Implications on the Systemic Relevance in the Japanese Insurance Industry

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Abstract

A series of problems concerning AIG (the American International Group, based in the United States) that occurred during the global financial crisis in 2008 have proved to be relevant to financial systems in terms of the activities of insurers.

During the last crisis, contagious paths in risks, such as liquidity, spread and impacted the financial system. These paths were generally created by structural problems that emanated from the sharp expansion of leveraged liabilities and market transactions. This paper originates from and is motivated by the question of whether similar structural problems, as experienced in other jurisdictions, could arise in the Japanese insurance sector.

In the Japanese insurance sector we have in the past experienced the collective failure of seven life insurers over a period of around four years in the late 1990s, starting with the failure of Nissan Mutual Life Insurance Company in 1997. Unlike the case of AIG in the U.S., the insolvency of these insurers was resolved within the resolution scheme of Japan without the injection of public funds. However, over ten years after that, no specific reviews have been made based on the lessons of AIG and in light of the potential systemic relevance of past failures in Japan. Particularly absent are reviews with a focus on whether structural problems similar to those in the last crisis were potentially identified in the Japanese insurance sector, and to what extent such similarities affected the Japan’s financial system.

In response to the last global financial crisis, conceptual approaches to measuring the systemic relevance of financial institutions are being established in international fora, highlighting not only banking sector but also non-banking sectors including insurance sector. This paper mainly places an emphasis on the abovementioned structural problems observed during the last crisis, and examines potential factors that may increase the systemic relevance of the life and non-life insurance sectors in Japan, with a particular focus on the past and current attributes of Japanese insurers as follows: (1) the sharp expansion of off-balance-sheet liabilities and liquidity issues due to a rise in the lapse rate (policyholder’s lapse) that was observed in the 1980s to the late 1990s and (2) concerns over the lack of substitutability that could unexpectedly arise from the enhanced social and public nature of insurance services in the Japanese non-life insurance sector.

Keywords: insurance, life insurance, non-life insurance, systemic risk, non-traditional insurance activities

IAIS JEL Classification: JEL G01, G22, G28
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Chapter I. Global financial crisis and insurers

I-1. Overviews

In general, particular contagious paths of systemic risk cannot be clearly found in insurers as they do not hold settlement chains like commercial banks. On the other hand, some similarity could be identified among banking and insurance business, such as the function as a financial intermediary. Insurers utilize policyholders’ premiums to provide insurance coverage through financial investment activities.

Given the embedded financial intermediary function in insurers, the insurers’ insolvency and its systemic impacts should be carefully monitored under the financial regulation and supervision. In the last global financial crisis, which began in 2008, the financial authorities were urged to reconsider their existing safety net, regulation and supervision as they were confronted with the contagion of risk emanating from the particular financial and market transactions (e.g. money market activities and derivatives) as well as the disruptions in financial institutions including institutions which operate non-banking business.

Although Fuchita (2010) acknowledges that the safety net to prevent systemic risks had been prescribed before the last crisis, he argues that these existing safety nets and preventive mechanisms were mainly prescribed to the banking sector only, so that the cumulative risks out of the banking sector were not sufficiently addressed in the last crisis. Based on the lessons learnt from the crisis, non-banking financial institutions including insurers were urged to improve their business operations comprehensively.

In the G20 London Summit held in April 2009 after the crisis, the G20 leaders requested the creation of measurement to gauge the systemic importance of financial institutions, financial markets, and financial commodities. Upon the request, the Financial Stability Board (FSB), the International Monetary Fund (IMF) and the Bank for International Settlements (BIS) jointly published a guidance paper.2

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1 Ikeo (1997, p. 14). As regards the financial intermediary of insurers, life insurers, with broader perspective, play a financial intermediary role along with banks as they provide investment function as well as protection and guarantee function. They are funded by issuing insurance certificate (functioned as indirect certificate) as a form of liability, thereby they can operate asset investments to the lending and securities and so forth.
This guidance paper provided two particular achievements in the development of measurement for systemic risk. The first achievement is that it provided a conceptual yardstick to gauge the systemic relevance of financial institutions and transactions. Another achievement is that it specified the definition of systemic risk while an established definition did not exist. In the guidance, systemic risk is defined as a disruption to the flow of financial services that is (i) caused by an impairment of all or parts of the financial system; and (ii) has the potential to have serious negative consequences for the real economy. This given definition has contributed to progress in analytical studies on systemic risks, especially in the studies of non-banking sector, since the definition is broadly applicable to broader financial sectors other than the banking sector.

