRACT

This study aims to pursue a two-fold research objective: first, to examine the wealth composition and its drawdown patterns of the retirement-age households in Korea and, second, to assess policy options to safely monetize real estate assets held by them, the reverse annuity mortgage (RAM) in particular. In so doing, we compare our findings to those from the U.S. as reported by Poterba, Venti, and Weiss (2011). The results indicate that, between the U.S. and Korea, the wealth compositions of the retirees are vastly different in several respects: first, the average share of real estate in Korea is far greater than that in the U.S., over 80 percent vs. 24.7; second, the share of the annuitized public and private pensions is far higher in the U.S. compared to Korea, 44.9 percent vs. 7.7 percent in Korea; third, the share of financial assets is roughly similar, that is, 12.6% in the U.S. and 10.3% in Korea; last but not least, the share of non-residence real estate rapidly rose rapidly between 2006 and 2012 in Korea, quite dramatically for certain consumer cohorts. Hence, the Korea case represents an extreme of ‘real estate-rich-cash-poor’ retirees, making it a fertile ground for trading the monetizing instruments such as RAM. Nonetheless, the market penetration by the product is still minimal, the subscription rate of 0.81 percent among all the eligible households as of 2015. To investigate empirically the reasons behind such low subscription rate, we perform a regression analysis on determinants of the propensity for entering the RAM contract; The results show that the bequest motive does reduce the propensity to subscribe the product, and that the two indicators of the consumer knowledge on the product do yield positive and statically significant results. Based on the findings, we stress the need for a heightened level of consumer education on the viewpoint of the protection financial consumers, for which the government, the lending and guaranteeing institutions, as well as academia should put a concerted effort so as to help elderlies make rational decisions.

Keywords: Household wealth composition, reverse annuity mortgage, bequest motive, and protection of financial consumer

I. Introduction

Population aging has been, and will continue to be, a global phenomenon. To illustrate, those people who are 65 years or older are projected to almost double in the next twenty years, from about 600 million in 2015

to over 1.1 billion in 2035, rising to 13 percent of the total world population by then.¹ Facing this demographic shift, it is fair to predict that how retirees (in a given country) can finance post-retirement consumption and how a society can ensure them a financially sound living will increasingly become an imperative public policy issue in many countries. As a relevant empirical evidence to this vein, Poterba, Venti and Weiss (2011) examined

¹ Hansung University

² Myoungji University

³ Social Security Information Service

^{4†} KDI School of Public Policy & Mgt., mancho@kdischool.ac.kr

¹ The figures are based on the UN Population Statistics, the 12th revised version published in 2013.

wealth compositions of those households in the U.S. who are at the starting points of retirement, and tracked their wealth drawdown patterns as the aging progresses by using a household panel data set. Among others, they report that, while those retirement-age households (i.e., those households being headed by 65~69 years old persons) tend to have a fairly significant portion of their wealth in the form of home equity, they tend NOT to monetize that in the early stage but rather to use that as a hedge against the longevity risk and a shock in medical expense in later stage of retirement.

This study replicates and extends Poterba et al. based on a similar household panel data set from Korea, first, by documenting the wealth composition and its drawdown patterns of the retirement-age households in Korea and, second, by examining policy options to safely monetize housing and other real estate assets held by them. One key attribute of the analyses done by Poterba et al. is to annuitize the pensions, both public and private: that is, they compute the expected present values of remaining pension payments for each household and include them as parts of household wealth. We follow the same practice by computing the discounted present values of the pensions by using the Korean Longitudinal Study of Aging (KLoSA) data covering from 2006 to 2012, and treat them as a wealth component along with several others (e.g., primary residence, non-residence real estate, financial asset, among others). In the Korean case, the retirement-age households are defined as those whose heads are in the 60~64 year old and 65~69 year old age cohorts; household types are categorized into several different groups - single-person households, married couples (two-person), and others; and, the wealth compositions in the beginning year as well as the transitions over the sample period (2006 to 2012) are examined. In addition, we assess the role of reverse annuity mortgage (RAM) as a welfare-enhancing monetizing mechanism for home equity; And, in so doing, we examine how effective the product has been in serving the retirement-age households and what consumer protection issues have emerged out of the Korean experience.

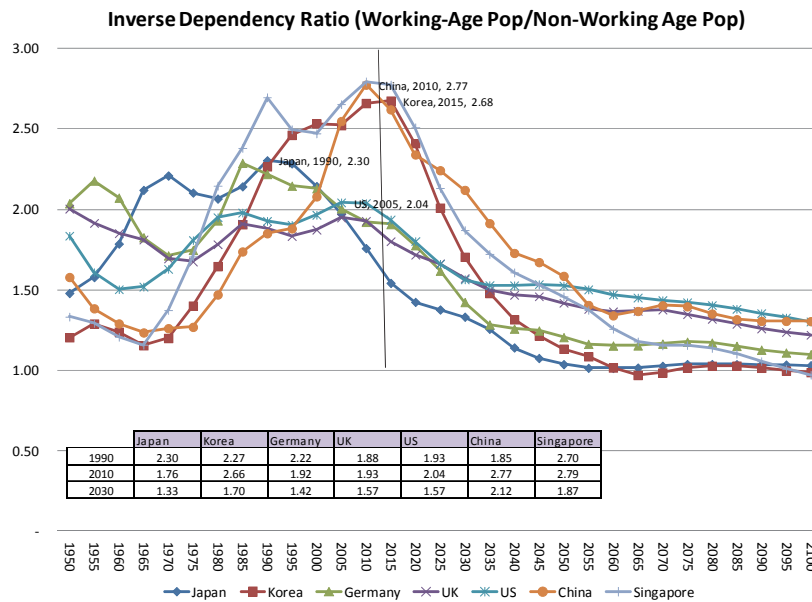
Our results indicate that, between the U.S. and Korea, the wealth compositions of the retirees are vastly different in several respects. First and foremost, the share of real estate in Korea is far greater than that in the U.S.: while housing and other real estate take 25.9 percent on the average in the U.S., as reported by Poterba et al., in Korea primary residence alone amounts to 45.5 percent

and non-residence real estate gets another 35.2 percent, making the average share of total real estate over 80 percent. This real estate centric wealth portfolio in Korea is not limited to specific asset strata but fairly uniform across all asset deciles examined. Second, the share of the annuitized public and private pensions is far higher in the U.S. compared to Korea: the total share of public and private pensions takes 44.9 percent in the U.S., while it makes only 7.7 percent in Korea. Third, the share of financial assets is roughly similar, that is, 12.6% in the U.S. and 10.3% in Korea. Last but not least, in the Korean case, the share of non-residence real estate rapidly rose between 2006 and 2012, e.g., the average annual compounded growth rate of 27.7 percent for married couples. The result indicates that investment behavior of the retirees in Korea has been tilting toward non-residence real estate (e.g., retail stores, rental properties to lease), possibly in search of income supplements from cash-flow-generating real assets.

In sum, the Korean case represents an extreme of 'real estate-rich-cash-poor' retirees, due in large part to the less well-developed pension system and the real estate centric investment behavior, making it a fertile ground for trading the monetizing instruments such as RAM. Besides the real estate concentric wealth composition, there is another pressing need to monetize real estate in Korea. That is, the traditional asset-based welfare system for retirees is rapidly changing in recent years. Like other East Asian countries,² Korea has relied on the intra-family support system, which works as: when parents work and earn labor income, they heavily invest in education of their children; after retirement, children (usually the eldest sons) support the parents by living together; and, after parents' passing, the house is inherited to the children who lived with them. However, the system is in a rapid transition, and an increasing number of retirees do not reside with their children and support themselves financially and socially. As it is a general belief, the apartment-based housing structure (the high-rise condominiums including small single-floor flats) is one of the reasons behind this transition.

Not surprisingly, the subscription of the RAM product in Korea is on a rise in recent years, from 515 in 2007

² This type of support system is also prevalent in Japan and China, although it is shifting in those countries as well (Yamada (2006), Yin (2010)).



Data source: UN Population Statistics, 12th Revision (2013)

Figure 1.

to 26,928 as of February 2016. Yet, its market penetration is still very low, 0.81 percent of all the eligible households as of 2015. To investigate empirically the reasons behind such low subscription rate, we perform a regression analysis on determinants of the propensity for entering the RAM contract based on the survey data compiled by the Korea Housing Finance Corporation (or HF). The results show that the bequest motive does reduce the propensity to subscribe the product, and that the two indicators of the consumer knowledge on the product do yield positive and statically significant results. Based on the findings, we stress the need for a heightened level of consumer education on the viewpoint of the protection financial consumers, for which the government, the lending and guaranteeing institutions, as well as academia should have a joint effort so as to help elderlies make rational decisions by weighing various relevant factors.

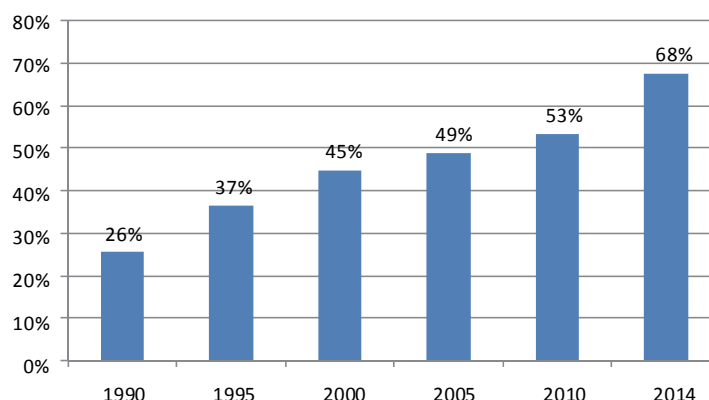
The rest of the paper consists of the four sections: description of relevant trends along with findings from prior studies (Section 2); data analyses (Section 3, including data description (Section 3.1), and findings and implications (Section 3.2); assessment of the RAM product in Korea as a monetizing mechanism (Section 4); and, concluding remarks (Section 5).

II. Trends and Prior Findings

Korea represents the country whose pace of population aging is projected to be unprecedented for the next two decades or so. One widely-used indicator to that end is the inverse dependency ratio (IDR), the ratio of working-age population (those whose ages are between 14–65 years old) to the non-working-age population (the rest of the age cohorts). For Korea, DIR peaked at 2.67 in 2015, and is predicted to rapidly declining to 1.4 in 2035 and to a little more than one in 2050, implying that one working-age person should support one non-working-age person by that time. This projected rate of decline in Korea is faster than what happened in DIR for Japan during the last twenty years, which is peaked at 2.3 in 1990 but lowered to 1.76 in 2010.

Given this on-going demographic shift, one can imagine that market penetration of RAM should be on the rise, which is not yet supported by data. For example, in the U.S., the RAM contracts as a share to the total eligible households (those with households heads' age being over 65 years old) increased in recent years but still take only 2.1 percent in 2011. (Nakajima and Telyukova (2014)) In Korea and Australia as well, the RAM contracts have

Table 1. Share of those who do not live with children (among people who are 65 or older)



Data source: The Korean census bureau (1990 to 2010);
The Survey of the Current State of Elderlies (for 2014)

been on the rise recently but the extent of its penetration is still fairly low; And the product does not have any meaningful spread in other Asian countries either, with Singapore and Japan being such examples.

In an analytical point of view, several embedded risks to RAM, to be exact how to measure and manage them by lender or guarantor, are quoted as a hurdle to expand its penetration. First, the crossover-risk is the primary risk that should be managed by lenders and guarantors, i.e., the risk of the liquidation value of collateral (or home) being lower than total principal and interest paid by the lender to the borrower. (Min and Cho (2009)) Second, related to the first risk, the housing price risk, which refers to the risk of assumed housing price growth rate during the loan life (hence, forward-looking price trend), is another one that should be dealt with in product design. In the Korean case, the assumed annual price growth rate was 3.3 percent as of the end of 2011, for which Lee et al. (2012) proposed to lower to 2.8 percent given the housing market conditions then. The third one, also related to the first risk, is the longevity risk, i.e., the risk of the mortality table being under-predict (over-predict) expected remaining lives (death rates) for older age cohorts. Related to this, Choi (2015) documents that the longevity risk is substantial in Korea, which tends to vary depending on different forecasting models applied. Finally, there are both moral hazard and adverse selection problems documented in the literature, i.e., the possibility that RAM borrowers do not properly maintain

the property and the effect of housing market conditions such that demand for RAM is adversely affected by a favorable housing price trend (i.e., the lower the projected price growth, the lower the RAM demand). (Davidoff (2014)) These risk factors should be adequately reflected in designing the details of RAM product in a given country, such as eligibility rules (e.g., minimum age), lending parameters (maximum collateral ratio), and risk premiums.

In the Korean case, two additional factors - bequest motivation and consumer understanding on the product – appear to be at work as underlying reasons for the low penetration. As shown in Table 1, according to the data from the Korean Census Bureau, the share of the seniors who do not live with their children among all those who are 65 years or older was more than doubled during the last twenty years or so, from 26 percent in 1990 to 53 percent in 2010. Although it is from a different data source, the figure for 2014 shows a dramatic surge to 68 percent. Nonetheless, the extent of market penetration of the RAM products in Korea is minimal, 0.81 percent among eligible senior households (i.e., those households who are 60 years or older and owner-occupied without extra housing unit).³ In Section 4, we hypothesize and empirically test effects of various underlying determinants to the consumer decision on RAM subscription in Korea, based on which we also discuss relevant consumer protection issues.

³ The figures are from the 2014 Survey of Housing Pension Demand, compiled by the Korea Housing Finance Corporation (or HF).

Table 2. Composition of Household Wealth in Korea (by household type as of 2012)

	Single person household		Married couples		Others	
Total	10,314.2	%	28,764.5	%	23,230.0	%
Annuitized pension	1,164.1	11.3	2,228.0	7.7	1,411.4	6.1
Financial asset	559.5	5.4	2,974.0	10.3	1,795.6	7.7
Real Estate asset	8,572.5	83.1	23,222.7	80.7	19,700.8	84.8
Current residence	6,952.3	67.4	13,085.0	45.5	12,366.8	53.2
Home-owned	6,368.8	61.7	12,145.8	42.2	11,330.1	48.8
Rental deposit	583.5	5.7	939.2	3.3	1,036.8	4.5
Other real estate asset	1,620.2	15.7	10,137.7	35.2	7,334.0	31.6
Other asset	18.1	0.2	339.8	1.2	322.1	1.4

*Unit: 10,000 Won

Table 3. Changes in Household Wealth in Korea, 2006 to 2012 (unit: 10,000 KRW)

	Single person household			Married couples			Others		
	2006	2012	Δ^*	2006	2012	Δ^*	2006	2012	Δ^*
Total	7,696.790	10,3014.20	4.9%	15,979.50	28,764.50	10.3%	14,005.30	23,230.00	8.8%
Annuitized pension	1,405.60	1,164.10	-3.0%	2,195.20	2,228.00	0.3%	1,658.90	1,411.40	-2.7%
Financial asset	474.8	559.5	2.7%	2,194.30	2,974.00	5.2%	1,964.20	1,795.60	-1.5%
Real Estate asset	5,880.50	8,572.50	6.4%	11,514.40	23,222.70	12.4%	10,299.80	19,700.80	11.4%
Current residence	4,588.50	6,952.30	7.1%	9,175.40	13,085.00	6.1%	8,375.40	12,366.80	6.7%
Home-owned	4,136.60	6,368.80	7.4%	8,478.50	12,145.80	6.2%	7,634.50	11,330.10	6.8%
Rental deposit	451.8	583.5	4.3%	696.9	939.2	5.1%	740.9	1,036.80	5.8%
Other real estate	1,292.00	1,620.20	3.8%	2,339.10	10,137.70	27.7%	1,924.30	7,334.00	25.0%
Other asset	-64.1	18.1	--	75.6	339.8	28.5%	92.5	322.1	23.1%

* Average annual compounded growth rate

III. Data Analyses

A. Data description

The data used for our analyses is the Korean Longitudinal Survey of Aging (KLoSA), a panel data for those aged 45 and over in Korea surveyed every even-numbered year starting from 2006 (until 2012). The number of sample each year is approximately 10,000 people. We categorize households into three groups - single-person households, married couples, and all others. The single-person households include unmarried persons as well as those who are married but separated, divorced, or widowed. The married couples consist of those who do not have, or do not live with, children. The last category includes those with three or more family members (e.g., married couple living with their children) or two or more non-married people living together.

From the data, the annuitized pension amount (for type τ) is computed as:

$$W_t^\tau = P_t^\tau + \frac{S_{t+1}^a \cdot P_t^\tau}{(1+r_t)^1} + \frac{S_{t+2}^a \cdot P_t^\tau}{(1+r_t)^2} + \dots + \frac{S_{t+k}^a \cdot P_t^\tau}{(1+r_t)^k} \quad (1)$$

$$S_{t+i}^a = (1 - D_{t+1}^a) \cdot (1 - D_{t+2}^a) \cdot \dots \cdot (1 - D_{t+i-1}^a) \cdot (1 - D_{t+i}^a) \quad (2)$$

W_t^τ : Annuitized pension amount at time t (2006 in our case)

P_t^τ : Annual pension amount (assumed to be constant over time)

S_{t+i}^a : Cumulative expected survival rate for age a projected for time $t+i$ at time t

D_{t+i}^a : Expected death rate for age a at time t in time $t+i$

r_t : Discount rate (the 91 days CD rate, or the

Table 4. Wealth Composition by Asset Decile as of 2012 (unit: 10,000 KRW)

Group	Category	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
All	Total	1,728-	1,164	3,724	6,645	9,713	13,803	18,948	26,656	41,540	102,553
	Pension	84	118	165	528	1,241	1,711	2,449	3,679	7,075	25,768
			(15.57)	(5.43)	(8.19)	(11.76)	(11.77)	(11.26)	(12.10)	(14.51)	(17.61)
	Financial	-7,032	-33	260	537	970	1,707	2,745	4,173	7,435	24,019
			(-4.37)	(8.59)	(8.33)	(9.20)	(11.74)	(12.63)	(13.73)	(15.25)	(16.42)
Single person household	Real Estate	-1,292	591	2,408	5,084	7,858	11,123	15,837	21,541	32,596	91,547
			(78.18)	(79.48)	(78.85)	(74.48)	(76.50)	(72.86)	(70.88)	(66.84)	(62.57)
	Others	-3,900	80	197	298	482	-	708	999	1,660	4,976
			(10.62)	(6.49)	(4.63)	(4.56)		(3.26)	(3.29)	(3.40)	(3.40)
	Total	-361	488	1,637	2,702	4,201	5,949	8,617	11,875	18,163	51,260
Married couples	Pension	73	102	119	146	793	1,330	1,938	2,831	4,078	15,913
			(32.84)	(10.23)	(5.37)	(18.74)	(16.91)	(19.20)	(17.86)	(15.82)	(20.78)
	Financial	-4,248	40	254	492	-	918	-	1,816	3,603	10,551
			(12.84)	(21.79)	(18.13)		(11.67)		(11.46)	(13.98)	(13.77)
	Real Estate	-114	90	594	1,777	2,954	5,068	7,444	10,203	16,437	45,150
			(28.90)	(51.08)	(65.50)	(69.86)	(64.43)	(73.76)	(64.38)	(63.76)	(58.95)
	Others	-4,560	79	197	298	482	550	710	999	1,660	4,981
			(25.42)	(16.91)	(11.00)	(11.39)	(6.99)	(7.03)	(6.31)	(6.44)	(6.50)
	Total	-1,747	4,695	8,377	11,510	15,463	19,904	25,773	34,556	50,860	119,142
	Pension	117	191	510	1,252	1,645	2,114	3,071	4,990	11,079	30,009
			(5.17)	(6.59)	(10.82)	(10.57)	(10.58)	(11.58)	(13.34)	(17.94)	(17.65)
	Financial	-6,898	107	416	880	1,408	2,089	3,346	5,103	8,892	28,363
			(2.91)	(5.38)	(7.60)	(9.05)	(10.45)	(12.62)	(13.64)	(14.40)	(16.68)
	Real Estate	-2,431	3,309	6,608	9,147	12,021	15,235	19,394	26,325	40,127	106,692
			(89.75)	(85.48)	(79.00)	(77.28)	(76.22)	(73.13)	(70.35)	(64.97)	(62.74)
	Others	-4,302	80	197	298	482	550	710	999	1,660	5,000
			(2.18)	(2.55)	(2.58)	(3.10)	(2.75)	(2.68)	(2.67)	(2.69)	(2.94)

*Unit: 10,000 Won

*Column per cent in the parenthesis

widely-used short rate in Korea) at time t
 $t+k$: Maximum age to live (100 years old)

We calculate $St+i^a$ and $Dt+i^a$ for each year for each household based on the Life Expectancy Table of Korea, and use the 91-days commercial deposit (CD) rate, the benchmarking rate for long-term commercial loans in Korea, plus a maturity risk premium.⁴

B. Findings and comparisons

The results show that the married couple has the largest net wealth. The average net wealth among the group is 287 million Korean won (about 260,000 USD). The net wealth of single person household is less than half of married couples, 103 million won (about 93,000 USD).

⁴ We use the current 91-days CD rate of 4.48%, and add 110 basis points by surveying the premia charged on long-term residential mortgage loans in Korea as of July 2016. The data source for the Life Expectancy Table is Statistics Korea and the interest rates is Bank of Korea.

The share of the annuitized pension is 6~12 percent of total net asset. Compared to the US, financial dependence on pension is much weaker, although the pension more significant contributes to single-person households' wealth.

As shown in Table 2, the share of real estate is over 80 percent for all three household types – 83.1 percent for single-person households, 80.7% for married couples, and 84.8 percent for others. In comparison, the share of housing and other real estate in US is reported to be 25.9 per cent (Poterba *et al.*, 2011: 97). In general, primary residence represents the largest portion, although other types (i.e., non-residence real estate) also take a fairly significant share. For example, for married couples, while primary residence is 42.2 percent, other real estate takes 35.2 percent of the total household wealth.

Table 3 shows changes in the wealth compositions by household type between 2006 and 2012. All three household types are shown to have an increase in net worth. However, the extent varies across the groups: as a compounded average annual growth rate, 4.9 percent (per annum) for single-person households, 10.3 percent

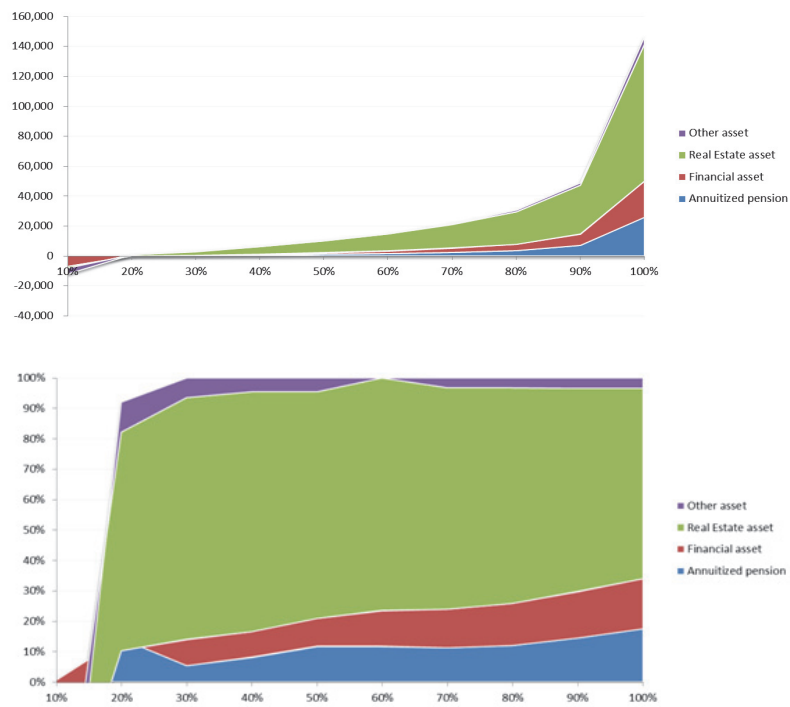


Figure 2. Asset composition by asset strata – All households (as of 2012)

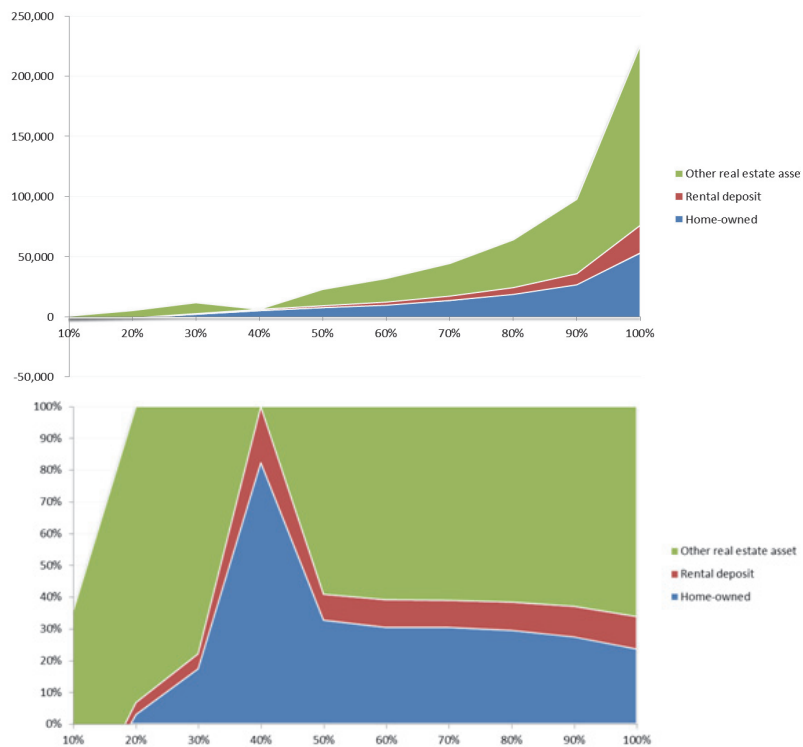


Figure 3. Composition of real estate asset by asset-strata as of 2012 – All households

for married couples, and 8.8 percent for others.

Among the asset classes, the annuitized pension increased only for married couples, while it declines for other household types. On the other hand, the share of real estate increased for all household types and for all sub-categories, often quite remarkably. In the case of primary residence, its share increased by 7.5 percent (per annum) for single-person households, 6.2 percent for married couples, and 6.8 percent for others. The share of non-residence real estate shows a more dramatic increase for certain cohorts: 3.8 percent for single-person households, 27.7 percent for married couples, and 24.9 percent for others. The results indicate that investment behavior of the retirees in Korea, married couples in particular, is tilting toward non-residence real estate (e.g., retail stores, rental properties to lease), possibly in search of income supplements from cashflow-generating real assets.

Table 4 shows our findings by asset strata, i.e., the deciles by asset level. Among others, the share of annuitized pension is shown to have a range of 5~18 percent in net worth, which is lower for low-asset groups but higher for high-asset ones. The result implies that the pension system in Korea would deepen the income and wealth inequalities among retirees. On the other hand, the share of real estate is lower for the high-asset groups, roughly 80 percent among low-asset groups but about 60 percent for high-asset households. This pattern is largely due to the increasing share of financial asset for the latter. Figure 2 visually present the asset compositions across the deciles, both by absolute amount and by percent.

Figure 3 shows the profile of real estate asset by the asset strata. The result demonstrate the pattern that, the higher the wealth level, the larger the amount (as well as the share) of non-residence real estate.⁵

Figure 4 shows the effect of major events in older life on the average home equity. In general, the average home equity increases between two adjacent years. However, if he or she experienced separation by divorce or death, then the average home equity dropped, an expected outcome of downsizing housing consumption due to the reduction in household size. The impact of separation events on home equity is also shown in the birth-year

cohort analyses performed (Figure 5-8).

As key implications of our analyses, the retirement households in Korea are shown to be real estate centric in their asset holding patterns, have very low shares of annuitized pensions – minimal compared to those observed in the U.S., and the share of real estate is even increasing in recent years with the non-residence real estate taking a quite dramatic rise for certain household types. Interestingly, this real-estate oriented profile is not limited to the specific asset-strata. We find this pattern across most asset deciles. The higher-asset decile has relatively larger portion of financial asset, so the share of real estate asset is slightly lower than other groups – which is still 63 per cent. Given these observations, the key policy direction to deal with the current pace of population aging in the country is to monetize (or liquidify) real estate held by retirement-age households in order to ensure a stable and adequate income supplement out of their asset bases.

IV. RAM in Korea: A viable policy option?

The history of RAM in Korea goes back to the mid-1990s when a couple of commercial banks introduced a purely private RAM product (i.e., no government support). That program, however, did not last long because it suffered the problem of very low subscription. The product re-emerged in 2007, this time with an explicit guarantee by the Korea Housing Finance Corporation (HF), the government-sponsored mortgage securitizer similar to GSEs in the U.S. The new product, referred to as “Housing Pension,” resembles HECM (Home Equity Conversion Mortgage) in the U.S. in that HF provides with a hedging against the cross-over risk, that is, the risk of the lenders’ payments of principle to borrowers along with the interest accrued exceeding liquidation value of property (or collateral) at contract expiration. Other details of the program include: it targets those homeowners who are 60 years or older (which was extended from 65 years old since 2009); the lenders charge up-front premium (about 1.5% of property value) and the guarantee fee (0.75% of unpaid principal balance for each monthly principal paid); as time goes by, the principal amount

⁵ In Korea, the rental deposit, the downpayment for the property leased by landlord, takes a fair share due to the peculiar rental system in the country, called as Chonse. That component also rises with the asset level, as shown in Figure 3.

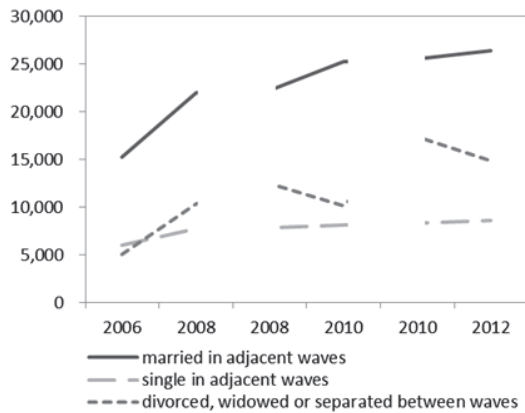


Figure 4. Change in average home equity - Older households

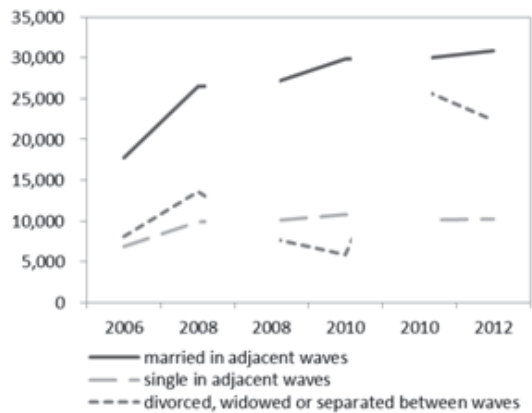


Figure 5. Birth-year cohort 50s in 2006

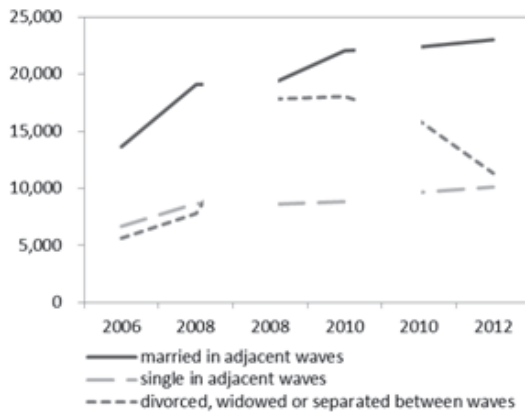


Figure 6. Birth-year cohort 60s in 2006

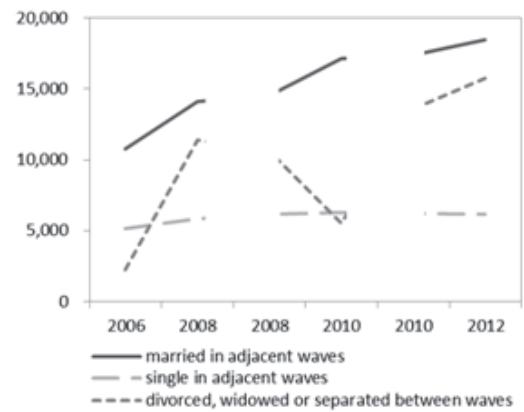


Figure 7. Birth-year cohort 70s in 2006

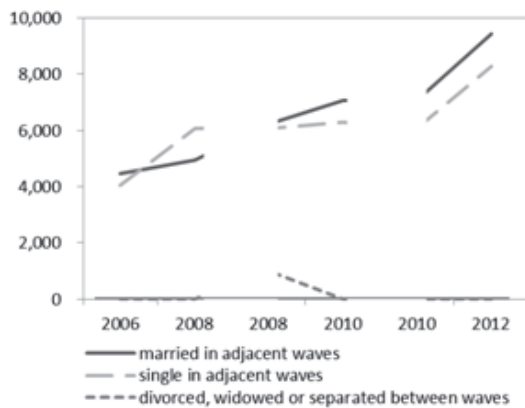


Figure 8. Birth-year cohort 80s in 2006

increases and net home equity owned by the borrower decreases; the loan expires when the borrower passes away or moves from the collateral (but, if spouse still lives in the property, then the payment continues until he/she dies); on expiration, HF reimburses the principal and interest (PI) to the lender and liquidates the collateral to recover the expense.

On the viewpoint of HF, it is a non-recourse lending in that, if the liquidation value exceeds PI, then HF pays the remainder to borrower or inheritor; but, if it falls short to PI, then HF does not claim the gap to the counterparty. In terms of payment method (to borrower), two types of the product are being traded – tenure type (annuity-like lifetime payments) and term type (payments until pre-defined maturity dates). Both types can set a

Table 5. RAM subscription rates in Korea (among eligible households*)

	2007	2009	2011	2013	2015
(A) > 60 years old	2,540,236	2,767,487	3,009,609	3,267,756	3,587,377
(B) > 65 years old	1,802,637	1,974,848	2,156,329	2,360,559	2,564,012
(C) New subscriptions	515	1,124	2,936	5,296	6,486
(D) Cumulative subscriptions	515	2,334	7,286	17,595	29,120
(D) / (B)	0.02%	0.08%	0.24%	0.54%	0.81%
(D) / (A)	0.03%	0.12%	0.34%	0.75%	1.14%

* Owner-occupying one-unit holders who are 60 or older (65 or older before 2009)

Data source: Statistics Korea's the Life Expectancy Table and HF's Housing Pension Statistics (of various years)

certain level of credit line, which reduces amount of monthly payment. Though the monthly payment is generally fixed, a variable payment arrangement is feasible (e.g., the payment being reduced by 30% after 10 years from issuance). Overall, the current RAM products in Korea are consumer-friendly.⁶

As mentioned earlier, the Korean case represents an extreme of the asset-rich-cash-poor condition among retirees with housing and other real estate taking over 80% of total household wealth, plus the culture of the asset-based welfare system for elderlies is also in a rapid transition. Although both conditions point to a deep market penetration by Housing Pensions, the subscription rate to the program is fairly low, 0.81 percent of all eligible people as of 2015 as shown Table 5. The question to pose is, why?

In the literature, so-called "annuity puzzle" is advanced as an explanation of the tendency not to annuitize the asset among retirees. In particular, bequest motive and uncertainty regarding future consumption level (e.g., unexpected increase in medical expense) are possible causes for lower the demand for converting illiquid assets to annuities.⁷ In addition, adverse selection, provision of social security, illiquidity of annuitized products are also quoted as the reasons for such low demand for RAM product. In recent years, behavioral economists extend their inquiries to psychological biases: that is, mental accounting, loss aversion, and money illusion all tend

to reduce demand for the monetization, inducing to keep the illiquid assets in household portfolios. For example, it is generally the case that they are reluctant to monetize their primary residence, partly because of transaction costs of moving (financial as well as psychological) as well as frequent moving if and when they rent. Nonetheless, it is imperative to unlock and monetize their real estate holdings to help stabilize their post-retirement income stream, which will also help lessen government burden to finance public pension programs.⁸

In the following, we empirically test the factors that explain the low subscription rates for the RAM products in Korea by using a household level survey data compiled by HF (the 2014 Survey of Housing Pension Demand). The survey targets those households who own one or more houses and are 60 or older. The number of sample is 3,000 households. We use the binary logic choice model to test the factors. The dependent variable is the revealed intention of joining the Housing Pension (=1 if yes, =0 if no). The independent variables included are: age of respondent (Age), motive to bequest all property (D_Bequest), motive to bequest of partial, or a part of, property (D_Partial Bequest), status of residence (D_Cores id =1 if reside with child, =0 if not), presence of spouse (D_Couple=1 if yes, =0 if no), residual income (Resid_Income = income - the minimum cost of living, with the unit of million KRW), level of education (Edu_H =1 if high school graduate, =0 if not) with middle school graduation as reference, another indicator of the level

⁶ The RAM product in Korea is not vulnerable to the issue of adverse selection given that any positive difference between selling price and PI is paid to borrower, which partially enables inheritance; With the credit line option, it also offers a hedge against uncertainty to future consumption level.

⁷ See Brown(2007) for the literature on the annuity puzzle. Hu and Scott (2007) and Brown (2007) elaborate the phenomenon on viewpoint of behavioral economics.

⁸ Yaari(1965), Bernheim(1987), Davidoff, and Brown and Diamond(2005) claim that, assuming no motive of inheritance, it is optimal for elderlies to convert asset holdings into pension, partially or entirely, to smooth the life-time consumption stream. They also examine alternative options of asset monetization: gradually converting asset holdings into cash vs. liquidating asset all at once to purchase pension program (the latter of which can remove longevity risk).