According to the guidance of FSB, IMF and BIS (2009a), the notion that systemic events are associated with negative externalities is fundamental to the definition of systemic risk. In addition, the guidance particularly highlights the systemic impacts on negative consequences to the real economy.

Theoretically, the flow of funds in the financial system is accommodated by the redundant parties to the short parties via various economic entities. The relations between various parties create the interconnections through transactions. In other words, the financial system constitutes the network of clusters based on such numerous interconnections. Once a cluster is damaged by the failure of financial services, the other clusters could be affected in a chain reaction and the damage would ultimately affect the whole financial system. In this sense, the potential vulnerability is embedded in the financial system. This potential nature is defined as interconnectedness, and this nature is identified as one of the key criteria to gauge systemic relevance in the stated guidance.

The systemic risks manifested in the last crisis were originated from a structural distortion, such as excessive investment for securitized products and unwinding liquidity positions caused by the excessive leverage and cumulative derivative counterparty risks. This structural problem is not solely attributable to the business operations in investment banks or commercial banks. Rather, it is also attributable to those of insurers as proven in a series of problems at AIG.

I-2. The insurance sector amid the global crisis and its systemic impacts

Let us firstly review the impacts of the last global crisis in Japan’s insurance sector. Amid the last global crisis, a small sized Japanese insurer, Yamato Life, failed in October 2008. Yamato Life was resolved within the existing resolution scheme prescribed in the Japanese financial system, so that no negative externality or negative consequences to the economy were materialized.

The failure of Yamato Life was triggered by the specific corporate culture embedded in

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2 FSB, IMF and BIS (2009a)
3 FSB, IMF and BIS (2009a, P 11)
its operations. For years, it relied on high yield investments, such as securitized and high-yield bonds, to compensate for the high cost structure in the insurance underwritings.\(^4\)

Before the last global crisis, due to the recession and low interest environment, Japan had experienced the collective failures in life insurers from 1997 to 2001, which were mainly due to the enlarged negative gap between investment returns and the underwriting assumption. Unlike the cases identified in the past collective failures, the case of Yamato is considered to be specific.

Although the failure of insurer in Japan was limited to the case of Yamato under the stressed situation of the last crisis, the distressed market affected the financial conditions in the Japanese insurance sector. Particular damage was found in the life insurers through the impairment of investment assets.

The insurance regulatory system in Japan requires insurers to reserve the additional prudential buffers to counter unexpected losses arising from the sudden shocks, such as fluctuations of market and huge losses in underwritings, onto the statutory technical reserves which are estimated conservatively.\(^5\)

Figure 1 indicates the major four life insurers’ results (Nippon Life, Daiichi Life, Meiji-Yasuda Life and Sumitomo Life) around fiscal year 2008 (from April 2008 to March 2009), in which the graphs represent how the prudential buffers worked as going concern

\[^4\] Financial Services Agency, Japan (2008)

\[^5\] The technical reserves shall be calculated based on the standardized method in accordance with the Insurance Business Act. As regards the long term insurance contracts, insurers are required to conservatively assume initial rates such as mortality and discount of future cash flows.
loss absorbency during the last crisis. In that fiscal year, the core profits and capital profits, which are collectively regarded as pure returns from investments and underwritings, fell into the negative. Even though intrinsic profits were damaged by market fluctuation (losses around 600 billion yen in total by the major four insurers), the major insurers could ensure the net profits in the final results as the prescribed prudential buffers were effective for absorbing losses.6

Figure 1 shows that the level of net profits has been positively stable before and after the last crisis owing to the prescribed prudential buffers. The risk-based prudential regime implemented in the late 1990s in Japan displayed a positive result during the last crisis.

Underpinned by the prescribed buffers, the major life insurers demonstrated their resilience to losses that arose due to the last crisis. Thus, it is acknowledged that the total impacts from the last crisis were generally negligible in the Japanese insurance sector. However a particular systemic impact from non-banking business was highlighted by the global insurers outside of Japan.

The non-banking systemic impacts were erupted by downgrading the monoliners, such as MBIA and AMBAC, with additional collateral calls in credit guarantees and CDS protections. In addition, the systemic impacts by liquidity risks were also caused by sizable derivatives which were unable to be wound in the financial arm of AIG. The deepened concerns over liquidity spread over to the global financial system.

Under this situation, the Federal Reserve Board (FRB) was urged to stanch the contagion of risk to the whole financial system by injecting public funds. In September 2008, with the full support of the U.S. Treasury, the FRB authorized the Federal Reserve Bank of New York to lend up to 85 billion dollars7 to AIG in an initial injection pursuant to Section 13(3) of the Federal Reserve Act.