Table 6. Binary Logic Regression results for the RAM subscription decision in Korea

Variable	Model 1		Model 2	
	Coefficient	z-Statistic	Coefficient	z-Statistic
C	1.1624	1.5987	2.0066**	2.1531
Age	-0.0414***	-4.2669	-0.0209*	-1.9360
Edu_H	0.3276***	2.6936	0.2416**	1.9792
Edu_C	0.1798	0.9820	-0.1175	-0.5743
D_Couple	-0.1156	-0.8425	-0.1410	-1.0088
D_Coresid	-0.0265	-0.2262	-0.0069	-0.0575
Resid_Income	-0.0217	-1.0825	-0.0154	-0.7797
Multi_Own	0.6540***	3.6326	0.5564***	3.1288
Price_House	0.0074***	2.8764	0.0043	1.1830
Non_Resid Asset	-0.0052*	-1.9291	-0.0005	-0.1358
D_Bequest	-1.0900***	-9.1577	-3.8219***	-4.0505
D_Partial Bequest	-0.6069***	-4.1692	-3.6883*	-1.7352
D_Aware_Pension	0.4113**	2.4371	0.4024**	2.4008
D_Know_Pension	0.3107**	2.2588	0.3399**	2.4931
McFadden R-squared	0.0812		0.0626	
H-L Statistic	13.434 (Prob. 0.0978)		9.673 (Prob. 0.2888)	
Andrews Statistic	15.764 (Prob. 0.1066)		15.594 (Prob. 0.1119)	
Observation	3000		3000	

Note: *p <0.1, **p<0.05, ***p<0.01

C: Constant

Age: Age

Edu_H: If high school graduation=1, if not =0 (Standard: Middle School Graduation)

Edu_C: If college graduation=1, if not =0 (Standard: Middle School Graduation)

D_Couple: If reside with spouse=1, if not =0

D_Coresid: If reside with child=1, if not =0

Resid_Income : Income minus the minimum cost of living (unit : million won)

Multi own: If multi-home owner (more than 2 houses)=1, if not = 0

Price_House: Home owner's evaluation price (unit: 10 million won)

Non_Resid Asset: Amount of total asset minus house price (unit: 10 million won)

D_Bequest: If bequest of all property = 1, if not = 0

D_Partial Bequest: If bequest of partial property =1 , if not = 0

D_Aware_Pension: If people heard about housing pension =1, if not =0

D_Know_Pension: Among those who heard about the housing pension, if they have great knowledge about housing pension=1, if not =0

of education (Edu_C =1 if college graduation, =0 if not), those who own more than two housing units (Multi_Own= 1 if own more than two, =0 if not), awareness of Housing Pension (D_Aware_Pension=1 if heard about housing pension, =0 if not), level of knowledge about Housing Pension among those who heard about the housing pension (D_Know_Pension=1 if have great knowledge about housing pension, =0 if not, which is interacted with D_Aware_Pension=1), home owner's valuation of current residence (Price_House, with the unit of 10 million KRW), and non-residence asset(Non_Resid Asset=amount of total asset - valuation of current residence).

The results are reported in Table 6, in which two model outcomes are shown - the realized values for D_Bequest

and D_Partial Bequest (Model 1) and the predicted values for the same variables based on a set of instruments (Model 2).⁹ We carries out two goodness-of-fit tests: Hosmer-Lemeshow(H-L) test and Andrews test. The test results show that we can't reject both models at 5% significant level as providing sufficient fits.

As main findings, it is shown that the bequest motive

⁹ We are currently investigating determinants of two type of the bequest motive - selfish one (i.e., bequest in return for joint-residence) vs. altruistic one (doing so purely for welfare of decedent), and are testing various model specifications for D_Bequest and D_Partial Bequest. For Model 2, we picked the best specification for the variable, although it is difficult to find a set of variables that retain the diagonality with those included in Table 6.

does reduce the propensity to subscribe Housing Pension, and that the two indicators of the consumer knowledge levels do yield positive and significant results. The results are also robust between the two models. Residing with descendant or with spouse, residual income, and education level show no statistically meaningful effects. Owning multiple housing units does increase the subscription propensity, which is robust between Model 1 and Model 2. Home-owner's assessed price impacts positively, and amount of non-residence asset influences negatively the subscription propensity. Their effects are significant in Model 1, but become insignificant in Model 2.

Though preliminary, our results do indicate that both bequest motive and level of consumer understanding impact the propensity to subscribe Housing Pension in Korea. In fact, the recent survey conducted by HF documents that 78.1 percent of the respondents select reduction of asset to inherit as the primary problem with RAM, while another 64.3 percent pick the constant monthly payments even when property values appreciate (multiple selections of the answer allowed).¹⁰ In terms of the understanding on the product features, the survey reveals that a negative perception on net gain or loss with the subscription is another main reason (64.1% named "payment being lower than expected" and 50.4% pick "total payments received likely being less than property value"). The claims are generally unfounded in that the product is publicly-guaranteed by HF and its payments are set favorably for consumers on the viewpoint of social security for retirees. Yet the survey results show that the consumers do not tend to understand the complex nature of the product: among those who do not subscribe, only 17.5% properly understood the product feature, while 79.5% heard about the product.

Given that the choice between preserving home equity for future unexpected expenses vs. monetizing through RAM is a difficult one due to the complexity inherent to the product, there should be extended consumer education on the products in the viewpoint of the protection financial consumers. The main push to that end should be to help elderlies make rational decisions by weighing various relevant factors (for present as well as for future) rather than resorting to money illusion or other

irrationalities. That seems to be a compelling and urgent initiative that the government, the lending and guaranteeing institutions, as well as academia should have a joint effort to smooth the severe income shocks anticipated along the pace of aging in the country by monetizing home equity and other real estate assets.

V. Cluding Remarks

This study examines the wealth composition and its drawdown patterns of the retirement-age households in Korea, and also puts an assessment on the RAM product in Korea in terms of its capability to monetize real estate assets held by retirees in the country. To emphasize the key

findings, our results show that: first, the average share of real estate in Korea is far greater than that in the U.S., over 80 percent vs. 24.7; second, the share of the annuitized public and private pensions is far higher in the U.S. compared to Korea, 44.9 percent vs. 7.7 percent in Korea; and, the share of non-residence real estate rapidly rose between 2006 and 2012 in Korea, quite dramatically for certain consumer cohorts.

As a remedy, we discuss the RAM product in Korea, whose market penetration is still very low. To investigate empirically the reasons behind such low subscription rate, we perform a regression analysis on determinants of the propensity for entering the RAM contract; The results show that the bequest motive does reduce the propensity to subscribe the product, and that the two indicators of the consumer knowledge on the product do yield positive and statically significant results. The main implication is that, while the traditional asset-based welfare system for elderlies is in a rapid transition, retirees in Korea are still inclined to put their homes to their children. In addition, it appears that consumer education of various sorts on the RAM products should be heightened. As a last point, how to monetize non-residence real estate, which takes another fairly large portion in household wealth in Korea, should also be the topic that warrants careful investigation in research community as well as in policy circle.

¹⁰ As an interesting psychological factor, 38% of the respondents are concerned about children's feeling, 14.3% about his/her own reputation, and 9.3% for children's reputation.

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Appendix



Figure 1. Net asset by category among married couples, 2006 and 2012

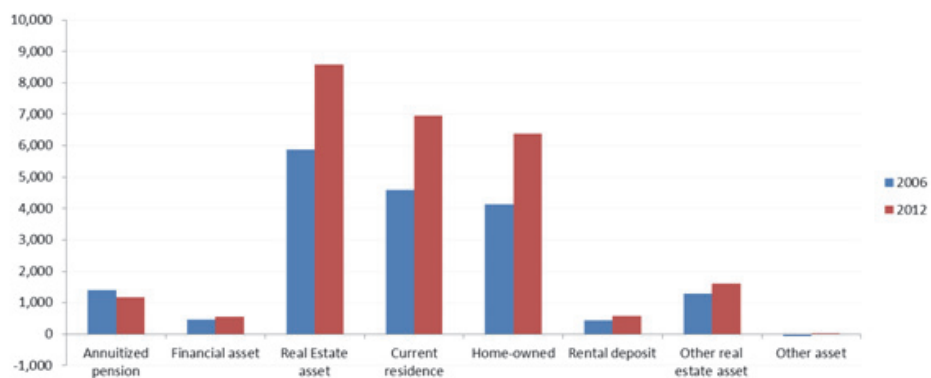


Figure 2. Net asset by category among single person households, 2006 and 2012

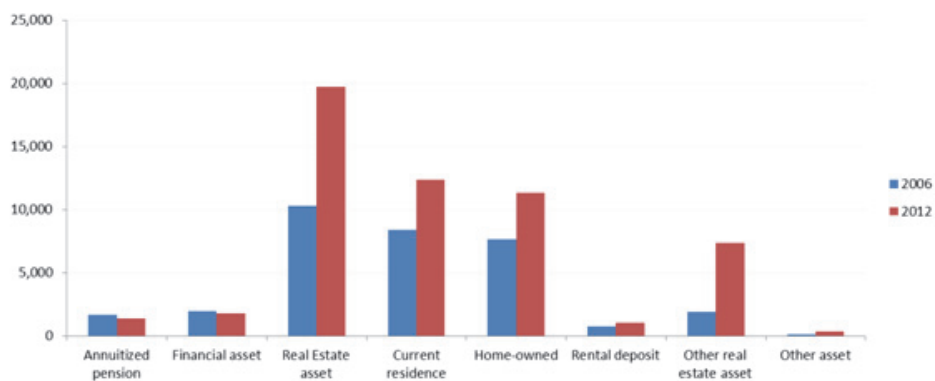


Figure 3. Net asset by category among others, 2006 and 2012

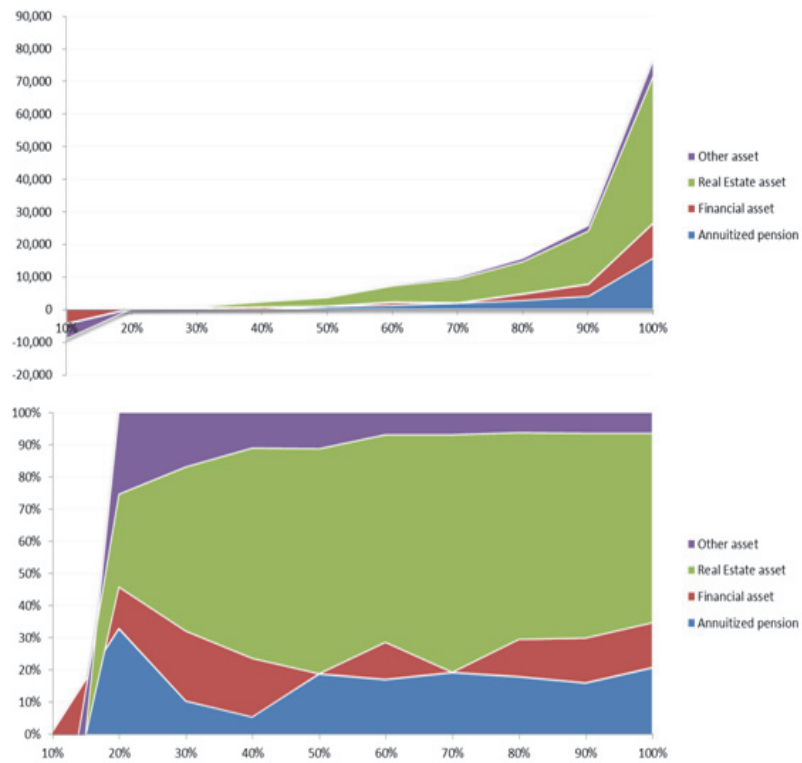


Figure 4. Asset composition by asset strata as of 2012 – Single person households

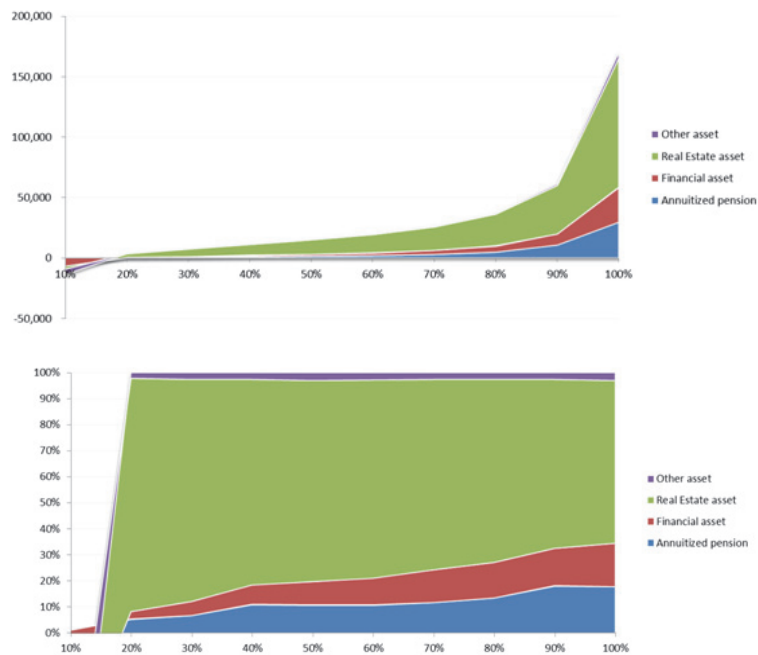


Figure 5. Asset composition by asset strata as of 2012 – Married couples

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Investigation of Variation between Risk Attitude and Investment Biases

Chen, Cherie H.^{1†} and Morrison Handley-Schachler²

ABSTRACT

There is a palpable link between financial investment decision making and investors' behaviour. Research into investors' behaviour may prove useful in increasing our understanding of the extremely complex financial marketplace. In many cases, investors are unaware of their predisposition for error. And more often, an irrational investor is a dissatisfied investor, because biases usually undermine financial goals. By adopting an experimental approach, the researchers try to correlate established investor biases with the psychographic profiles of investors, to see whether specific risk personality profiles correlate with susceptibility to four biases: herding, endowment, loss aversion and framing.

Many studies have focused on exploring the demographics of investment behavioural flaws, but very little attention has been paid to the risk attitude of investors and their actual investment behaviour. The findings of this study bridge two aspects of literature, being attitude to financial risk and behavioural investment biases.

Keywords: Behavioural finance, Risk tolerance score, investment biases, framing, loss aversion, herding, endowment

1. Introduction

There is now a large body of evidence acquired as a result of individual decision making experiments showing 'anomalies' – that is, departures from precepts of economists' predictions - which appear to be substantial, systematic and easily replicable (see e.g. Camerer, 1995 and Starmer, 2000). Behavioural finance is a science that strives to explain and improve insight into the overall judgment processes of investors. This includes cognitive biases and affective (emotional) aspects of the decision making process of both novice and expert investors. As noted by Baker and Nofsinger (2002), cognitive and emo-

tional weaknesses affect all. Shefrin (2000) notes that investors are prone to committing specific errors of which some are minor and others are grave. By allowing psychological bias and emotion to affect their investment decisions, investors can do serious harm to their wealth.

This work aims to explain four biases on the basis of investors' risk profile and so concentrates on those biases that could be more directly linked to risk profile: framing, loss aversion, herding and endowment. After identifying the risk profile of the subjects, the objective is to analyse whether this profile is responsible for investors' biased behaviour. By adopting an experimental approach, the researchers try to correlate established investor biases with the psychographic profiles of specific investors, to see if specific personality profiles correlate with susceptibility to four of the biases - herding, endowment, loss aversion and framing - which are identified in behavioural finance literature. The research questions in this

^{1†} Cass Business School
cherie.chen.1@city.ac.uk

² Teesside University Business School

study are outlined as follows:

- Question 1** - To investigate whether framing, loss aversion, herding and endowment biases exist among the subjects groups in the experimental setting.
- Question 2** - To establish whether risk tolerance score is a determinant factor in investment decision-making.
- Question 3** - To establish whether there is a link between risk tolerance score and the effects of framing, loss aversion, herding and endowment biases.

The outline of this paper is organised as follows: Section 2 explains the theoretical motivation of the research study, Section 3 presents the methodology and procedure flow to be employed, Section 4 reports the results and discusses the findings and Section 5 draws conclusions from the research, outlines the limitations and sketches possible extensions for further study.

II. The Theoretical Motivation of the Research Study

A. Cognitive limitation on decision making

To fully appreciate the behaviourists' theoretical propositions, we need to first understand the nature of a decision-making process under the homo economicus assumption, whose foundations are based on the principle of conditional probabilities as was mathematically established in 1763 by the mathematician Thomas Bayes. Bayes' rule represents a fundamental principle of rational decision making. Bayesian theory argues that the probability of an event can be viewed as the degree of belief of an "ideal" person. Bayes' theorem provides the probabilistic framework within which rational investment decisions should be made on the basis of all relevant, available information. It gives a highly structured procedure for rational decision making, which was also adopted in the case of homo economicus and the pursuit of its rational self-interest objectives, and this is exactly the point from which the behaviourists' main arguments are derived.

Behavioural Finance argues that people often fail to respond rationally to new information as they completely fail to follow the above idealistic mathematical framework. This is caused by the inability of humans to differentiate information that requires probabilistic judgement from that which requires value judgement. Despite the fact that the above statement derives from psychology, it can be considered central to the principles of behavioural finance.

B. Psychological heuristics

Ricciardi (2004) noted that people utilise specific mental mechanisms for processing and problem solving regarding decision making, known as cognitive processes. Cognitive processes are the mental skills that permit individuals to comprehend and recognise the things around them. This is taken a step further in the case of cognitive factors and mental errors committed by investors, which includes factors known as cognitive bias or mental mistakes (errors) as reported by Ricciardi and Simon (2000); Ricciardi and Simon (October, 2000), and Ricciardi (2003).

Camerer (1997, p. 179) summarises anomalies in decisions and errors in judgments and calls this the "exploration of procedural (bounded) rationality of individuals." Todd and Gigerenzer (2003) commented that this view has spread from psychology into economics and law, shaping new research areas such as behavioural economics (e.g., Camerer, 1995) and law and economics (e.g., Jolls, et al., 1998). Conlisk (1996, p. 672) outlines the strong connection between this vision of bounded rationality and economic thinking by saying "the bias evidence suggests that people are capable of a wide variety of substantial and systematic reasoning errors relevant to economic decisions." The evidence in question has led to a list of well-known cognitive biases such as base rate neglect, overconfidence bias and the sunk-cost effect (Kahneman, et al., 1982).

Heuristics, or rules of thumb, seem to be very common in all types of situations and can be thought of as a cognitive tool for reducing the time of the decision making (judgment) process for both novice investors and expert investment professionals, as noted in Ricciardi and Simon (2001). In essence, heuristics are mental shortcuts or strategies derived from our past experience that get us where

we need to go quickly, but at the risk of potentially sending us in the wrong direction (Ricciardi and Simon, 2001, p. 19) or introducing biases that lead to over- or under-shooting.

C. Extension of risk tolerance

Scholars have long been interested in the factors that influence individuals' decision making behaviour in risky contexts (e.g. Hogarth, 1987 and Kahneman and Tversky, 1979), which is referred to as risk behaviour. Risk behaviour may be characterised by the degree of risk associated with the decisions made. As noted by Dohmen, et al. (2009), risk and uncertainty play a role in almost every important economic decision. Therefore, the continued study of individual attitudes towards risk will help us to understand and predict economic behaviour. Progress has been made on growing literature to develop empirical measures of individual risk attitudes, with the aim of capturing this important component of individual heterogeneity (see e.g., Bruhin, et al., 2007). Irwin (1993:11) defined financial risk tolerance as the willingness to engage in "behaviours in which the outcomes remain uncertain with the possibility of an identifiable negative outcome".

Yip (2000:2) observed that financial risk tolerance has attracted the attention of researchers in various disciplines including behavioural economists (e.g. Roszkowski and Snelbecker, 1990); consumer research (e.g. Grable and Joo, 1999); cognitive psychologists (e.g. Holtgrave and Weber, 1993; Kahneman and Tversky, 1984 and Liverant and Scodel, 1960); social psychologists (e.g. Carducci and Wong, 1998; Wong and Carducci, 1991 and Zuckerman, 1983); and financial analysts and financial planners (e.g. Riley and Chow, 1992 and Quattlebaum, 1988). The prediction of a positive relationship between a person's financial risk tolerance and risk-taking behaviour is well established in the literature.

It is important to note that risk tolerance is a complex attitude and, like any attitude, it has multiple levels of interpretation. A measure of risk tolerance is an attitudinal instrument that reveals the client's perception of the trade-off between risk and the compensation required for bearing risk (see Blume and Friend, 1978 and Harlow and Brown, 1990). Prior studies in the form of risk tolerance questionnaires have provided some evidence that risk tolerance scores reflect the actual investment behaviour

of individuals (Grable and Schumm, 2007). However, there are very few studies that have established behavioural validity of risk tolerance in relation to behavioural finance, which would provide a new perspective and meaningful implications to both of the questions under study.

III. Experimental Design and Procedural Flow

A. Response options

Of the 19 scenario questions, seven used a dichotomous option, eight provided subjects with a multiple choice selection and four required open-ended answers. Thus, 15 (79%) of the scenario questions provided subjects with limited, closed- ended response options. These closed ended responses are appropriate to acquire the decision making results and allow the researcher to collect data without requiring overwhelming effort from subjects and exceptional demand upon subjects' time committed to the experiments.

B. Familiarity and relevancy of the scenarios

Freeman and Giebink (1979) found significant differences in their subjects' responses to a variety of non-business scenarios depending upon the subject's familiarity with the issue presented. In this sense, when developing the context of the scenarios, the main concern was to design scenarios which are familiar and relevant to the student population, in the hope of eliciting a more realistic response from participating subjects. Furthermore, there were multiple scenarios to measure one bias to enhance the creditability on the variety of testable factor; and to avoid order effect, changing the order of the information presented in the scenario.

C. Source of scenarios

As discussed in Weber (1992:153), it is important to avoid the "reinventing the wheel" syndrome. Although scenario-based research in the business ethics field began

in 1961 with Baumhart's study of managers' values and ethics, much of the work has been published since 1985. While this indicates that the field is relatively young, researchers should begin to build upon and extend previous work, as shown by Arlow and Ulrich's (1980) and Stevens' (1984) use of Clark's (1966) set of scenarios. Various sets of scenarios have been developed with promising relevancy; focus and flexibility (see Dubinsky and Ingram, 1984; Fritzsche and Becker, 1983, 1984 and Weber, 1990). Since the questions aim to measure behaviour biases through decision making, it is essential to allow the participants to individually act according to their own dispositions; therefore, it is appropriate to construct the questions in the form of relatively simple, well-specified money payoffs which conform to the way of prior studies configured.

D. Data processing and analysis – statistical measures

The first part of the experiment comprised scenario based questions to test biases. Independent ttests of significance were used to measure framing, loss aversion and herding to calculate the contrast between the paired scenarios by using paired t-test statistics. Chisquare tests were used to test the associations between variables and the Chi- square analysis procedure was implemented to

determine if there was a significant relationship between the four biases. A repeated measure analysis of variance - ANOVA - was utilised to test the lottery choice for loss aversion, to assess the respondent's consistency across the seven responses to the scenarios. Pearson correlations were used to test endowment. For the second part of the experiment – the risk tolerance questionnaire – frequency reports were used to analyse the demographical characteristics of the subject population.

The appropriate use of Frequency report, Pearson correlation, analysis of variance, paired t-tests or Chi square analysis depends upon the research design and data collected. Although sophisticated statistical analysis should not be used inappropriately or unnecessarily, there are instances in previous scenario research where additional data analysis could have been used to increase the power of the research findings. Researchers should be cautioned against using sophisticated statistical analysis for its own sake, avoiding a "statistic technique" race in competition with other researchers (Weber, 1992:152).

The result of the data analysis is discussed in the subsequent section.

IV. Summary of Main Findings

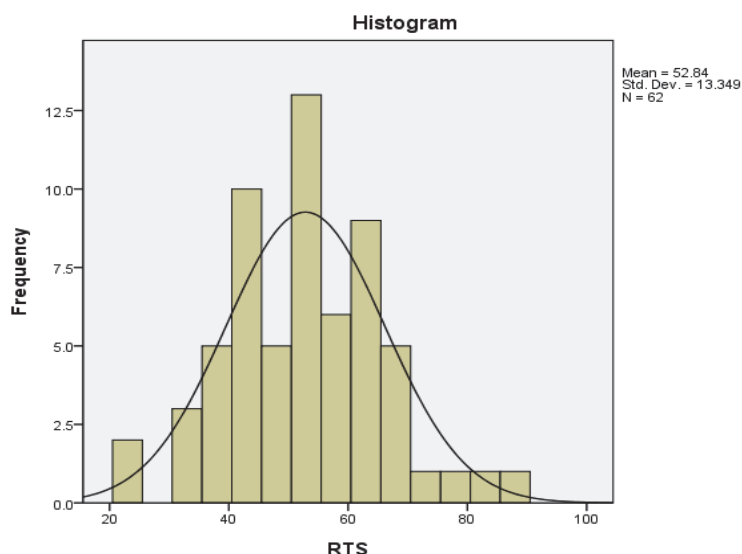


Figure 1. Histogram of risk tolerance score distribution of sample population

Table 1. Descriptive analysis of risk tolerance scores

Descriptive Statistics												
	N	Range	Minimum	Maximum	Mean	Std. Error	Variance	Skewness	Kurtosis			
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
RTS	62	64	23	87	52.84	1.695	13.349	178.203	.126	.304	.126	.599
Valid N (listwise)	62											

Table 2. Normality test of risk tolerance score on sample population

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
RTS	.053	62	.200 [*]	.991	62	.927

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

A. Normal Distribution Test on Sample Population in Risk Tolerance Scores

In order to determine which statistical tool is more appropriate for data analysis, the researchers firstly test the assumption of normal distribution of the risk tolerance scores. On examining the distribution of risk tolerance scores visually at Figure 1. It can be seen that the histogram is nicely symmetrical in a bell-shaped curve. Note that the data points mostly fall very close to the diagonal line. To quantify the shape of the normality with numbers, a further examination of the characteristics of data is described in Table 1, where measure of central tendency, mean = 52.84, median = 53.50, measure of variability, range = 64, standard deviation = 13.349, variance =

178.203, measure of shape, kurtosis (pointyness) is 0.126 skewness (symmetry) is 0.126, both are positive and not far from 0. Another check is to run a K-S test to compare the risk scores in the sample to a normally distributed set of scores with the same means and standard deviation. The result of the K-S test is shown in Table 2, in which P value >0.05, indicating that the distribution of the sample is not significantly different from a normal distribution. All the tests confirm the normal distribution assumption on the risk tolerance scores. Moving forward, it is appropriate to take a parametric test to run statistical analysis. An independent test, Pearson correlation, one way ANOVA and Chi square were adopted to perform the statistical analysis on various biases. A detail analysis of data and results will be outlined in the next section.

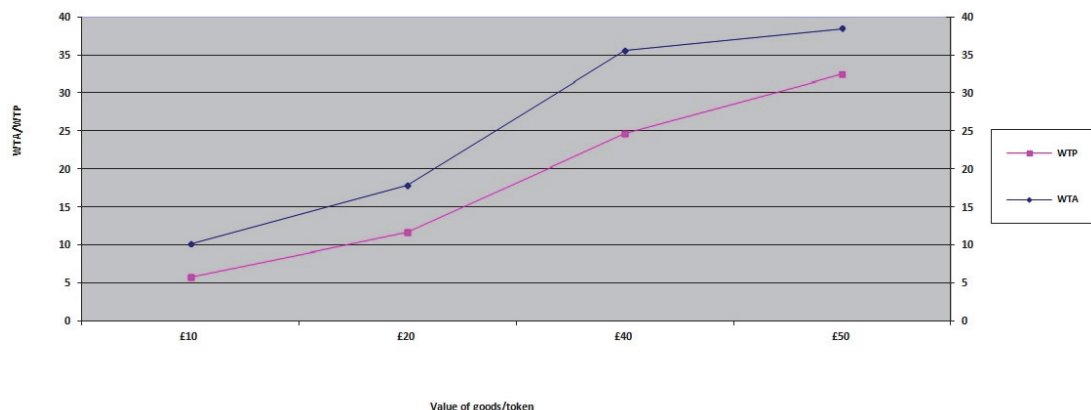
**Figure 2.** Disparities between WTA and WTP

Table 3. WTA/WTP Ratio

		£10 Amazon voucher	£20 Cineworld gift card	£40 John Lewis voucher	£50 Used textbook
Group A	Mean RTS	Mean WTA	Mean WTA	Mean WTA	Mean WTA
	52.03	10.15	17.783	35.57	38.47
Group B	Mean RTS	Mean WTP	Mean WTP	Mean WTP	Mean WTP
	53.5938	5.734	11.63	24.63	32.44
Difference	-1.5638	4.416	6.153	10.94	6.03
WTA/WTP Ratio		1.770143	1.529063	1.444174	1.185882

Remarks: Group A represents sellers, Group B represents buyers

Each of the biases represented in the data was tested for significance against mean risk between different groups, so as to provide results of various statistical analyses between each of the biases measured and risk tolerance scores. The objective is to investigate the proposition that investment biases individually may be linked significantly with risk tolerance score. At the end, the researcher also tested to establish a link (if any) among various biases in this study.

B. Endowment

Subjects were randomly assigned to two different groups; one group (hereby named Group A) represented sellers while the other group (hereby named Group B) were buyers. The researchers firstly examined the mean risk scores of these two groups, to ensure a similar distribution pattern between the two groups in terms of risk tolerance scores. Given a random distribution of the two groups and a similar pattern of distribution of risk tolerance scores after examination, this excluded the possibility of pre-existing mystifications before further analysis.

Preliminary analysis of the data sought to identify any significant statistical relationship between WTA (Willing to Accept) and WTP (Willing to Pay). The experiment had four treatments, which observed the behaviour of subjects involving various amounts of money and within different contexts. The disparity between WTA and WTP indicated a persistent phenomenon throughout the experimental sessions (see Figure 2). However, the strength of the effect was less than in the prior study and also slightly differed between treatments (see Table 3).

This study explores the linkage between risk tolerance score and endowment effect, the key finding being that risk tolerance scores and endowment are positively related.

The evidence is presented from two aspects. In the WTA groups, the correlation between the WTA and RTS throughout the four treatments was all positive, and the significant values were less than 0.05. The two-tailed t-test significance level and Pearson Correlation for WTA are as illustrated in Table 4. However in the WTP group, the correlation between the WTP and RTS was negative throughout the 4 treatments and the significant values were all less than 0.05 also. The two-tailed t-test significance level and Pearson Correlation for WTP are as illustrated in Table 5.

Kahneman et al. (1990) reported that several factors probably contribute to the discrepancies between the evaluations of buyers and sellers. The perceived illegitimacy of the transaction may, for example, contribute to the extraordinarily high demand for personal compensation for agreeing to the loss of a public good (e.g., Rowe, et al., 1980). Standard bargaining habits may also contribute to a discrepancy between the stated prices of buyers and sellers. Sellers are often rewarded for overstating their true value, and buyers for understating theirs (Knez, et al., 1985). By force of habit they may misrepresent their true valuations even when such misrepresentation confers no advantage, as in answering hypothetical questions or one-shot or single transactions. In such situations the buying-selling discrepancy is simply a strategic mistake, which experienced traders will learn to avoid (Brookshire and Coursey, 1987).

Actually many discrepancies between WTA and WTP are not mistakes but rather reflect the genuine effect of reference positions on preferences. Thaler (1980) labeled the increased value of a good to an individual when the good becomes part of the individual's endowment – the "endowment effect." This effect is a manifestation of "loss aversion", the generalisation that losses are weighted substantially more than objectively commensurate gains

Table 4. Correlation between RTS and WTA

		Correlations				
		RTS_A	Q16_A	Q17_A	Q18_A	Q19_A
RTS_A	Pearson Correlation	1				
	Sig.(2-tailed)		.016	.048	.043	.041
	N	30	30	30	30	30
Q16_A	Pearson Correlation		1			
	Sig.(2-tailed)	.016		.000	.000	.020
	N	30	30	30	30	30
Q17_A	Pearson Correlation			1		
	Sig.(2-tailed)	.048	.000		.000	.000
	N	30	30	30	30	30
Q18_A	Pearson Correlation				1	
	Sig.(2-tailed)	.043	.000	.000		.000
	N	30	30	30	30	30
Q19_A	Pearson Correlation					1
	Sig.(2-tailed)	.041	.020	.000	.000	
	N	30	30	30	30	30

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

in the evaluation of prospects and trades (Kahneman and Tversky, 1979). An implication of this asymmetry is that if a good is evaluated as a loss when it is given up and as a gain when it is acquired, loss aversion will, on average, induce a higher dollar value for owners than for potential buyers, reducing the set of mutually acceptable trades. There are some cases in which no endowment effect would be expected, such as when goods are purchased for resale rather than for utilisation.

As in most previous experiments using inexpensive market goods, WTA was roughly twice WTP. The most commonly indicated reason for the disparity is that subjects base WTP on what the good is worth to them personally and WTA on what the good is worth in a sale situation. That is, in deciding on WTA, most subjects referred to what the good would be worth to others and often appeared to rely on store price as a starting point.

A possible explanation for these results is that the endowment effect relies on the idea that selling creates a loss whereas buying creates a gain, which focuses on the good rather on the net result of the transaction. The subjects who have a higher risk tolerance score tend to ask for higher acceptance prices and tender lower bidding prices, which could be a reflection of the fact that an individual with a higher risk tolerance score would avoid

selling too cheaply and paying too much to result in a less favourable scenario. By raising WTA and lowering WTP, the inevitable risk is that they might not be able to sell or buy the goods at their desirable level or price range. However, they prefer to take the risk of not being able to close the deal to ensure they get a good deal at the end. In this sense, the willingness to take more risk in order to secure a good deal is the nature of less risk aversion.

As pointed out by Kahneman et al. (1990), the search for profit is a central aspect of many real world transactions. Because many of the goods for which evaluations are required do not have well-defined prices, but instead are characterised by a range of possible values, it is likely that buyers will look to the lower end of this range and that sellers will look to the higher end. This behaviour is both rational and predictable; it is the essence of getting a good deal, as long as expectations do not exceed what the market will bear. This behaviour will result in a difference in WTP and WTA evaluations of the worth of a good. The disparity will be larger to the extent that both external data (about what others may be willing to sell a good for or to pay for it) and internal data (about one's own values) show a larger possible range. Market experience should tend to lower a disparity induced solely

Table 5. Correlation between RTS and WTP

		Correlations				
		RTS_A	Q16_A	Q17_A	Q18_A	Q19_A
RTS_A	Pearson Correlation	1				
	Sig.(2-tailed)		.015	.001	.034	.036
	N	32	32	32	32	32
Q16_A	Pearson Correlation		1			.280
	Sig.(2-tailed)	.015		.000	.000	.120
	N	32	32	32	32	32
Q17_A	Pearson Correlation			1		
	Sig.(2-tailed)	.001	.000		.000	.031
	N	32	32	32	32	32
Q18_A	Pearson Correlation				1	.327
	Sig.(2-tailed)	.034	.000	.000		.068
	N	32	32	32	32	32
Q19_A	Pearson Correlation		.280		.327	1
	Sig.(2-tailed)	.036	.120	.031	.068	
	N	32	32	32	32	32

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

by the profit motive (Brown, 1999). To pursue profit is at the heart of every investor when making financial decisions; however, people with a higher tolerance score might tend to be more aggressive in profit searching than those with lower scores and this would help to decipher the positive relationship between endowment and risk tolerance attitudes.

From this perspective, the finding is coherent with the intuitive appeal observation. The study of Brown (2003) suggested that if loss aversion is separated from the good per se and instead refers to the net result of the transaction, loss aversion may certainly play a role in the disparity. The endowment effect argues for a change in preference upon a change in endowment, leading to a change in value for the good, but loss aversion - the notion that losses are weighted more than objectively commensurate gains - does not require a change in preference for the good once it becomes part of an individual's endowment. If the loss is of asset value, rather than of the good per se, no change in preference is needed for loss aversion to cause or enhance a disparity.

This finding confirmed all the three research questions and revealed the linkage between risk tolerance score and endowment effect. The key finding is that risk tolerance scores and endowment are positively related.

C. Framing

This experimental procedure is similar to the way framing effects were originally studied by Tversky and Kahneman (1981). The subjects were presented with scenarios in which a hypothetical decision problem was framed in terms of "gains" or "losses." However, different from some of the earlier studies, the researchers intentionally designed questions where the expected values of the two option choices are identical in each question. Subjects were asked to choose between (1) sure gain and probable gain; and (2) sure loss and probable loss so that the behavioural patterns surrounding gain and loss scenarios could be observed.

The subjects were asked to choose from the two questions independently: the first question was framed within a gain scenario and the second question was framed within a loss scenario. There were 41 (66%) subjects with a mean risk of 48.9 out of 62 who chose sure gain and 21 (34%) subjects with a mean risk of 60.52 who chose probable gain in the gain scenario question. The result suggested risk averse, which is a common pattern as, when choices involving gains are involved, people are usually risk averse. The standard deviations were 12.932 and 10.736 as shown in Table 6 and the significant level between these two

Table 6. Descriptive analysis for gain framed question

Group Statistics					
Q1		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	41	48.90	12.932	2.020
	2	21	60.52	10.736	2.343

Remarks : 1 represents sure gain, 2 represents probable gain

Table 7. Independent T test for gain framed question

			Levene's Test for Equality of Variances		t-test for Equality of Means						
			F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
										Lower	Upper
RTS	Equal variances assumed		.725	.398	-3.537	60	.001	-11.621	3.286	-18.194	-5.049
	Equal variances not assumed				-3.757	47.622	.000	-11.621	3.093	-17.842	-5.401

Table 8. Descriptive analysis for loss framed question

Group Statistics					
Q2		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	12	62.33	14.834	4.282
	2	50	50.56	12.044	1.703

Remarks : 1 represents sure loss, 2 represents probable loss

Table 9. Independent ttest for loss framed question

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RTS	Equal variances assumed	1.038	.312	2.906	60	.005	11.773	4.051	3.670	19.877
	Equal variances not assumed			2.555	14.674	.022	11.773	4.609	1.931	21.676

measures was 0.001 as shown in Table 7.

For the second question which was framed in the loss scenario, there were 12 (19%) subjects with mean risk = 62.3 out of 62 who chose sure loss and 50 (81%) with mean risk = 50.56 who chose probable loss, showing that the majority are risk taking in this setting. The standard deviations were 14.834 and 12.044 as shown in Table 8 and the significant level between these two measures was 0.005 as show in Table 9. This result coincides with the previous finding of Fishburn, 1983 and Kahneman

and Tversky, 1979, that when gains are involved, individuals are usually risk averse whereas choices involving losses are often risk seeking

These two questions were presented to subjects independently. The expected values are actually identical in both questions; however the majority chose sure gain and probable loss over probable gain and sure loss, confirming the existence of the framing effect. Results from the two questions were assessed using risk mean comparison between the groups given different option choices.