AIG’s total assets were valued at more than 1 trillion dollars at the end of 20078 and it had a complicated business structure with units including those for composite insurance, asset management, and financial servicing activities.

The cause of problems at AIG was not the bank-like run or failure of traditional insurance activities. Rather, the financial arm of AIG, AIG-FP, created liquidity concerns through the CDS and securities lending.

Although the reasons behind the occurrence of liquidity risk in AIG were compounded by several structural factors, Seki (2009) stated that, as the background to complicated problems, liquidity risks in AIG were created under the situation where CDS and securities lending hardly liquidated their position. In September 2008, the outstanding notional amount of derivatives at AIG accounted for around 2.7 trillion dollars and its relevant counterparties

6 In this paper, price fluctuation reserves, contingency reserves and catastrophe reserves are collectively defined as prescribed prudential buffers. The prudential buffers are reserved for absorbing specific losses by insurers in accordance with the Insurance Business Act. However, these prudential buffers are allowed to be allocated to other losses subject to supervisory approval or prior notification to supervisor.


8 American International Group (2007)
spread not only to financial institutions in the U.S. but also to overseas investors, pension funds, asset managers and public sector entities. This complex interconnectedness made by the financial arm of AIG exacerbated the situation of financial system.

The public funds injection by the U.S. government was a form of liquidity enhancement to halt further contagion of liquidity risk. As a result of a series of injections, the total public funds have amounted to the 182 billion dollars in total till April 2009.

As regards a series of injection, Bernanke (2009) testified that the Federal Reserve and the Treasury agreed that AIG’s failure under the conditions then prevailing would have posted unacceptable risks for the global financial system and for the U.S. economy and added that AIG’s failure could have resulted in a 1930s-style global financial and economic meltdown, with catastrophic implications for production, income and jobs. According to the tone in this testimony, we can recognize that they had great concerns over financial systems then. In addition, Bernanke (2009) stated, as the lessons learnt from AIG, that AIG highlights the urgent need for new resolution procedures for systemically important nonbank financial firms and the need for strong, effective consolidated supervision of all systemically important financial firms.

AIG was literally the epicenter of the systemic risk in the last crisis. In addition, a series of issues of AIG has demonstrated that an insurer could have a systemic impact in the financial system.

On the other hand, as regards the Japanese insurance sector in the past, we experienced the collective failures of seven life insurers over a period of around four years starting from 1997. Unlike the case of AIG, the collective insolvency of these insurers was resolved within the prescribed resolution scheme in Japan without the injection of public funds.

However, over a decade after the failures in Japan and based on the lessons of the AIG case, specific reviews have not been made in light of the potential systemic relevance in the Japanese insurance sector.

This paper emphasizes the potential systemic relevance and provides systemic implications inherent to the Japanese insurance sector with a particular focus on the similar structural factors or distortions as seen in the last crisis. These issues will be addressed in Chapter III and Chapter IV.

Unlike the past experience of collective failures in the Japanese life insurance sector, the Japanese non-life insurance sector has not collectively experienced failures, but it did experience specific and small insurance failures. Therefore, it is not necessary to particularly refer to small failures for analyzing the potential systemic importance in non-life insurance sectors. Accordingly, the analysis mainly places on emphasis on the embedded nature of less substitutability, taking into account the social and public nature inherent to non-life insurance underwritings. This nature will be addressed in Chapter IV.

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9 Kohn D.L. (2009) and Geneva Association (2010b)
10 Massad T.G. (2012), and Weber B. (2013)
11 Bernanke B.S. (2009)
Chapter II.  The Development of Measurement for Systemic Risk

II-1.  Internationally Standardized Measurement for gauging systemic risk - at initial stage

In October 2009, FSB, IMF and BIS jointly published a guidance paper (FSB, IMF and BCBS (2009)) as stated in Chapter I.

This guidance was established in accordance with a request from G20 leaders and provides high level principles to gauge the systemic importance of financial institutions and transactions, while the paper acknowledges that assessments of systemic importance will necessarily involve a high degree of judgment, and will likely be time-varying and state-dependent.

Notwithstanding the fact that the paper materialized in shortly after the last crisis, it provides insightful views and analytical approaches for the measurement of systemic importance that is potential to institutions and transactions. The guidance also addresses the lesson learnt from the last global crisis. In fact, it has subsequently led the development of an assessment methodology for the designation of global systemically important banks (hereinafter referred to as G-SIBs) and global systemically important insurers (hereinafter referred to as G-SIIs) in 2011 and in 2013 respectively. It has also led the further development of policy measures for systemically important financial institutions (hereinafter referred as SIFIs) to reinforce their supervision and prevent the too-big-to-fail issue.

In the conceptual measurement, the guidance sets three key criteria to address the characteristics of systemic importance of financial institutions. The key criteria are composed of three categories, namely (1) the size, (2) the interconnectedness and (3) the lack of substitutability.

In the lessons learnt from the last crisis, structural factors, such as issues on leverage, maturity mismatch and illiquidity assets, amplified the systemic importance and affected the real economy as a consequence. From that viewpoint, the criteria of interconnectedness and a lack of substitutability can also function as standards to capture structural problems identified in the last crisis.

As regards the key criteria provided in the guidance, the following views are of importance to address the systemic importance in the assessment.

As regards the size criteria, the background paper attached to the main paper contemplates the results of a survey to which the authorities responded. The background paper provides the reason why the guidance paper chose three key criteria to gauge systemic importance. Especially, it states that size is one of the key criteria and is by far the most important

12 FSB, IMF and BIS (2009a) provide contributing factors which support an assessment and are regarded as the specific or economy wide factors that can affect the assessment of systemic importance in addition to the three main criteria. These factors are: leverage, large maturity mismatches, an holdings of illiquid assets and complexity.
13 FSB, IMF and BIS (2009b)
factor contributing to the classification of systemic importance, with few exceptions.

In fact, the systemic importance could be enhanced through the sizable financial transactions and services. On the other hand, the cause of systemic risk that emerged in the last crisis was mostly due to the cumulative distortion by the leverage and derivative transactions. The fundamental problems are rooted to the structural factors in the behaviors of financial institutions as a consequence. Due to this fact, it seems that the size is not determinant or ultimate factor to gauge systemic importance.

As regards the criteria of interconnectedness, it represents the intra-relations of economic entities within the financial system and the likelihood of financial distress in other institutions when one institution faces financial distress. As introduced in the guidance, the network analysis is one of the effective tools to assess the interconnectedness. However, what is more important is that we interactively recognize the interlinkages among entities in light of inbound flow and outbound flow of exposures within related entities in the analysis.14

In the last crisis, complex interconnectedness under the OTC derivatives caused great systemic concerns. As regards derivative transactions, each level of counterparty risks inherent to the OTC and central counterparty are qualitatively different. Transactions with a central counterparty might reduce the interconnectedness compared with the risks in the OTC counterparties. However, the case of OTC counterparties may have different systemic impact between respective counterparties due to differences in terms of size, level of dependence and concentration. They reciprocally have interlinkages but the level of concentration on exposure may be different. In order to gauge the interconnectedness precisely, interactive views are of importance in the assessment.

As regards the lack of substitutability, this criterion is one of the most difficult areas to set out the quantitative indicators. In addition, this area could require a high-level qualitative analysis. As the social and public nature in insurance underwritings enhances, the issue of un-substitutability could be incremental. This nature will be addressed later in Chapter IV concerning the nature of non-life insurance underwritings.

II-2. Internationally Standardized Measurement for gauging systemic risk - at development stage

In November 2010, the FSB published the report on reducing the moral hazard posed by systemically important financial institutions.15 The report defines global SIFIs as the institutions with such size, market importance, and global interconnectedness that their distress or failure would cause significant dislocation in the global financial system and adverse economic consequences across a range of countries. Since the report of FSB (2010) published, the reduction of both moral hazard arising from failures of SIFIs and negative externality arising from disorderly failures have been becoming highlighted.

14 FSB, IMF and BIS (2009b, p.24). In the context of network simulations of credit and liquidity events relating to the interconnectedness, it is stated that size need not be the only criterion in identifying the relevant set of financial institutions.
15 FSB (2010)
The report requires authorities to improve the resolvability of SIFIs in order to be resolved in an orderly manner and without taxpayers support under the applicable resolution regimes in the jurisdictions, while maintaining the vital business and economic functions of the SIFIs.

The fundamental motivation for this established concept stems from the incidents of public fund injection by the authorities in the U.S. and Europe during the last crisis. Around that time, the main message of the G20 gradually focused more on reducing moral hazard of financial institutions which foresee a public funds injection if they become insolvent. While the complexity of financial business was treated as a contributing factor (secondary factor) in the guidance of FSB, IMF and BIS (2009a), the complexity of business that prevent the orderly resolution was more highlighted as a main indicator of assessment as seen in the banking methodology for designation of G-SIBs.