Table 10. Descriptive analysis between framing and non framing groups

Group Statistics					
Framing1		N	Mean	Std.Deviation	Std.Error Mean
RTS	1.00	36	48.08	12.353	2.059
	2.00	26	59.42	11.981	2.350

Remarks : 1.00 represents the framing group, 2.00 represents the non-framing group

Table 11. Independent ttest between the framing and non framing groups

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RTS	Equal variances assumed	.069	.793	-3.612	60	.001	-11.340	3.140	-17.620	-5.059
	Equal variances not assumed			-3.630	54.978	.001	-11.340	3.124	-17.600	-5.079

The risk means are derived by calculating for each set of questions the risk mean of the subjects in that group. Risk score and number of people for the four questions are depicted respectively in the earlier contents. The risk mean suggested a significant difference between groups, which confirms the correlation between framing biases and risk tolerance scores.

The existence of the framing effect supports the violation of invariance. The principle of invariance is an essential condition for a theory of choice that claims normative status; different representations of the same choice problem should yield the same preference. However, as discussed by Tversky and Kahneman (1986), people do not spontaneously aggregate concurrent prospects or transform all outcomes into a common frame. From the results of this experiment, it is also evident that preference between options is not independent of their description and the variation of form does affect the actual choice. The preferences in this pair of questions illustrate a common pattern: choices involving gains are often risk averse and choices involving losses are often risk taking. The inconsistent responses arise from the conjunction of a framing effect with contradictory attitudes toward risks involving gains and losses and this reversal has been observed in prior studies. The researchers then turned to an analysis of these attitudes.

Next, of great interest, in order to examine what type

of relation existed between framing biases and risk tolerance scores, the research then took the combination of two preferences that subjects chose - sure gain in the gain scenario and probable loss in the loss scenario (called the framing group) - the rest of the subjects who chose otherwise than the framing pattern were categorised as the non framing group. On examination of these two groups, there were 36 (58%) subjects with a risk mean of 48.08 in the framing group and 26 (42%) subjects with a risk mean of 59.42 in the non-framing group. The standard deviation between two measures was 12.353 and 11.981 as shown in Table 10.

As illustrated in Table 11, the variation of risk mean between framing and non framing group posed a significant level of difference, where the P value is 0.001. The finding from these two questions suggested that there is an inverse relationship between risk score and framing, i.e. the people with higher risk tolerance scores are more susceptible to framing bias than people with lower risk tolerance scores. The findings from the first pair of questions answered all the three research questions and suggested that there is an inverse relationship between risk score and framing.

Unfortunately, the results from the second pair of questions only supported the existence of the framing effect and the determinant role of financial risk tolerance scores in behaviour but did not support a strong linkage between

Table 12. Descriptive analysis between two government bonds chooser

Group Statistics				
Q14	N	Mean	Std.Deviation	Std.Error Mean
RTS 1	38	49.24	11.906	1.931
2	24	58.54	13.756	2.808

Remarks : 1 represents the UK's government bond, 2 represents the Brazilian government bond38

Table 13. Independent ttest between two government bonds chooser

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
				F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference
		Lower	Upper							
RTS	Equal variances assumed	.638	.427	-2.822	60	.006	-9.305	3.298	-15.901	-2.709
	Equal variances not assumed			-2.730	43.817	.009	-9.305	3.408	-16.174	-2.436

risk tolerance scores and framing bias. There are several possible explanations for this incoherent finding. The lack of correlation between the complicated managerial decision question set (as in the second pair of questions in this experiment) and risk tolerance score highlights the power of wording in altering subjects' behaviour when facing complicated scenarios. Although the straight forward question suggested a correlation with risk tolerance score, increasing the level of sophistication in the question set completely eliminated this association. This implies that studies which attempt to validate biases test using more than one set question and need to pay careful attention to the wording of each of the measures in terms of a consistent level of sophistication.

Risk-taking has also been a focus of interest in behaviour decision theory. In that tradition, risk-taking is viewed as context-dependent and susceptible to framing effects in which the description of the situation can alter participant choices (see Harrison, 2005). One of the best known lines of research in decision making comes from "Prospect Theory" (Kahneman and Tversky, 1979) which states in part that an individual's willingness to make a risky choice will depend on whether the decision outcomes are framed as gains or losses. Individuals will make riskier choices to avoid losses than they will to produce gains. Numerous studies have documented such framing effects (see Levin, et al., 1998 for a review).

The general tendency to be risk seeking would suggest a higher risk tolerance score; however, the existing studies do not suggest, if people are risky in loss scenarios and risk averse in gain scenario, what would be a possible risk tolerance score tendency. There is no existing data or study to support this question and the findings of this work would fill this gap in study.

D. Herding

This session aimed to analyse the presence of herding among the investors. The researchers designed the experiment to give the subjects supplemental information after their initial decision was made and allow them to make the decisions again on the same questions. In these two treatments, information regarding the previous decision made by the subject group was provided by the experimenter and the result was manipulated. The information was not generated from the system like other results in previous questions. To the contrary, it was pre-planted in the slide and showed to the subjects. Using this design, the researcher aimed to observe subject behaviour and identify who herds after the manipulated results are revealed. The subjects received no feedback on their actions to avoid influencing our results with learning experience.

Table 14. Descriptive analysis for 2nd choice between two government bonds

		Group Statistics			
Q15		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	32	51.38	10.536	1.863
	2	30	54.40	15.852	2.894

Remarks: 1 represents the UK's government bond, 2 represents the Brazilian government bond

Table 15. Independent ttest for 2nd choice between two government bonds

		Independent Samples Test							
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference
									Lower Upper
RTS	Equal variances assumed	4.629	.035	-.890	60	.377	-3.025	3.398	-9.823 3.773
	Equal variances not assumed			-.879	49.977	.384	-3.025	3.442	-9.938 3.888

Table 16. Descriptive analysis between herding and non herding groups

		Group Statistics			
Herding		N	Mean	Std.Deviation	Std.Error Mean
RTS	1.00	12	46.08	13.800	3.984
	2.00	50	54.46	12.854	1.818

Remarks: 1.00 represents herding group, 2.00 represents non-herding group

Table 17. Independent ttest between herding and non-herding groups

		Independent Samples Test							
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference
									Lower Upper
RTS	Equal variances assumed	.172	.680	-1.999	60	.050	-8.377	4.189	-16.757 .004
	Equal variances not assumed			-1.913	15.903	.074	-8.377	4.379	-17.664 .911

With the identical tenures, providing the benchmark rate from Central Bank in the UK and Brazil as a reference point, the UK's government bond (5%-0.5%) is more favourable than Brazil's government bond (10%-8.5%) in terms of spread between the coupon rate and interest rate of Central bank, furthermore, the UK is more favourable than Brazil in sovereign risk. The question posed an extreme scenario that the UK's government bond is

of lower risk and higher return, which is not the likely case in reality, but to observe herding behaviour, the researchers aim to provide an extreme and obviously favourable choice between two set choices. A manipulated group result showed that a majority (83%) of group subjects chose the unfavourable option, the Brazil government bond in this case. With the extreme contrast of the manipulated result shown to the subjects, the subjects were then

asked again to choose the two products.

Out of a total of 62 subjects, in the first set of choices the number of people who chose the UK's government bond was 38 (61%) and the number of people who chose Brazil's government bond was 24 (39%) - mean risks for each group were 49.24 and 58.54 respectively. The standard deviations were 11.906 and 13.756 as shown in Table 12. The independent ttest results indicate a significant level of difference of mean risk between these two groups, p value = 0.006 as shown in Table 13. This result suggested that subjects who chose the UK's government bond had a lower mean risk than those who chose the Brazilian government bond.

After revealing to the subjects the manipulated results which posed an extreme contrast with actual results, subjects were asked to choose again between two government bonds. This time the number of people who chose the UK's government bond was 32 (52%) and the number of people who chose the Brazilian government bond was 30 (48%). The risk means were 51.38 for people who chose the UK's government bond and 54.40 for people who chose the Brazilian government bond. Standard deviations were 10.536 and 15.852 as shown in Table 14. The P value of mean risk between two groups was 0.377, which unfortunately did not show a significant level as shown in Table 15. The result from this session also suggested that subjects who chose the UK's government bond have a lower mean risk than those who chose the Brazilian government bond; however this was not statistically significant in the correlation. Both sessions indicate the same trends in mean risk tolerance score between subjects who chose the UK's and those who chose the Brazilian government bonds.

This study is more interested in the risk characteristics between subjects who change their decision and those who hold still. A further investigation was undertaken into how many subjects change their decision after being shown the manipulated result implanted by the research, and the mean risk comparison between those who had made the change (herding), and those who stuck to their original option or switch to the other direction (non-herding). Twelve (19%) subjects changed their decision from UK to Brazil government bonds after being shown the manipulated result and 50 (81%) held onto their original decision or changed from Brazil to UK to avoid herding. Mean risk for the herding group is 46.08 and 54.46 for non-herding and the standard deviations were 13.8 and 12.854

as shown in Table 16. The independent ttest showed the P value for the difference of mean risk from these herding and non herding groups was 0.05 as shown in Table 17.

The result of this study confirmed all three research questions and suggested that the risk tolerance score extrapolates the level of herding for individuals. The fall of risk tolerance score increases the intensity of the herding effect and vice versa, i.e. there is an inverse relationship between risk score and herding.

Further analysis was conducted to compare the mean risk between the herding group and those who stuck to the UK bond throughout the two questions among the non-herding group. The result suggested that the people who tend to overrule their own decision by herding to others' majority decision (herding group) exhibited a lower risk tolerance score than those who did not change their decision (non herding group) but excluded those subjects with inherently higher risk tolerance score subjects (non herding group who chose the Brazil bond). However the difference was not statistically significant but still confirmed an inverse relation between risk tolerance score and herding bias. The result from the above data is probably not sufficient to draw a definite conclusion but is rather suggestive of a possible negative correlation between herding and risk tolerance. Meanwhile, the statistical power of the test was unexpectedly weakened by the unexpectedly low number of people who changed their decision to the Brazilian bond, which reduced the relevant sample size.

Another observation from this result is that there were three subjects who changed from Brazilian to UK government bonds to avoid herding. Although the number of the sample is too small to have statistical significance, it is a possible area for future research to discuss "lone wolf" investors who choose not to follow the crowd (e.g. de Haan, and Kakes, 2011).

People are making decisions oftentimes under uncertainty; the uncertainty is not only about the ambiguity of the market or product but also the quality of information available. Because people are averse to uncertainty, they will tend to imitate other investors' decisions. Investors who imitate do not know the quality of other investors' information, financial market trends thus being based on the mood of investors and not on rational responses (Parker and Prechter, 2005). Thus, for example, in the same informational context investors who are more in-

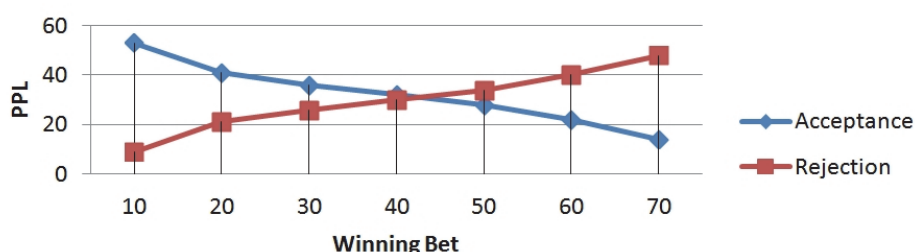


Figure 3. Number of people in each choice option - loss aversion lottery choice

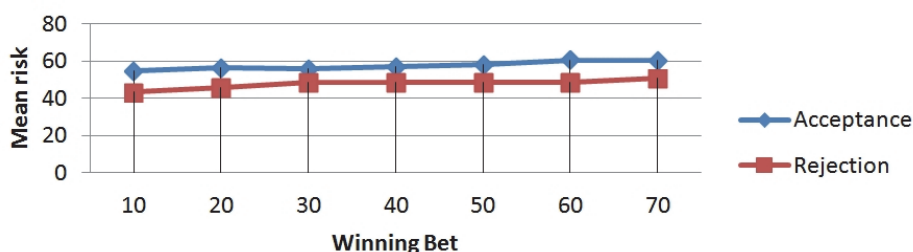


Figure 4. Mean risk in each round - loss aversion lottery choice

secure and less confident about their sources of information will have a greater propensity to herd. This feeling of uncertainty is a characteristic of each individual, since it will depend on each individual's attitudes, their more or less intuitive character, their risk propensity, their excess or lack of confidence, their illusion of control, their degree of tolerance for ambiguity, and so on.

In the study of Fernandez et. al (2009), the analysis of herding gradually diminishes as uncertainty falls. The results from the Wilcoxon signed-rank test also confirm these results, since they show a statistically significant difference in herding between the high and low uncertainty treatments. The postulation of both of the studies that herding behaviour is more frequent in contexts of higher levels of uncertainty is consequently accepted.

The results of the experiment show that uncertainty is more important than the individual cognitive profile in explaining herding among investors. However, as the

level of uncertainty diminishes, the investors' cognitive profile can explain why individuals show different imitation propensities in identical informational contexts. The above remarks made by Fernandez, et al. (2009) could help to explain the low herding ratio in this experiment. 12 people out of 62 subjects had changed their decision after being shown the group result; the low percentage of herding might be as a result of low uncertainty between these two option choices.

Along with uncertainty in financial decision making, the individuals are also affected by risk attitude in arriving at financial decisions. Thus, individuals are not always going to behave as homogenous and perfectly rational agents. Consequently, responses to market signals vary considerably from one investor to the next. This makes it necessary to study how investors' individual risk profiles affect their herding behaviour.

Table 18. Descriptive analysis on round 1 - loss aversion lottery choice

		Group Statistics			
Q7		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	53	54.45	12.846	1.765
	2	9	43.33	12.933	4.311

Remarks: 1 represents accept, 2 represents reject

Table 19. Independent ttest on round 1 – loss aversion lottery choice

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RTS	Equal variances assumed	.170	.682	2.399	60	0.20	11.119	4.636	1.847	20.392
	Equal variances not assumed			2.387	10.858	0.36	11.119	4.658	.851	21.388

Table 20. Descriptive analysis on round 2 - loss aversion lottery choice

Group Statistics					
Q8		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	41	56.44	12.207	1.906
	2	21	45.81	12.925	2.821

Remarks: 1 represents accept, 2 represents reject

Table 21. Independent ttest on round 2 – loss aversion lottery choice

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RTS	Equal variances assumed	.215	.644	3.181	60	.002	10.630	3.341	3.946	17.313
	Equal variances not assumed			3.122	38.436	.003	10.630	3.404	3.740	17.519

Table 22. Descriptive analysis on round 3 – loss aversion lottery choice

Q9		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	36	55.92	13.727	2.288
	2	26	48.58	11.768	2.308

Remarks: 1 represents accept, 2 represents reject

E. Loss aversion

In this study, subjects played a range of gambling choice games with hypothetical payoffs, which mirrored the Holt and Laury (2002) design. Each question is presented with gain versus loss scenarios, which involves a choice between one positive payoff and one negative payoff at the equal probability. The series of questions comprise seven pair-wise lottery choice questions, each

question involving acceptance or rejection of the gambling choices. The set started with the safest gamble, with a maximum loss of £10; the amount of loss for the following sets increased incrementally by £10 until £70 was reached, at which point the negative expected value of return was certain (order effect was addressed in the experiment).

The researchers found that the number of people to accept the gambling choice decreased as the payout increased while the mean risk increased in the same direction

Table 23. Independent ttest on round 3 – loss aversion lottery choice

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RTS	Equal variances assumed	.208	.650	2.203	60	.031	7.340	3.332	.675	14.005
	Equal variances not assumed			2.259	58.159	.028	7.340	3.250	.835	13.844

Table 24. Descriptive analysis on round 4 - loss aversion lottery choice

Group Statistics					
Q10		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	32	56.75	12.485	2.207
	2	30	48.67	13.166	2.404

Remarks: 1 represents accept, 2 represents reject

Table 25. Independent ttest on round 4 – loss aversion lottery choice

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RTS	Equal variances assumed	.425	.517	2.481	60	.016	8.083	3.258	1.567	14.599
	Equal variances not assumed			2.477	59.168	.016	8.083	3.263	1.554	14.613

Table 26. Descriptive analysis on round 5 - loss aversion lottery choice

Group Statistics					
Q11		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	28	57.89	12.723	2.404
	2	34	48.68	12.547	2.152

Remarks: 1 represents accept, 2 represents reject

of the payout pattern. Mean risk across seven questions between acceptance and rejection groups all indicated a significant level. The pattern in both the acceptance and rejection groups throughout all rounds are exhibited in Figure 3. Please also refer to Figure 4 which indicates the trend pattern of mean risk in both the acceptance and rejection groups from question 7 to question 13.

The standard deviations between two measures are displayed round by round and the significant test between two mean risks for the rejection and acceptance groups are shown in Table 18-31. The independent ttest between the two mean risks for the rejection and acceptance groups all showed a significant level of difference throughout all the rounds.

Table 27. Independent ttest on round 5 – loss aversion lottery choice

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RTS	Equal variances assumed	.044	.835	2.860	60	.006	9.216	3.222	2.771	15.662
	Equal variances not assumed			2.856	57.429	.006	9.216	3.227	2.756	15.677

Table 28. Descriptive analysis on round 6 - loss aversion lottery choice

Group Statistics					
Q12		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	22	60.59	12.304	2.623
	2	40	48.58	12.028	1.902

Remarks: 1 represents accept, 2 represents reject

Table 29. Independent ttest on round 6 – loss aversion lottery choice

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RTS	Equal variances assumed	.064	.802	3.734	60	.000	12.016	3.218	5.578	18.454
	Equal variances not assumed			3.709	42.545	.001	12.016	3.240	5.480	18.552

Table 30. Descriptive analysis on round 7 - loss aversion lottery choice

Group Statistics					
Q13		N	Mean	Std.Deviation	Std.Error Mean
RTS	1	14	60.21	14.143	3.780
	2	48	50.69	12.451	1.797

Remarks: 1 represents accept, 2 represents reject

The results confirm that mean risk in the acceptance group is statistically significant higher than those in the rejection group in each round of lottery choice question. Furthermore, the researcher regroups the subjects based on the number of acceptances in the series of seven questions. In Table 32, the researchers report a summary of descriptive statistics classified by number of accept-

ances in the series of seven games. The researchers examined the number of acceptance option choice selected by each subject in the sequential seven questions and calculated the risk mean for each group. There are in total eight groups with a number of acceptance choices ranging from 0 to 7. The risk mean forms an irregular pattern as shown in the table. However, following further

Table 31. Independent ttest on round 7 – loss aversion lottery choice

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RTS	Equal variances assumed	.190	.665	2.443	60	.018	9.527	3.899	1.727	17.326
	Equal variances not assumed			2.276	19.269	.034	9.527	4.185	.775	18.279

Table 32. Descriptive analysis by numbers of acceptance in loss aversion lottery choice

Descriptives								
RTS	N	Mean	Std.Deviation	Std.Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
.00	7	42.00	14.606	5.521	28.49	55.51	23	58
1.00	8	50.63	10.364	3.664	41.96	59.29	41	70
2.00	10	47.00	14.757	4.667	36.44	57.56	24	69
3.00	6	56.67	7.501	3.062	48.79	64.54	49	69
4.00	5	48.00	6.083	2.720	40.45	55.55	40	55
5.00	5	53.20	10.330	4.620	40.37	66.03	42	65
6.00	12	54.67	11.835	3.416	47.15	62.19	37	78
7.00	9	67.22	12.101	4.034	57.92	76.52	53	87
Total	62	52.84	13.349	1.695	49.45	56.23	23	87

Table 33. ANOVA analysis on significant level

ANOVA					
RTS	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3319.157	7	472.880	3.378	.005
Within Groups	7560.231	54	140.004		
Total	10870.387	61			

analysis from ANOVA, the P value is found to be 0.005 in between and within subjects as shown in Table 33.

The result of this study answers all three research questions and suggests that the risk tolerance score extrapolates the level of loss aversion for individuals; namely there is an inverse relationship between risk score and loss aversion.

Furthermore, with the aim of looking further at the relationships among the variables of the behavioural biases, the researchers first carried out an analysis of variance using Pearson's Chi square test. The researchers examined

whether cognitive variables are mutually exclusive, and for this reason the latter analysis allows us to consider the interrelations between the cognitive variables chosen in the present study. The Pearson's Chi square test confirms there is no significant dependence between herding, loss aversion, endowment and framing. The results show no interactive relations between the variables measuring behavioural bias and risk tolerance score in the different treatments.

To sum up, the correlation between the four biases and risk tolerance scores has been established and docu-

mented through the results of the experiment, which is discussed in the later chapters. The findings are hereby summarised as follows:

- ▶ Risk tolerance score is **positively** correlated with endowment bias
- ▶ Risk tolerance score is **inversely** correlated with framing bias
- ▶ Risk tolerance score is **inversely** correlated with loss aversion
- ▶ Risk tolerance score is **inversely** correlated with herding

V. Implications, limitation and future research

The findings of this study offer general implications for the following areas:

A. Implications for financial advising

As pointed out by Kahneman and Riepe (1998), financial advising is a prescriptive activity whose main objective should be to guide investors to make decisions that best serve their interests. To advise effectively, advisors must be guided by an accurate picture of the cognitive and emotional weaknesses of investors that relate to making investment decisions: their occasionally faulty assessment of their own interests and true wishes, the relevant facts that they tend to ignore and the limits of their ability to accept advice and to live with the decisions they make. Providing timely warnings about the pitfalls of intuition should be one of the responsibilities of financial advisors. Risk tolerance scoring provides a gauge on how an individual perceives risk; this investigation of the linkage between risk tolerance score and investment biases would further provide an understanding on how the level of risk tolerance correlates to the various biases in test. Financial services professionals would do well to recognise such differences when dealing with clients, due to the implications for the marketing of financial products and for financial service providers. Those providing advice to individual investors need to understand client attitudes

to investment in general and risk in particular. Failure to grasp such differences may make it extremely difficult to provide appropriate advice and to gratify clients over the long term.

B. Implications for studying investment biases

Firstly, this finding further extends the range of situations in which the four biases can be found. The present experiment demonstrated bias effects in a behavioural task which were tested in a laboratory environment across different group sessions. Secondly, the lack of correlation between complicated managerial decision question set and risk tolerance score highlights the power of wording in altering subjects' behaviour when facing a complicated scenario. Although the straightforward question suggested the correlation with risk tolerance score, increasing the level of sophistication in the question set completely eliminated this association. This implies that studies which attempt to validate biases test using more than one question set need to pay careful attention to the wording of each of the measures in terms of a consistent level of sophistication. Thirdly, results from this study highlight the need for greater interdisciplinary contact between researchers interested in risk attitude and those studying behavioural decision making. This study suggested that the risk tolerance score inherent in individuals determines the level of framing, loss aversion, endowment and herding biases.

C. Implications for investors

There is a palpable link between financial investment decision and investors' behaviour. Research into investors' behaviour may prove useful in increasing our understanding of the extremely complex financial marketplace. In many cases, investors are unaware of their predisposition for error. And more often than not, an irrational investor is a dissatisfied investor, because biases usually undermine financial goals (Barberis, et al., 1998). As Kahneman and Riepe (1998, p. 53) note, "Investors who are prone to these biases will take risks that they do not acknowledge, experience outcomes that they did not anticipate, will be prone to unjustified trading, and may end up blaming themselves or others when outcomes are bad".

Understanding the psychological basis for investor errors and taking appropriate actions to correct such errors may reduce their effects on investment decisions and potentially lead to improved investment results. This does not necessarily mean, however, that taking such actions will lead to excess returns (Baker and Nofsinger, 2002).

D. Implications for methodological approach

Different from prior studies, the research aims to study linkage between risk tolerance score and the four investment biases which has been identified in behavioural literature. The method adopted in this study assesses choices in an experimental setting, which the researchers consider either hypothetical scenarios or where decisions have financial consequences (e.g., Holt and Laury 2002). In the experimental setting, the researchers observed actual decision making, assessing choices in an experimental setting and creating scores from survey questionnaires. This study of the correlation between psychological traits and cognitive biases is related to the insightful analyses of Camerer (1987), and Barber and Odean (2002 a and b). Probably the most significant methodological difference between their works and this is that the researchers endeavour to directly measure psychological traits and cognitive biases. It is hoped that this direct confrontation of psychological data and economic actions can provide information useful to ascertain the impact of psychological aspects on economic phenomena.

E. Implications for RTQ

This study supports the reliability of a risk tolerance questionnaire (RTQ) using hypothetical questions. This may encourage a wider adoption of RTQ in future studies and more biases could be tested in a similar fashion.

F. Limitations

As discussed by Eisenberg (1996), rationalising behaviour through experimentation does not account for the process of thought, making outcomes of that process fallible. Human behaviour is dependent on individual responses which can be difficult to measure. As a result,

a common concern arises as to the validity of experimental research.

However, experimentation can be combined with other research methods to ensure validity. Other qualitative methods such as case study, ethnography, observational research and interviews can function as preconditions for experimentation or conducted simultaneously to add validity to a study.

Also, as the findings presented here represent a convenient sample of respondents from the student population who volunteered to take part in the experiment, there may be certain groups of individuals who are excluded from the sample; for example, the demographic profile of the subjects tends to be younger and more technologically proficient than might be expected in the general population. Human behaviour often involves a trade off of several complex and interrelated concepts. Therefore it may be difficult to accurately test the cognitive biases with only a few questions. In this sense, the conclusion made from this study is more appropriate to be perceived as suggestion rather than affirmation.

G. Future Research

There are a number of promising extensions that can be made from the findings of this study. The study has focused on the individual level of analysis and has derived the propositions from individual-level theories and empirical research. However, many of the arguments developed here may be equally applicable to organisational level as to decision making entities. Much of the work to date on individual risk behaviour has focused on how individuals respond to uncertain conditions (e.g., Fischhoff et al., 1981 and Kahneman and Tversky, 1984). However, this substantial body of work has focused attention on the role of individual perceptions and preferences, with only limited consideration of the potentially important impact of organisational context (e.g., Douglas and Wildavsky, 1982) and personal and organisational risk history (Osborn and Jackson, 1988). The analysis proposed here could easily be applied to understanding the degree of biases to which organisational decision makers are posed depending upon their risk attitude.

This study serves as an initial study which involved controlled laboratory experiments; however, since the pattern of relationship has been established, future study

can extend to field tests. The result of this study confirms that herding, loss aversion, framing and endowment exist. There are many more investment biases that have been identified by prior studies but are yet to be examined in the same fashion. This would provide a starting point for future research to measure the individual's cognitive profile and its relationship with their respective risk tolerance score. Meanwhile, the study is conducted within campus using Business School students due to resources constraints, in order to reach a wider range of subjects with more heterogeneity; a web-based approach could be replicated to repeat the study. For future study, it would also be interesting to test the hypothesis on real investors; the individual investors' data exist in the files of private firms. It is hoped that some firms will see the benefit of sharing such data with researchers. For sharing to become a reality, confidentiality will have to be adequately protected - confidentiality of the source of the data and of the identities of the individual investors.

Besides contributing to the understanding of financial decision making, this research verifies the indications of people's information-processing limitations. The next phase of research could emphasise the development of techniques to help decision makers overcome their cognitive biases. Will informing an individual about his/her biases make him/her less susceptible to them or will it lead him/her to overcompensate, perhaps with even greater error? The past decades of research has uncovered some fascinating questions and stirred the discussion on the impact of cognitive biases to decision making process; future studies could attempt to answer how to tackle the biases and quantify the impact level.

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Customers' Perceptions of Ethical Issues in Corporate Governance of Islamic Banks in Bangladesh

Mamun, Muhammad[†]

ABSTRACT

The study analyzes customer perceptions regarding the ethical standards of corporate governance of the Islamic banks in Bangladesh. The customers were found to have positive perceptions regarding the board of directors' competence, shariah board members' expertise and top management team's effectiveness to discharge Shariah laws. The clients very strongly agreed that their bank followed the Islamic principles. The customers responded positively regarding ethical disclosures of information by their banks. The study noted that the (Ed. note: should "the be changed to "each"?") bank had an effective and transparent mechanism to handle complaints, conflict management, and occurrences due to lack of due care. Interestingly the clients were found to rely more on newspapers, rather than each bank's website or e-mails for price-sensitive information. The customers were found to be positive regarding the regulatory body's position in regulating Islamic banks. The overall perception of the respondents regarding ethical corporate governance of the banks was found to be positive.

Keywords: ethical issues, corporate governance, compliance, information disclosure, Shariah rules, corporate and social reporting

I. Background

The Islamic banking renaissance in Bangladesh dates back to 1983, with the establishment of the first Islamic Bank in the country (Hassan, 2010). Since then, the Islamic banking sector has seen an impressive growth (Hassan et al. 2010). There are currently nine full-fledged Islamic banks operating in the country along with a number of conventional banks having Islamic windows. Islamic banks conduct their activities based upon Islamic law (Shariah¹), which reflect the teachings of Islam. This religious framework encompasses four major principles: i) the prohibition of payment or receipt of interest (riba²); ii) the avoidance of involvement in speculative activities

(gharar³); iii) the prevention of investing in Islam-banned (haram⁴) products or services such as gambling and; iv) the payment of charity (zakah⁵).

The Islamic banks also operate under a socio-economic framework which is based on the principles of socio-economic development, social justice and social welfare that are achieved by mobilizing Shariah-compliant savings and investments. This framework encourages the profit-loss sharing principle which represents the core of Islamic finance. The profit-loss sharing principle promotes risk-sharing between lender and borrower, as well as ensuring equal distribution of wealth and the attainment of social justice. Trust finance (mudarabah⁶) and equity participation (musharakah⁷) contracts represent the primary financial instruments that are based on the profit-loss sharing principle. Non-profit-loss sharing modes of Islamic finance also exist, which possess pre-determined and fixed rates of return, e.g., cost-plus financing

[†] University of Dhaka
mzmamun@yahoo.com

(murabahah⁸), leasing (ijarah⁹), leasing and purchasing (ijarah was iqtinaa¹⁰), and forward sale (bay'salam¹¹).

The growth of Islamic financial institutions in Bangladesh, especially the Islamic banking sector, is currently witnessing a boom as a result of growing customer interest due to the unique religious value propositions of such institutions (Ahmad and Hassan 2007). Ethics is an integral component of Islamic banking and one of the major determinants of customer patronage. The corporate governance structure and Shariah compliance of Islamic banks also play important roles in positioning such institutions in the minds of the customers (Reaz and Arun 2006). Therefore, it is important to understand the awareness of customers regarding the ethical issues facing the corporate governance of Islamic banks.

The word "ethical" is typically used by Islamic banks as a label, but there is seldom any attempt to make the link between what is ethical and the specific methods of conducting financial transactions. Having a Shariah Supervisory Board which can endorse the bank's activities is seen as crucial to ensuring the institution's reputation. However, in their publicity materials, there is little attempt to explain the ethical merits of how the bank conducts its business (Ahmad and Hassan 2007). Although, Islamic banks primarily attract clients because of their religious beliefs, merely stating that a product is Shariah-compliant is insufficient to the clients. Islamic banks cannot expect to compete only on the basis of prices if these institutions wish to increase their number of customers. They have to convince potential customers of their inherent worth. They need to be more closely engaged with their clients and make them aware of the corporate governance structure through which the bank conducts its business.

Understanding the procedural and governance issues regarding ethics of Islamic banks requires a thorough understanding of Islamic economics and is outside the scope of this study. What is more important is the customers' perception of the ethical issues surrounding these banks, as those actions are directly reflected in their actions and choices of a bank? Hence, this paper attempts to find out the perception of customers of Islamic banks regarding the ethical issues in corporate governance of such banks. The findings will help the Islamic banks to take measures to improve the corporate governance practices and ethical standards by reducing the gaps, if any, that exist in their operations.

II. Objectives

The broad objective of the study is to find out the customers' perception of ethical issues in corporate governance of Islamic banks in Bangladesh. Specifically, this study looks into:

- a) knowledge of customers about the corporate governance structure and competence of Islamic banks
- b) perception of the customers about the level of compliance of Islamic banks with Shariah rules
- c) acquaintance of the customers regarding ethical disclosure of information by Islamic banks

III. Methodology

The study was conducted using both primary and secondary data and pertinent literature surveys. The primary data was collected through interviews and structured-questionnaire surveys of Islamic bank account holders. Secondary data has been collected from various research papers, books, and reports on Islamic banking and related publications. An extensive literature survey was undertaken to develop an insight into the nature and traditions of the Islamic banking sector in Bangladesh.

There is a total of 56 scheduled banks (listed with the central bank) in Bangladesh. Of these institutions, nine are fully Islamic banks, 10 are offering Islamic banking as a parallel service, and the rest are conventional banks. The primary data had been gathered from the responses of the 80 clients of nine different full-fledged Islamic banks through a non-probabilistic convenience questionnaire sampling. This sample size (80) can be justified with a level of significance of 7.2%, precision of 10% and a proportion of 50%. The questionnaire was finalized through pre-testing of 15 survey respondents. Statistical Index analysis consisted of incorporating a student's t-test, factor analysis, correlation, regression, etc. These analyses were conducted to assess the different views of Islamic bankers regarding the ethical issues of Islamic banking in Bangladesh.

The study used face validity to identify the study

variables. From the literature review and expert opinions, we logically determined the items to measure as variable. A high Cronbach's Alpha ($0.904 \geq 0.70$) suggests that the variables had acceptable internal consistencies among them and were reliable.

IV. Literature Review

A. Corporate Governance in Islamic Banks

Effective corporate governance in Islamic banks, as well as the firms that use bank funds, is one of the most important pillars of the efficient functioning of such institutions. Unfortunately, however, corporate governance is considered to be generally weak in the corporations of most developing countries (Chapra and Ahmed, 2002). This is because all the institutions that play a crucial role in disciplining markets and ensuring efficiency and integrity are not well-developed in these countries. Information asymmetries are more severe, market participants less experienced, and regulations, even if they exist, do not get enforced effectively and impartially because of political corruption and the general weakness of judicial systems (Febianto, 2010). Disclosures are also not adequate, and accounting practices are not well developed. Consequently, these corporations suffer from inefficiencies and inequities that adversely affect all stakeholders (Arun and Turner, 2004).

In line with the growth of the Islamic finance sector in Bangladesh and worldwide and the complexity of duty and responsibility of the Islamic banks towards different stakeholders, it is strongly indicated that there must be a sound and proper corporate governance system (Ahmed and Khatun, 2013). The good corporate governance system enhances and strengthens the function of the Shariah board and its related institution for the purpose of Shariah compliance. Shariah governance is a unique kind of governance in financial architecture as it is concerned with the religious aspects of the overall activities of Islamic banks. The existing standard-setting agencies such as the Organization for Economic Cooperation and Development (OECD), the International Organization and Securities Commission (IOSCO) and the Basel Committee on Banking Supervision (BCBS) have issued numerous

guidelines on governance and risk management for financial institutions. Nevertheless, these standards and guidelines failed to address specific ethical issues of Islamic finance (Dusuki and Abdullah, 2007). However, it is not only sufficient to have a good corporate governance structure in place, but it is imperative to communicate the actual business functioning of the bank to all its stakeholders, including the customers (Hassan and Chachi, 2008).

B. Customers' Attitude towards Islamic Banks

Although few studies have assessed customer perceptions of the corporate governance of Islamic banks, a significant amount of literature on customers' attitudes towards Islamic banks, especially concerning selection criteria (or patronage) and customer satisfaction, is already in place. Various studies point out that religion (Islam) as the main reason for choosing Islamic banks. These institutions are grounded in the principles of the Qur'an and the Hadith. Surveying 206 bank customers in Jordan, Naser, et al. (1999) found that 70% of the respondents identified religion as the reason for choosing Islamic banking. Metawa and Almosawi (1998) found Shariah-based principles as the single most important factor for choosing Islamic banks. In Gerrard and Cunningham's (1997) study, 25% of the respondents pointed religion as the first factor to choose an Islamic bank. A study by Khan, et al. (2007) on Islamic banks in Bangladesh found out that 'religious principles' is the key bank selection criterion of the Islamic bank customers, while customers' demography plays some role in determining which selection criteria matter more than others do.

Although corporate social responsibility (CSR) and ethical investment have been considered as premier factors important for choosing an Islamic bank, Ahmad and Haron (2002) affirmed that factors like the bank's name and image, confidentiality, friends and family influences and provision of quality services are equally important for customers when making decision on their choice of bank. However, studies in Malaysia (Dusuki and Abdullah, 2007), UAE (Kuehn and Bley, 2004), Kuwait (Othman and Owen, 2001) found non-religious factors like efficiency, cost-benefit, etc., in conjunction with religion as the influential factors behind choosing an Islamic bank. Interestingly, one of the earliest studies of the behavior

of Islamic bank customers by Erol and El-Bdour (1989) in Jordan concluded that factors such as a fast and efficient service, the bank's reputation and image, and confidentiality were the primary bank criteria for the choice of bank, whether Islamic or conventional. This implied that religious motivation in bank selection did not appear to be the only important factor.

C. Corporate Governance and Shariah Compliance

The Organisation for Economic Co-operation and Development (OECD) defines corporate governance as "a set of relationships between a company's management, its board, its shareholders and other stakeholders which provide the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined". The philosophical foundation of corporate governance in Islam requires an additional layer of governance for the purpose of Shariah compliance. Therefore, a specific characteristic of the governance structure of Islamic banks is the Shariah Supervisory Board (SSB). It exists in addition to typical bank board governance structures, but its functions are mainly to certify (ex-ante) and to monitor (ex-post) all financial contracts, transactions, and further activities of a bank on behalf of shareholders and other stakeholders. The SSBs comprise of Shariah scholars or a committee of Fiqh al-Muamalat¹² (religious) scholars. The Shariah board plays the dual role of supervision and consultation.

As the nature and model of Islamic finance are different from the conventional counterparts, the need for a standard-setting agency, specifically for Islamic finance, was crucial. Hence, with the initiative of several Islamic Financial Institutions (IFIs) and regulatory authorities, the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) and the Islamic Financial Services Board (IFSB) were established in 1992 and 2004 respectively. The AAOIFI has issued five governance standards while the IFSB has issued three Prudential Standards and one guiding principle on the governance in IFIs. The difference between the IFSB Prudential Standards and the AAOIFI Governance Standards is that the IFSB approach is more concerned towards regulators while AAOIFI, to individual IFIs.

D. Ethics in Islam

Ethics in Islam has a broad meaning, including character, behavior or code of conduct. In Islam, the word ethics is synonymous with the term *ad* (courtesy)¹³ and *khuluq* (good manners)¹⁴ (Siddiqui, 1997). These two terms denote good behavior or a standard of conduct to be observed in social interactions or the set of moral principles that distinguish right and wrong. Islamic model of corporate governance advocates a comprehensive approach by emphasizing the elements of ethics as propounded in the Holy Quran. Hence the Islamic ethical principles are a divine and religious construct.