Based on fundamental concepts described in the report of FSB (2010), the BCBS finalized the assessment methodology for G-SIBs. The key indicators that assess the designation of G-SIBs are (1) the size, (2) the interconnectedness and (3) the substitutability, as highlighted in the guidance of FSB, IMF and BIS (2009) as key criteria for gauging the systemic importance. There are two main additional factors, namely (4) the complexity and (5) the cross jurisdictional activity that address the impacts to the global financial system.

As stated above, the indicator of complexity functionally addresses the structural factor to draw the disorderly failure and prevent the resolvability of institutions. The cross jurisdictional activity is an indicator that not only gauges the level of global business but also addresses the size and increased complexity of cross border business in institutions.

Table 1 compares the difference of the assessment methodologies between banking and insurance. In the size indicator of banking approach, a cross jurisdictional activity indicator, where the objective data can be used, is quantitatively used, applying the exposure of the Basel III leverage ratio that includes the off-balance sheet exposure and the cross-jurisdictional claims and liabilities in the consolidated international banking statistics published by the BIS.

On the other hand, specific data provided by the financial institutions are used in the indicator of the interconnectedness, substitutability and complexity that collectively capture the structural factor which relates to systemic relevance.

As regards the indicator of the interconnectedness, this represents how financial distress at one institution can materially raise the likelihood of distress at other institutions. As reciprocal trading and cross border transactions by financial institutions develop, the interactions between them also increase. In this sense, intra-financial claims and liabilities are used in the indicator of interconnectedness.

In addition, based on the case of Northern Rock which caused systemic concerns in the last crisis, the wholesale funding ratio is applied in the BCBS methodology since the bank

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16 BCBS (2011)
17 The author made in accordance with BCBS (2011) and IAIS (2013a)
relied on wholesale funding from the market and invested illiquid assets, which caused liquidity problems.

As regards the indicator of the complexity, the indicator which stands for the complex interconnectedness caused by derivatives transactions with the various counterparties is applied. The OTC derivatives represents the nature of interconnectedness among various counterparties as well as the nature of complexity of liquidation. Level 3 assets are used as an indicator of the complexity of liquidation as they indicate the difficulty of valuing assets in accounting and are potentially illiquid assets that are not easily market-valued in fair manner. This is based on the lesson that, in the last financial crisis, investment in securitized products and other illiquid assets led to the situation without fair price.

In particular, as regards the interconnectedness and complexity, these two indicators, al-

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(Source) BCBS (2011) and IAIS (2013a)
though in separate categories, are recognized as relevant since the complex interconnectedness would enhance the difficulty in the process of resolution.

Using indicators in five categories, the indicator based approach is applied in the banking assessment methodology, which gauges systemic relevance with scores in a comparative manner. The score is calculated by the relative dominance of the potential “SIFI-ness” of financial institutions using data pools that are made from the data population provided by the financial institutions. The banking methodology gives an equal weight of 20% to each of the five categories to gauge systemic importance.

After the banking methodology was finalized, the IAIS, which is the international standard setting body in the insurance supervision, published the assessment methodology for the G-SIIs in July 2013.\textsuperscript{18}

The methodology on designation of the G-SIIs is similar to the banking approach as it adopts scoring by similar indicators. However, some conceptual differences\textsuperscript{19} exists in the categories and indicators compared with the banking methodology.

The first specificity is that the IAIS is of the view that no physical factors to amplify systemic importance exist in traditional insurance underwritings. In general, the insurance underwriting is in accordance with the law of the large numbers which are independent and uncorrelated to the respective insurance accidents occurring among policyholders (e.g. mortality, medical incidents). In addition, they generally have a scale merit on decreasing risks as underwritings increase. Therefore, traditional insurers could not be directly relevant to the size criteria, so that the IAIS applied a lower weight on the size criteria with 5% out of the total. (See Table 1)

The second specificity is that, unlike the banking interconnections based on the settlement chains with other financial parties, the interconnection of traditional insurance undertakings are closely limited to the interaction between an insurer and a policyholder. Hence, if the bank-like natures generated from non-traditional insurance activities are enhanced, the systemic relevance of insurers may increase as a result.

In addition to the nature of the law of the large numbers, investment activities by insurers are generally limited to the value of the policyholders’ premiums paid. In the general course of investment activities by traditional insurers, liability funding from the market that creates the leverage would not be needed except for special case, such as inception of new insurance business. Accordingly, the insurance methodology places an emphasis on insurers’ non-traditional and non-insurance activities.