Muslims regard Islam as a way of life and not merely a religion. Therefore, business ethics cannot be separated from ethics in the other aspects of a daily Muslim life. In the Islamic philosophy, it is claimed that ethics dominate economics and not vice versa (Anas and Ounira, 2009). Proper Islamic ethical conduct in business is based on leniency, which encompasses good manners, forgiveness, removal of hardship and compensation; service motive, where businesses provide needed services to the community; and consciousness of Allah that requires Muslim businessmen to be mindful of Allah in their conduct of business (Haniffa and Hudaib 2007).

V. Data Analysis and Findings

As noted the study has identified three parameters divided into a number of complex (7) and simple (46) variables to analyze the customer perception regarding the ethical standards of corporate governance of the Islamic banks in Bangladesh. Through a structured questionnaire using a five-point Likert-scale (1: Strongly agree & 5: Strongly disagree) client responses are observed regarding each of the 46 variables. Parameter-wise the detailed analysis is given below.

A. Corporate Governance Structure and Competence

The first parameter for this study, *corporate governance structure, and competence*, intended to find out the custom-

ers' knowledge of the composition and competence of board of directors and shariah supervisory board of the banks. In addition, the study also highlighted the top management team's role in maintaining Shariah compliance. This parameter consists of 3 complex variables that can be sub-divided into 15 simple variables (Table 1). Among these variables, only one has a high positive mean rating (1-2); 12 have a moderately positive mean rating (2-3), and the rest 2 have moderate negative mean ratings (3-4). All the indices except one were found to be significantly different from 3 (Indifferent) at 5% level of significance ($\alpha = 5\%$).

The study noted that the customers are not fully aware of the composition of the board of directors of the bank (3.23), but they responded a little positively regarding

the board of directors' honorarium (2.44), accountability (2.27) and competence (2.09). The customers are found aware of the presence of the shariah supervisory board of the bank (2.24), but they are not very sentient of its composition (3.34). The respondents noted that the shariah supervisory board members are expert in this area (2.46) and selected properly (2.27) and responsible enough for ensuring Shariah compliance of the bank (1.99). Customers found the Shariah supervisory board to be an independent body (2.56) and perceived them to be fair regarding their assessment (2.54) and accountability. They also think that the shariah board members of their bank do not sit on the shariah board of another bank (2.63). Customers noted that the top management takes part in decision-making in line with Shariah compliance

Table 1. Corporate Governance Structure and Competence

Parameter	Complex Variables	Simple Variables	Mean Index	Standard Deviation
Corporate Governance Structure (2.43)	Board of Directors (BOD) (2.51)	1) Clients awareness of the composition of the BOD of the bank	3.23*	1.42
		2) The honorarium of the BOD is in line with company policy	2.44	0.91
		3) The members of the BOD of the bank are accountable to all the stakeholders	2.27	0.95
		4) The members of the BOD of the bank are sufficiently qualified to run the bank	2.09	0.89
	Shariah Supervisory Board (SSB) (2.50)	1) Clients awareness of the composition of the SSB in the bank	3.34	1.34
		2) The members of the SSB of my bank do not sit on the SSB of another bank	2.63	0.83
		3) SSB is an independent body, not influenced by bank managers	2.56	1.12
		4) The SSB gives a truthful assessment and disclosure of the Shariah compliance of the bank	2.54	0.98
		5) The members of the SSB are experts in the field of Islamic finance	2.46	1.04
		6) The members of the SSB are selected on the proper criteria determined by Bangladesh Bank	2.27	0.90
		7) Clients awareness of the presence of an SSB in the bank	2.24	1.28
		8) The SSB is responsible for ensuring Shariah compliance of the bank	1.99	0.79
	Top Management (2.28)	1) The top management takes part in ethical decision making in line with Shariah compliance	2.41	0.74
		2) The top management has appropriate training in Shariah rules	2.28	0.82
		3) The top management ensures ethical behavior among employees of the bank	2.16	0.68

*Not significantly different from 3 (Indifferent) at $\alpha=5\%$. The rest are significantly different from 3 at $\alpha=5\%$.

(2.41), has appropriate training in Shariah rules (2.28) and also ensure ethical behavior of the bank employees (2.16).

B. Compliance with Shariah Rules

The second parameter of the study *banks compliance and regulation of Shariah rules* tried to find out customer perception regarding the bank's compliance and regulation of Shariah rules. In addition, the parameter also sought customer's perception about the role of regulatory bodies, like Bangladesh Bank, Government of Bangladesh, IFSB (Islamic Financial Services Board), and AAOIFI (Accounting and Auditing Organization for Islamic Financial Institutions). To analyze this parameter, the study has identified two complex variables and a total of 14 simple variables (Table 2). Among these variables, eight have a high positive mean rating (1-2); 4 have a moderate positive mean rating (2-3) and the rest 2

have moderate negative mean ratings (3-4). All the indices are found significantly different from 3 (Indifferent) at 5% level of significance ($\alpha = 5\%$).

The study found the respondents familiar with the Shariah rules (2.20). The clients very strongly agreed that their bank follows all the Islamic principles in their operations (1.66). Specifically, they very strongly approved that their respective banks do not pay (1.54) or receive (1.63) any interest, do not get involved in speculative activities (1.84), do not invest in haram services (1.60) or product (1.73), make obligatory payment of zakah (1.71) and give interest-free loans (2.44). Regarding the influence of regulatory bodies on the compliance of Shariah rules the customers are found positive to the role of Bangladesh Bank (2.11) and Government of Bangladesh (2.30) in regulating Islamic banks. But customers' perceived knowledge about the functions of other regulatory authorities of Islamic financing, like Islamic Financial Services Board (IFSB) (3.59) and Accounting and Auditing Organization for Islamic Financial

Table 2. Compliance with Shariah Rules

Parameter	Complex Variables	Simple Variables	Mean Index	Standard Deviation
Compliance and regulation to Shariah Rules (2.41)	Compliance with Shariah laws by the banks (1.81)	1) Bank gives interest-free loans	2.44	1.395
		2) I am familiar with the Shariah rules	2.20	1.072
		3) Bank is not involved in any speculative activities	1.84	.863
		4) On acceptance of business risk financing bank entitles a customer the return	1.81	1.020
		5) Bank does not invest in any venture producing haram products	1.73	.954
		6) Bank pays the obligatory payment of income and wealth (zakaah)	1.71	.944
		7) Bank follows all the major principles of Islamic banking	1.66	.913
		8) Bank does not receive interest	1.63	1.123
		9) Bank does not invest in any haram services	1.60	.894
		10) Bank does not pay interest	1.54	1.072
	Influence of regulatory bodies on the compliance of Shariah Rules (3.00)	1) I know the functions of Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI)	3.99	1.225
		2) I know the functions of the Islamic Financial Services Board (IFSB)	3.59	1.338
		3) Government plays an important role in regulation of Islamic banks in Bangladesh	2.30	.877
		4) Bangladesh Bank plays a major role in regulating the Islamic banks in Bangladesh	2.11	.751

N.B.: The indices are significantly different from 3 at $\alpha=5\%$.

Institutions (AAOIFI) (3.99) are found very limited.

C. Disclosure of Information

The third parameter of the research, disclosure of information, intended to find out the customers' knowledge and awareness of the information that should be disclosed by the bank. The study also intended to find out (i) if the customers know whether their bank takes adequate measures to notify the customers about the disclosed information and (ii) the means by which the customers get to know about the disclosures. This parameter consists of 2 complex variables which are further divided into 17 simple variables. Among these only 1 variable, social responsibility has a high positive mean rating (1.61), 12

variables have a moderately positive mean rating (2-3) and the rest 4 simple variables have a moderately low negative mean rating (3-4). All the indices are found significantly different from 3 (Indifferent) at 5% level of significance ($\alpha = 5\%$).

The study noted that the customers responded positively regarding ethical disclosure of information of the bank (2.57). They agreed that their banks make them aware of the credit risk (2.19), recognizes all expected profit or losses when reasonably measurable (2.26), discloses the amount it is obligated to deposit as compensating balances (2.48), do not manipulate price (2.03), never mislead clients by withholding information (2.01), never deliberately issues misleading information (2.85), and make full disclosure before signing a document (2.08). The study noted that the bank has an effective procedure

Table 3. Disclosure of Information

Parameter	Complex Variables	Simple Variables	Mean Index	Standard Deviation
Ethical Disclosure of Information (2.57)	Corporate and Social reporting (2.40)	The bank sometimes mistakenly issues information that is potentially misleading to the stakeholders	3.51	1.31
		The bank makes undisclosed profit at the expense of its clients	3.21	0.92
		The bank never deliberately issues information that is potentially misleading to the stakeholders	2.85	1.58
		The bank discloses the amount it is obligated to deposit with others as compensating balances	2.48	0.83
		The bank is transparent about conflicts while making clear what mechanisms are in place to manage them properly	2.36	0.98
		The bank has appropriate safeguard against occurrences due to lack of due care	2.32	0.79
		The bank recognizes all expected profit or losses when reasonably measurable	2.26	0.82
		The bank has an effective procedure to handle complaints	2.24	0.92
		The bank provides General disclosure about credit risk in its financial statements	2.19	0.86
		The bank informs clients about its obligation to make full disclosure of facts relevant to the proposed transaction before signing any documents	2.08	0.73
		The bank never manipulates price	2.03	0.73
		The bank never misleads clients by withholding material information	2.01	0.80
		The bank conducts its business in a socially responsible manner	1.61	0.81
	Measures to notify clients about the disclosed information (2.74)	I check the bank's website for price-sensitive information	3.10	1.50
		I check mails/e-mails for price-sensitive information of the bank	3.01	1.51
		I check newspaper for price-sensitive information of the bank	2.54	1.54
		The bank sends invitation to its share-holders to annual general meetings	2.33	1.50

N. B.: The indices are significantly different from 3 at $\alpha=5\%$.

Table 4. Frequency of Responses regarding Ethical Standards

Scores	Frequency	Percent
Strongly Agree (1)	17	21.5
Agree (2)	51	64.6
Neither agree nor disagree (3)	8	10.1
Disagree (4)	3	3.8
Strongly Disagree (5)	-	-
Total	79	100.0

Table 5. Total Variance Explained by the Factors

Factors	Eigen value	Variance (%)	Cumulative Variance (%)
1. Compliance with shariah rules	9.991	21.719	21.719
2. Corporate governance structure and competence	5.523	12.006	33.725
3. Shariah Supervisory Board Structure & Competence	3.727	8.103	41.828
4. Regulatory bodies of the banks	3.160	6.869	48.697
5. Disclosed information to clients	2.623	5.703	54.400
6. Effective complaints handling	2.070	4.500	58.900
7. Non-issuance of misleading information	2.024	4.400	63.301
8. Recognition of expected profit or loss	1.748	3.800	67.101
9. Government regulation	1.470	3.196	70.297
10. Safeguard against casual occurrences	1.192	2.591	72.888
11. Obligation to full disclosure	1.115	2.424	75.312
12. Shariah Supervisory Board	1.100	2.392	77.704
13. Corporate Reporting & bank regulation	1.016	2.208	79.912

to handle complaints (2.24), has a transparent mechanism of conflict management (2.36), and has an appropriate safeguard against undue occurrences (2.32). The clients did not believe that their bank mistakenly issues misleading information (3.51), nor made an undisclosed profit at the expense of its clients (3.21). Respondents agreed that the bank sent them an invitation to annual general meetings (2.33). But interestingly the clients are found to rely more on newspaper (2.54), rather than bank's website (3.10) or e-mails (3.01) for price-sensitive information of their bank.

D. Overall Perception towards Ethical Standards in Corporate Governance

The overall perception of the respondents regarding ethical corporate governance of the banks is found positive. The study found that 86.1% of the respondents think

positively about banks ethical corporate governance. Mean index for overall perception towards ethical standard in corporate governance is found to be 1.96 (Std. dev.=0.82). It means that customers overall perception towards ethical standard in corporate governance of Islamic banks is positive.

E. Factor Analysis¹³

A factor analysis using orthogonal rotation¹⁴ is conducted to reduce the 46 variables into a few numbers of factors. The analysis reduced the 46 survey variables into 13 factors with Eigenvalue greater than one (Table 5). The factor analysis of 46 variables with 80 sample¹⁵ is found adequate (KMO test result = $0.543 \geq 0.5$) and valid (Bartlett's test of sphericity significance level = 0.000). As can be seen from the table, these 13 factors explain 79.91% of the variability. Also, it can be noted

Table 6. Variables of Factor 1

Sl No.	Variable Name	Factor Loading
1	Bank does not pay interest	.893
2	Bank does not receive interest	.879
3	Bank does not invest in any venture producing haram products	.776
4	Bank does not invest in any haram services	.690
5	Bank is not involved in any speculative activities	.613
6	Bank gives interest-free loans	.598
7	Bank follows all the major principles of Islamic banking	.507
8	Bank pays the obligatory payment of income and wealth (zakaah)	.494

Table 7. Variables of Factor 2

Sl No.	Variable Name	Factor Loading
1	The members of the BOD of the bank are sufficiently qualified to run the bank	.856
2	The members of the BOD of the bank are accountable to all the stakeholders	.694
3	The honorarium of the BOD is in line with company policy	.673
4	The members of the SSB are selected on the proper criteria determined by Bangladesh Bank	.580
5	The top management ensures ethical behavior among employees of the bank	.513

that the first two factors (Compliance of Shariah rules and Corporate Governance Structure and Competence) appear to be the most important as they explain 21.72% and 12.00% of the variability respectively. Some of the other notable factors include Shariah Supervisory Board ($s^2=8.10\%$), compliance assurance ($s^2=5.706\%$) and learning from mistakes ($s^2=4.944\%$). The communalities¹⁶ of the variables that constituted the factors are found very strong, which indicates strong relationships among the variables (Appendix 2).

The following sections describe and analyze these factors in detail.

Factor 1: Compliance with Shariah Rules

The first factor explaining 21.27% of the variability consists of eight variables (Table 6). The high factor loading¹⁷ explains the strong correlation of the variables with the factor. As noted most of the variables are linked with the compliance of shariah laws by the banks.

Factor 2: Corporate Governance Structure and Competence

The second factor explains 12% of the variability and consists of 5 variables (Table 7). The high factor loadings in this case also explain the strong correlation of the

variables with the factor. As noted most of the variables here are linked mostly with the parameter corporate governance structure, which includes the board of directors, the shariah board, and the top management.

Factor 3: Shariah Supervisory Board Structure and Competence

The third factor explains 8.1% of the variability consists of 5 variables (Table 8). The high factor loadings in this case also explain the strong correlation of the variables with the factor. As noted most the variables here are linked mostly with the features of shariah supervisory board.

Factor 4: Regulatory bodies of the banks

The fourth factor explains 6.87% of the variability and consists of 5 variables (Table 9). The high factor loadings in this case also explain the strong correlation of the variables with the factor. As noted, most of the variables here are linked mostly with the customer awareness about the regulatory bodies of the banks.

Factor 5: Disclosed information to clients

The fifth factor explains 5.7% of the variability and consists of four variables (Table 10). The high factor

Table 8. Variables of Factor 3

Sl No.	Variable Name	Factor Loading
1	The SSB is an independent body, not influenced by bank managers	.857
2	The SSB gives a truthful assessment and disclosure of the Shariah compliance of the bank	.769
3	The SSB is responsible for ensuring Shariah compliance of the bank	.588
4	The top management takes part in ethical decision making in line with Shariah compliance	.521
5	The SSB members are experts in the field of Islamic finance	.458

Table 9. Variables of Factor 4

Sl No.	Variable Name	Factor Loading
1	I know the functions of Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI)	.846
2	I know the functions of Islamic Financial Services Board (IFSB)	.740
3	Shariah board members do not sit on Shariah board of other banks	.527
4	Clients' awareness of the composition of the BOD of the bank	.476
5	Clients' familiarization of the Shariah rules	.460

Table 10. Variables of Factor 5

Sl No.	Variable Name	Factor Loading
1	I check the bank's website for price-sensitive information	.901
2	I check mails/e-mails for price-sensitive information of the bank	.897
3	I check newspaper for price-sensitive information of the bank	.754
4	The bank sends me the invitation to annual general meetings	.516

Table 11. Variables of Factor 6-8

Sl No.	Variable Name	Factor Loading
Factor 6 (Effective complaints handling)		
1	The bank has an effective procedure to handle complaints	.786
2	The bank never misleads clients by withholding material information	.729
3	The bank is transparent about conflicts while making clear what mechanisms are in place to manage them properly	.652
Factor 7 (Non-issuance of misleading information)		
1	The bank never deliberately issues information that is potentially misleading to the stakeholders	.849
2	The bank sometimes mistakenly issues information that is potentially misleading to the stakeholders	.732
Factor 8 (Recognition of expected profit or loss)		
1	The bank recognizes all expected profit or losses when reasonably measurable	0.705
2	The bank discloses the amount it is obligated to deposit with others as compensating balances	0.652

loadings in this case also explain the strong correlation of the variables with the factor. As noted, most of the variables here are linked mostly with the tools banks use to disseminate information to their clients.

Factor 6-8: Corporate and social reporting

The factor 6-8 mainly grouped the corporate social reporting variables explaining 4.5%, 4.4% and 3.8% of the variability respectively. The factors consist of 3, 2, and 2 variables respectively (Table 11). The high factor

Table 12. Variables of Factor 9

Sl No.	Variable Name	Factor Loading
1	Bangladesh Bank plays a major role in regulating the Islamic banks in Bangladesh	0.863
2	Government plays an important role in regulation of Islamic banks in Bangladesh	0.850

Table 13. Variables of Factor 10-11

Sl No.	Variable Name	Factor Loading
Factor 10 (Safeguard against casual occurrences)		
1	My bank has appropriate safeguard against occurrences due to lack of due care	0.844
2	The bank never manipulates price	0.630
3	My bank conducts its business in a socially responsible manner	0.386
Factor 11 (Obligation to full disclosure)		
1	The bank informs clients about its obligation to make full disclosure of material facts relevant to the proposed transaction before signing any documents	0.824
2	The bank provides general disclosure about credit risk in its financial statements	0.709

Table 14. Variables of Factor 12

Sl No.	Variable Name	Factor Loading
1	I am aware of the presence of a Shariah Supervisory Board in my bank	0.646
2	The top management has appropriate training in Shariah rules	0.634
3	I am aware of the composition of the Shariah Supervisory Board of my bank	0.573

loadings in each of the cases also explain the strong correlation of the variables with the factors. As noted, most of the variables here are linked with the banks corporate social reporting to their clients.

Factor 9: Government regulation

The ninth factor explains 3.2% of the variability consists of 2 variables (Table 12). The high factor loadings in this case also explain the strong correlation of the variables with the factor. As noted both the variables here are linked with the customer awareness about the public regulatory bodies.

Factor 10-11: Corporate and social reporting

The factors 10-11 again grouped the corporate social reporting variables explaining 2.59% and 2.42% of the variability respectively. The factors consist of 3 and 2 variables respectively (Table 13). The high factor loadings in most of the cases also explain the strong correlation of the variables with the factors. As noted, most of the variables here are linked with the banks corporate social reporting to their clients.