Based on these concepts, the insurance methodology applies the five key factors to gauge the systemic importance of insurers, namely the size, the global activity, the interconnectedness, the lack of substitutability and the non-traditional and non-insurance activities (hereinafter referred as NTNIs).

Table 1 provides the difference of the methodologies between bank and insurance. As

\textsuperscript{18} See IAIS (2013a)

\textsuperscript{19} See IAIS (2011)
indicated in Table 1, the NTNIs indicator is specific to the insurance methodology. This indicator is functionally considered to be a substitution of the complexity in banking. The complexity captures the disorderly resolved nature in the financial business and is also applicable to the insurance context. For example, the NTNIs capture the potential systemic relevance on minimum guarantee risks in variable annuities, which is one of the products that are not simply resolved in the insurers’ failure. The names of the indicators are different but the fundamental natures are almost identical.

The concept of non-insurance is to capture the nature of amplifying the systemic importance by insurers as a consequence of the bank-like businesses. There are specified indicators in the IAIS approach, including derivative transactions, short-term funding and liabilities (e.g. market funding) other than technical provisions, to address the bank-like nature of transactions. On the other hand, the concept of non-traditional insurance in the IAIS methodology is not clearly defined, so specific judgment is needed. However, the following perspective will help distinguish the non-traditional insurance.

For example, variable annuities, which have a nature similar to that of investment trusts, generally embed the minimum guarantee options. In the management of the product where risks are compounded, insurers synthetically create derivative positions to hedge the minimum guarantee risks and operate complex position in the management. As a consequence, the nature of complexity in this product would be amplified and would harden the windings and resolution process. This type of product could not be resolved in an orderly manner. Based on its complex nature, this type of product should be applied to the category of the non-traditional insurance indicator in the methodology.

On the other hand, even in the case of traditional insurance, several insurance products could not fit to the law of large numbers. The typical example is the coverage for natural disaster risks. Although this type of product does not constitute the complexity itself, the less substitutability would alternatively arise in the situation of insurers’ insolvency and halt of insurance services. This nature should be captured in the indicator of the substitutability rather than the non-traditional insurance indicator in the IAIS.

Taking into account the different nature of insurance from that of banking, the indicators of the interconnectedness and the NTNIs are granted as a high weight of 40% and 45% respectively in the methodology of the IAIS.

As stated before, the similarity in natures exists between interconnectedness and complexity to some extent. The similarity also exists between the nature of the interconnectedness and the NTNIs category.

Take the indicator of level 3 assets as an example, this indicator is categorized under interconnectedness in the IAIS methodology, and under complexity in the BCBS methodology.

Among others, reinsurance is one of the most difficult indicators for precisely capturing

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20 For insurers, minimum guarantee risks, in general, are hedged synthetically by derivative transactions and are inherent to risks in general accounts as distinct from segregated accounts. On the other hand, policyholders undertake buying of put option based on minimum guarantees.
the nature of interconnectedness. Conceptually, the nature of risk transfer in reinsurance is quite similar to the nature of securitized products that distribute the risks to various entities. In this sense, the inherent nature of reinsurance is considered as a source of systemic relevance.

Notwithstanding its similarity, the different nature exists, in that reinsurers are generally subject to the supervision by financial authorities and required to reserve the technical provisions. In this context, plain reinsurance transactions are generally undertaken within the entities which are subject to the financial supervision. In the quantitative approach adopted by the IAIS, the amounts of technical reserves by inwards reinsurance are used as specified indicator to gauge the level of interconnectedness of reinsurance, while this indicator is still controversial.

The IAIS methodology also applies an indicator-based approach similar to that applied in the BCBS. The quota of 85% is allocated in the interconnectedness and the NTNI in total. These two indicators almost stand for capturing systemic importance of insurers.

Chapter III. Systemic relevance of Japanese life insurers

III-1. Comparative study among international life insurance markets

Let us firstly clarify the natures in Japanese life insurance market and make a comparison among insurance markets around the world. In general, Japanese life insurance market provides long-term coverage that adheres to the insurance products of protection. Among others, the mortality products approximately account for two-thirds in the life insurance market, so stable investment on a long-term basis is particularly indispensable for life insurers. However, the nature of Japanese life insurance market does not always fit other foreign life insurance markets.

Life products vary in nature among international markets, which especially make it difficult to compare the quality of insurers’ liability among internationally active insurers. Due to the diversified nature, comparability among international insurers is one of the long standing issues with respect to the convergence of insurance accounting and capital standards, which have collectively yet to be concluded.

For example, the life market in Germany\textsuperscript{21} mainly provides pensions and endowments that are deemed as saving type of products. Italy\textsuperscript{22} and France\textsuperscript{23} are broadly similar as they both provide bank-like saving products (with-profits products) through bank-counter channels which stand as a main product distribution. The life market in the UK\textsuperscript{24} generally provides investment and saving products, such as unit-linked and variable products, which are

\textsuperscript{22} LIAJ (2014) and Associazione Nazionale fra le Imprese Assicuratrici (ANIA) (2014), “L’assicurazione italiana”
\textsuperscript{23} LIAJ (2014) and Federation Francaise Des Societes D’Assurances (FFSA), “La Revue De L’Annec”
\textsuperscript{24} LIAJ (2014) and Association of British Insurers (ABI) (2010), “Long-term insurance statistics”
similar to investment trusts. The U.S. is the world’s largest insurance market and provides a variety of products, including universal, medical, pensions, and variable annuities to meet the various needs of policyholders.

These gaps in product localities would be approximately caused by the following reasons, although empirical verification might be difficult.

Firstly, ethnic, religious and cultural backgrounds for views of death and life could be reflected in respective product natures. Although it depends on the width and depth of coverage in social security systems, some are of the view that they prefer to cover protection and warranty for families of the deceased, assuming the situation after death, and others are of the view that they prefer to cover benefits during life. The former is a sentiment similar to that of Japanese policyholders and the latter is similar to that of the U.S. and European policyholders.

Secondly, the width and depth of the social security system of a nation will be reflected in the nature of the related products. The historical background and development processes in social security are not necessarily the same from nation to nation. In the U.S., private insurers in particular are substituting for public medical insurance system as the public medical system does not cover all citizens. In Japan where all citizens are covered by public system, the public benefits paid to citizens are mostly composed of public medical care and pension. Therefore, policyholders’ appetite would encompass the products not fully covered by the social security system. In this context, private life insurers in Japan are likely to provide protection-based products.

Thirdly, the types of distribution channels will be reflected in the nature of related products. There is a variety of channels, such as the OTC in bank offices, sales staff, brokers, and internets. In countries such as France and Italy, the distribution channel of banks is in large part and is likely to provide savings products that are close to the bank savings.

Lastly, the depth of the insurance sector in the national financial system could be reflected in the nature of the products. The Japanese financial system is mainly constituted by deposit-taking institutions as indicated in Figure 4. On the other hand, as for the U.S., the depth of the insurance and pension sector in the national financial system is greater than that in the banking sector. Therefore, households are more likely to invest in insurance products than hoarding in deposits to banks. For investment purposes, they will seek returns from insurance assets, so investment-type annuity products, which are one of the major products in the U.S., would meet the policyholders’ appetite.

As regards the distribution channel of Japanese insurance market, the use of the banking channels by insurers has been gradually alleviated in regulation during the 2000s. Through transition period of alleviation, the banking and insurance businesses has been partially harmonized. However, Japanese life insurers still have a great number of sales staffs who are trained and employed, and they are still in the major distribution forces in the Japanese mar-

ket. Under this situation, bank-like savings insurance through banking channels has not been fully prevailed in the Japanese life market, as seen in other countries.

Following Japan’s financial system reform implemented in the late 1990s, the government gradually deregulated the firewalls to facilitate the entry of other financial businesses by means of the structure of holding company or subsidiary. In other words, before deregulation, group-based and universal financial services had not been fully developed for years in Japan.

After the deregulation, some major insurers formed holding companies and developed a group structure. Notwithstanding transforming more consolidated group structure with non-insurance financial businesses, such businesses are yet to be material in Japanese insurers at present.

With regard to the group structure especially formed by conglomerate financial business, a certain level of risk separation is necessary among each business line, such as baking, insurance and asset management etc.. As seen in some European insurers, they have a variety of financial services compounded in groups that embrace both insurance and banking operation.

Under this structure, they could earn effective group management in the conglomerate structure, but they could not execute effective separation when the risks emanate from other financial businesses. The case of ING (Internationale Nederlanden Groep N.V.), which suffered in the last crisis and in which public funds are injected by the government, is one of the typical examples of how difficult it is to reorganize and separate business once after banking operations had been integrated with insurance under complexity of its structure.

We have briefly overviewed the product natures around the world. On the other hand, we have to be minded that product nature will change over time. In fact, insurance endowments prevailed in the Japanese market during the 1960s and 1970s. In the next section, we will examine the growth and development experienced in the Japanese life insurance sector, envisaging the historical backgrounds of the Japanese economy.