Factor 12: Shariah Supervisory Board

The twelfth factor explains 2.39% of the variability and consists of 3 variables (Table 14). The high factor loadings in this case also explain the strong correlation of the variables with the factor. As noted, most of the variables here are linked mostly with the customer awareness about the shariah body of the bank.

Factor 13: Corporate Reporting & bank regulation

The thirteenth factor explains 2.21% of the variability consists of 2 variables (Table 15). The high factor loadings in this case also explain the strong correlation of the variables with the factor. As noted, most of the variables here are linked with the customer awareness, corporate reporting & bank regulation.

Table 15. Variables of Factor 13

Sl No.	Variable Name	Factor Loading
1	My bank makes undisclosed profit at the expense of its clients	-0.769
2	My bank had entitled me to return only when I accepted the business risk of my financing	0.561

Table 16. Factor-wise distribution of simple variables in different parameter/complex variable

Parameters →	Corporate governance structure			Compliance with shariah rules		Ethical disclosure of information	
Complex Variables →	Board of Directors (BOD)	Shariah Supervisory Board (SSB)	Top Management	Compliance by the banks	Influence of regulatory bodies	Corporate and Social reporting	Measures to notify clients
Factors ↓							
Factor 1	-	-	-	8	-	-	-
Factor 2	3	1	1	-	-	-	-
Factor 3	-	4	1	-	-	-	-
Factor 4	1	1	-	1	2	-	-
Factor 5	-	-	-	-	-	-	4
Factor 6	-	-	-	-	-	3	-
Factor 7	-	-	-	-	-	2	-
Factor 8	-	-	-	-	-	2	-
Factor 9	-	-	-	-	2	-	-
Factor 10						3	
Factor 11						2	
Factor 12		2	1				
Factor 13				1		1	
Σ =	4	8	3	10	4	13	4

F. Factor-wise Distribution of Variables in Different Parameter/Complex Variable

The factor-wise distribution of 46 simple variables in different parameter/complex variable is shown in Table 16. As noted factors 1 and 9 covers mostly the variables under parameter “compliance of shariah rules”; whereas the variables under parameter “corporate governance structure” are grouped in factors 2, 3, and 12. Factors 5, 6-8, 10-11 mostly cover variables under the parameter “ethical disclosure of information”. Only factor 4 and 13 variables are a mixture of variables from two different parameters.

Further analysis shows that factor 1 contains most of the variables (8 of 10) of the complex variable “bank compliance of shariah rules”, factor 2 contains most of the variables (3 of 4) of the complex variable “BOD structure”, factor 3 contains most of the variables (4 of

8) of the complex variable “SSB structure” and factor 5 contains all the variables (4 of 4) of the complex variable “measures to notify clients”. Factors 6-8, and 10-11 only cover variables of complex variable “corporate and social reporting”. Hence it can be concluded that the factor-wise distribution of 46 simple variables is well-grouped in different parameter/complex variable.

VI. Correlation between Overall Ethical Standards and Different Demographic Features

The study tried to find out correlation between responses regarding the overall ethical standards and different demographic features (Appendix 3). It is noted that there is no significant correlation of the overall ethical standards

with age ($r = -0.073$ and $\alpha = 0.526$), gender ($r = -0.125$ and $\alpha = 0.272$), average monthly income ($r = -0.246$ and $\alpha = 0.067$), level of education ($r = -0.169$ and $\alpha = 0.145$), formal Islamic education ($r = 0.205$ and $\alpha = 0.074$), length of relationship with Islamic bank ($r = -0.215$ and $\alpha = 0.065$) of respondent at a significance level of 5%.

VII. Summary, Conclusion, and Recommendation

The study tried to analyze the customer perception regarding the ethical standards of corporate governance of the Islamic banks in Bangladesh. The first parameter for this study, *corporate governance structure, and competence*, intended to find out the customers' knowledge of the composition and competence of board of directors and shariah supervisory board (SSB) of the bank. In addition, the study also intended to find out top management role to maintain Shariah compliance.

The study noted that the customers are not fully aware of the composition of the board of directors of the bank, but they responded a little positively regarding the board of directors' competence, accountability, and honorarium. The customers were found to be aware of the presence of the shariah supervisory board of the bank, but they are not very sentient of its composition. The respondents noted that the shariah supervisory board members are expert in this area and selected properly and are responsible enough for ensuring Shariah compliance of the bank. Customers found the shariah supervisory board to be an independent body and perceived them to be fair regarding their assessment and accountability. They also think that the shariah board members of their bank do not sit on the shariah board of another bank. Customers noted that the top management team had an appropriate training in Shariah rules, take part in decision-making in line with Shariah compliance and also ensure ethical behavior of the bank employees.

The second parameter for this study is the bank's compliance and regulation of Shariah rules. The study found the response familiar with the Shariah rules. The bank clients very strongly agreed that their bank follows all the Islamic principles in their operations. Specifically,

they very strongly approved that their bank does not pay or receive any interest, do not involve in speculative activities, do not invest in haram services or product, make obligatory payment of zakah and give interest-free loans. Regarding the influence of regulatory bodies on the compliance of Shariah rules the customers are found positive to the role of Bangladesh Bank and Government of Bangladesh in regulating Islamic banks. But customers' perceived knowledge about the functions of other regulatory authorities of Islamic financing, like Islamic Financial Services Board (IFSB) and Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) are found very limited.

The third parameter of the research, disclosure of information, intended to find out the customers' knowledge and awareness of the information that should be disclosed by the bank. The study noted that the customers responded positively regarding ethical disclosure of information of the bank. They agreed that their banks make them aware of the credit risk, recognizes all expected profit or losses when reasonably measurable, discloses the amount it is obligated to deposit as compensating balances, do not manipulate price, never mislead clients by withholding information, never deliberately issues misleading information, and make full disclosure before signing a document. The study noted that the bank has an effective procedure to handle complaints, has a transparent mechanism of conflict management, and has an appropriate safeguard against undue occurrences. The clients do not believe that their bank mistakenly issues misleading information, nor makes an undisclosed profit at the expense of its clients. Respondents agreed that the bank sends them the invitation to annual general meetings. But interestingly the clients are found to rely more on newspaper, rather than bank's website or e-mails for price-sensitive information of their bank.

The overall perception of the respondents regarding ethical corporate governance of the banks is found positive. The study found that majority of the respondents think positively about bank's ethical corporate governance. It means that customers' overall perception towards ethical standard in corporate governance of the Islamic banks is positive.

Notes

1. Shariah: The basic principle in the Shariah (Islamic Canon Law) is that exploitative contracts based on interest or usury and speculation should be unenforceable. These laws are derived from three sources: The Quran, the Hadith, and the Sunnah.
2. Riba: Literally, an increase or addition. Technically it denotes in a loan transaction any increase or advantage obtained by the lender as a condition of the loan. Synonymous to rate of interest in the conventional banking mechanism.
3. Gharar: Speculative Activities
4. Haraam: That which is forbidden
5. Zakah: Charity
6. Mudaraba: The term refers to a form of business contract in which one party brings capital and the other personal effort. The proportionate share of profit is determined by mutual agreement. But the loss, if any, is borne only by the owner of the capital, in which case the entrepreneur gets nothing for his labor.
7. Musharaka: A partnership between two parties, both of whom provide capital towards the financing of a project.
8. Murabaha: It is a contract of sale in which the seller declares his cost and the profit.
9. Ijarah: This is a contract involving hiring or leasing through which the services of a person or legal entity or organization is rented out or leased
10. Ijaarah wa iqtinaa: leasing and purchasing
11. Bay'salam: forward sale
12. Fiqh al-Muamalat: Basic Shariah Principles
13. Factor is a linear combination of the original variables. Factors also represent the underlying dimensions (constructs) that summarize or account for the original set of observed variables. Factor Analysis is a type of analysis used to discern the underlying dimensions or regularity in the phenomenon. Its general purpose is to summarize the information contained in a large number of variables into a smaller number of factors. It is an interdependence technique in which all variables are simultaneously considered.
14. Orthogonal refers to the mathematical independence of factor axes to each other (i.e., at right angles, or 90 degrees). Factor rotation is the process of

manipulating or adjusting the factor axes to achieve a simpler and pragmatically more meaningful factor solution.

15. Ideally, the sample size should be at least 230 (subject to a variable ratio greater than 5). But due to accessibility and convenience, we have to limit our response size to 80 which is less than preferred one. The factor analysis of 46 variables with 80 sample is found adequate (KMO test result = $0.543 \geq 0.5$) and valid (Bartlett's test of sphericity indicates a significance level of 0.000).
16. Communality refers to a measure of the percentage of a variable's variation that is explained by the factors. It is the amount of variance an original variable share with all other variables included in the analysis. A relatively higher commonality indicates that a variable has much in common with the other variables taken as a group.
17. 'Factor Loading' is a measure of the importance of the variable in measuring each factor. It is used for interpreting and labeling a factor. It is the correlation between the original variables and the factors, and the key to understanding the nature of a particular factor.

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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.

Bylaws of the International Academy of Financial Consumers (IAFICO)

March 31, 2015

April 19, 2016

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 South 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 and associate member.

1. Regular member shall be a specialist in the area such as finance, consumer studies, economics, management, law, or 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, an 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 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 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 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 right 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 meetings 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 and auditor's report at the regular general meeting.
- ② There shall be two appointed auditors.
- ③ Auditors are elected at the general meeting.
- ④ And 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 five 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 shall 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 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 fulfill 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 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 IAFICO 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 2016.

2016 IAFICO GLOBAL FORUM FOR FINANCIAL CONSUMERS

- Financial Consumer Protection in Globalization

DATE : NOVEMBER 4-5, 2016

VENUE : INTERNATIONAL HALL, SKK UNIVERSITY,
SEOUL, KOREA

Host | IAFICO (International Academy of Financial Consumers)

Sponsors | Maeil Business Newspaper

Organizer | SKKU Global Insurance and Pension Research Institute



Forum Schedule At-A-Glance

November 4		
Time	Venue: International Hall 9B217	
9:00-9:30	Opening Ceremony Hongjoo Jung (President of the IAFICO, SKK Univ., Korea) for welcoming remark Woon Yeol Choi (National Assembly, former vice president of Sogang Uni.) for congratulatory remark Hyung Pyo Moon (National Pension Service, former minister of public health) for keynote speech Photo session	
9:30-10:45	New Development and Challenges for Financial Consumer Protection	
11:00-12:15	Evolution of Financial Supervision System for Financial Consumers	
12:15-13:15	Lunch	
13:30-14:45	Financial Service Sectors in Social Change	
15:00-16:15	Islamic Finance	
16:30-18:00	Book Project Meeting / Board of Directors Dinner (Invitee only)	
November 5		
Time	Venue: International Hall 9B217	
9:00-9:25	Special Speech	
9:30-10:45	HRM in Financial System Development	
11:00-12:15	Financial Cooperation and Development for the Emerging Economy 1	
12:15-13:15	Lunch / General Meeting	
	Track I Venue: International Hall 9B217	Track II Venue: International Hall 90208
13:15-14:30	Financial Cooperation and Development for the Emerging Economy 2	New Academic Research in FCP I
14:45-16:00	Consumer Protection in Mortgage Market	Roundtable Discussion I : Insurance Market Restructuring in Korea (in Korean)
16:15-17:45	New Academic Research in FCP II	Roundtable Discussion II : Financial Supervision Restructuring for FCP in Korea (in Korean)
18:00-18:15	Closing Ceremony	

Forum Schedule

November 4

Venue: International Hall, Room 9B217

M.C. Chul Choi (Sookmyung Univ, Korea)

SESSION A	New Development and Challenges for Financial Consumer Protection
9:30-10:45	<p>◆ Moderator: Ho Yeol Chung (SungKyunkwan Univ, Korea)</p> <p>◆ Presentation</p> <p>The new UN Guideline on Consumer Protection and Financial Services Gail Pearson (U. of Sydney, Australia)</p> <p>Implications of Digitalization Takaaki Hattori (FSA, Japan)</p> <p>Impact of New U.K. Consumer Law on Financial Consumers James Devenney (University College Dublin, Ireland)</p> <p><Discussion></p>
SESSION B	Evolution of Financial Supervision System for Financial Consumers
11:00-12:15	<p>◆ Moderator: Satoshi Nakaide (Waseda, Japan)</p> <p>◆ Presentation</p> <p>Australian Twin Peak System Andrew Schmulow (Australia, U. of Western Australia)</p> <p>Chinese Deposit Guarantee in Consumer Protection Xian Xu (Fudan Univ, China)</p> <p>European Consumer Protection in Finance Vincenzo Senatore (GSA, Italy)</p> <p><Discussion> Sung In Jun (Hongik Univ, Korea)</p>
SESSION C	Financial Service Sectors in Social Change
13:30-14:45	<p>◆ Moderator: Kyung Soo Kim (SungKyunkwan Univ, Korea)</p> <p>◆ Presentation</p> <p>Financial System for the aged in Asian Development Naoyuki Yoshino (ADB, Japan)</p> <p>Evolution of Public Pension System in Korea Jai Seop Lee (GEPS, Korea)</p> <p>Development of Fintech and its implication So Young Park (World Fintech Association, Korea)</p> <p><Discussion> Martin Dierker (KAIST, Korea)</p>

SESSION D	Islamic Finance
15:00-16:15	<p>◆ Moderator: Ahcene Lahasasna (INCEIF, Malaysia)</p> <p>◆ Presentation</p> <p>Better Protection of Financial Consumers – Risk Shifting and Islamic Banking Alaa Alaaabed (INCEIF, Malaysia)</p> <p>Application of Specific Relies in Islamic Banking in Malaysia Aishath Muneeza (INCEIF, Malaysia)</p> <p>Financial Consumer Protection in The Context of Schedule 7 – 10 in Islamic Financial Services Act 2013 (The case of Malaysia) Ahcene Lahasasna (INCEIF, Malaysia)</p>
SESSION E	Book Project Meeting (Project Members & BOD Members Only)
16:30-18:00	*BOD Dinner after the meeting

November 5 - Morning

Venue : International Hall, Room 9B217

M.C. Bum Kim (Soongsil Univ, Korea)

SESSION A	HRM in Financial System Development
9:30-10:45	<p>◆ Moderator: Sankarshan Basu (IIM, India)</p> <p>◆ Presentation</p> <p>HRM in Financial service sector Mari Yamauchi (Dojisha Univ, Japan)</p> <p>NCS Learning Module in Korea Mi Soo Choi (Seoul Digital Univ, Korea)</p> <p>Corporate Shared Value in Korea Paul Kim (SungKyunKwan Univ GSB, Korea)</p> <p><Discussion></p>
SESSION B	Financial Cooperation and Development for the Emerging Economy 1
11:00-12:15	<p>◆ Moderator: Hyuk Sang Sohn (Kyunghee Univ, Korea)</p> <p>◆ Presentation</p> <p>Indian Case of Micro Finance and Insurance Sankarshan Basu (IIM, India)</p> <p>Indonesian Case of Micro Finance & Insurance Rofikoh Rokhim (U. of Indonesia, Indonesia)</p> <p>Bangladesh Case MZ Mamun (U. of Dhaka, Bangladesh)</p> <p><Discussion></p>

November 5 - Track I

Venue : International Hall, Room 9B217

M.C. Bum Kim (Soongsil Univ, Korea)

SESSION C	Financial Cooperation and Development for the Emerging Economy 2
13:15-14:30	<p>◆ Moderator: MZ Mamun (U. of Dhaka, Bangladesh)</p> <p>◆ Presentation</p> <p>Perspectives in Development Finance and ODA in the Philippines Jeanette Madamba and Arnie Gil DLR Hordejan (U. of Philippines, Philippine)</p> <p>Iranian Case Ghadir Mahdavi (Iran)</p> <p>Risk-sharing Banking: Viability and Resilience Siti Muawanah Lajis (Central Bank of Malaysia, Malaysia)</p>
SESSION D	Consumer Protection in Korean Mortgage Market
14:45-16:00	<p>◆ Moderator: Man Cho (KDI School, Korea)</p> <p>◆ Presentation</p> <p>Financial Inclusion in Mortgage Market Jin Soo Lee (KDI School, Korea)</p> <p>Reverse Mortgage in Korea Seung Ryul Ma (HUG, Korea)</p> <p>Wealth Composition and Drawdown Patterns of Retirees : A Comparative Study Man Cho (KDI School, Korea), Young Man Lee (Hansung Univ, Korea)</p> <p><Discussion> Seung Dong You (Sangmyung Univ, Korea)</p>
SESSION E	New Academic Research in FCP II
16:15-17:45	<p>◆ Moderator: So Jung Park (Seoul National Univ, Korea)</p> <p>◆ Presentation</p> <p>Market Discipline in Life Insurance : Consumers' Reaction to Enterprise Risks of Insurance Companies Tsai-Jyh Chen (National Chengchi Univ, Taiwan)</p> <p>Sensitivity of Reinsurance Demand to Counterparty Risks : Evidence from US Property-Liability Insurance Industry So Jung Park, Xiaoying Xie, Pinghai Rui</p> <p>Determinants of the Purchase of Accident Insurance Products Chan Hee Lee (Sungkyunkwan Univ, Korea)</p>
SESSION F	Closing Ceremony
18:00-18:15	

November 5 - Track II

Venue : International Hall, Room 90208

SESSION C	New Academic Research in FCP I
13:15-14:30	<p>◆ Moderator: Sang Rim Lee (Mokpo Univ, Korea)</p> <p>◆ Presentation</p> <p>Company Stock in Defined Contribution Plans : Evidence from Proxy Voting Hee Jin Park (Welfare Co., Korea)</p> <p>Comparison of Financial Literacy between Insurance and Pension in Korea Irina Shin (SungKyunKwan Univ, Korea)</p> <p>The Study on the Economic Risk Perception – Focusing on Pension and Airbnb Jeong Hyun Son (SungKyunKwan Univ, Korea)</p>
SESSION D	Roundtable Discussion I : Insurance Market Restructuring in Korea(in Korean)
14:45-16:00	<p>◆ Moderator: Won Don Lee (Daegu Univ, Korea)</p> <p><Discussion></p> <p> Je Sung Kim (Loss Adjustor Association)</p> <p> Chang Ho Kim (National Congress, Korea)</p> <p> Sang Rae Park (Actuarial Society, Korea)</p> <p> Sun Ha Cho (Broker Association, Korea)</p> <p> Young Han Cho (Insurance Daily, Korea)</p>
SESSION E	Roundtable Discussion II - Financial Supervision Restructuring for FCP in Korea (in Korean)
16:15-17:45	<p>◆ Moderator: Hong Joo Jung (SungKyunKwan Univ, Korea)</p> <p>◆ Presentation</p> <p>Financial Supervision System for Financial Consumers Suk Heun Yoon (Seoul National Univ, Korea)</p> <p><Discussion></p> <p> Hong Mu Lee (Waseda University, Japan)</p> <p> Young Seok Park (Sogang Univ, Korea)</p> <p> Duk Jo Chang (Sogang Univ, Korea)</p> <p> Kyung Ha Chun (Seoul Daily, Korea)</p> <p> Kyung Joo Lee (Hongik Univ., Korea)</p> <p> Jungseok Song (Choongang Univ. Korea)</p>

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Publishing Institute	The International Academy of Financial Consumers 32516 Dasan Hall of Economics, SKKU, 25-2, Sungkyunkwan-ro, Jongno-gu, Seoul, Korea Tel : +82 2 760 1283 Fax : +82 2 766 0527 E-mail : iafico@skku.edu