III-2. Quantity-based growth driven by macroeconomic growth – life insurers

The growth of the Japanese life insurance sector had been underpinned by the growth of population and national income due to high economic growth experienced during the 1960s and 1970s. The macroeconomic environment had amplified the volume of insurance policies until the late 1990s, when the first life insurer’s failure occurred in 1997.

Figure 2 exhibits the amount of insurance policies in force. The total amount of insurance policies in force means the aggregated amount of insurers’ warranty and protection to policyholders. Notwithstanding the economic fluctuation in the bubble economy and its burst in early 1990s, the cumulative growth in insurance policies was sustained until 1996.
when the value peaked at over 2,000 trillion yen.

Based on this fact, we recognize that life insurers have achieved sizable growth with extraordinary expansion underpinned by the enlarged macroeconomic capacity. The path of their capacity building had not been directly relevant to economic cycles even over the period of the bubble economy and its burst. This particular growth had not been seen in other financial sectors, such as the banking sector.

Let us further retrace the historical background to life insurance market since World War II. Immediately after the end of World War II, the Japanese life insurance sector was confronted with financial hardships due to the increase in payment for war victims and in cost under high inflation. The government decided to provide the grace of payment in high-value insurance claims above certain threshold and the segregated accounts were established to manage the claims deferred. During the great turbulence after the war, partial disruption in insurance services was experienced.

Ten years after the war, the Japanese life insurance sector began to gradually recover from the disruption of business and succeeded in dramatic recovery and growth from the 1960s. The achievements of growth were underpinned by the macroeconomic growth in the 1960s and 1970s and the benign interest rate environment in the 1980s, when insurers enjoyed low cost and high guarantee products.

Let us confirm the stage of growth in life insurers in contrast with the growth of the overall financial system in Japan.

Figure 3 illustrates the fund volume in each financial sector. As the economy developed after the 1960s, the size of the financial system also increased till the late 1990s, but then...
leveled off at around 1,700 to 1,800 trillion yen.

Figure 4 illustrates the composition of fund volume in the financial sector. As illustrated in the chart, the Japanese financial system is dominated by deposit-taking institutions, including banks, mutual banks, and agricultural banks and so forth.

About forty years ago, life insurance had a share of only 5% of the financial market. Around the late 1990s, the composition exceeded 10%. In 2013, the fund volume of the life insurance sector was around 340 trillion yen out of approximately 1700 trillion yen in the whole financial sector and accounted for about 20% (in 2013, Japan Post Insurance had a share of about 5% and other private life insurers had about 15%).

Based on the extraordinary growth, the life insurance sector has earned a status second only to banks (commercial banks in urban and regional areas, which has a share of about 40% of the total sector in 2013). For a historical comparison, the private life insurance sector has developed from a share of 10% in 1998 to 15% in 2013, excluding Japan Post Insurance which was a government-operated insurer.

Figure 3
Total Fund Volume of Japanese Financial System (trillion yen)

(Source) BOJ and LIAJ

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28 The aggregated outstanding amount of life insurers’ investments is statistically used in Figure 3 and 4 as its representing value of the total fund volume in life insurance sector.

29 The Postal Life Insurance Policies (Postal Policies) are policies before the privatization of Japan Postal Insurance (JP Insurance). The Postal Policies concluded before September 2007 have been assumed by the Management Organization for Postal Savings and Postal Life Insurance (MOPSL), which was established in October 2007. The insurance claims based on the Postal Policies are covered by the reinsurance underwritten by MOPSL and thereby are out of scope of the Policyholders Protection Corporation. In order to gauge the values of purely private life insurers, it is necessary to segregate the value of the Postal Policies and policies on the JP Insurance concluded after October 2007, while it is difficult to segregate them in statistical figures. In this paper, the life insurance sector is defined as all private life insurers including JP Insurance on non-segregated basis after the fiscal year 2007 unless otherwise noted. However, taking into account its consistency of historical data on private insurers, the specified values of “excluding JP Insurance” are to be applied in Figures to retain comparability of data.
III-3. **Substitution for the banking system – life insurers**

As indicated in Figure 3 and Figure 4, the life insurance sector has become the second largest financial sector in Japan. This situation seems to be as supplementary to the banking system. The role of substitution had been particularly strengthened since the 1970s in the midst of high economic growth.

Yoneyama (1997) described that life insurers, at least, had been robust players in the financial sector and functioned as a sub-banking system to underpin the Japanese cooperate and employment system till the 1980s.

Especially in the era of high economic growth, life insurers demonstrated the sub-banking function through their investment activities and underpinned the Japanese corporate industries through the long-term lending.

Figure 5 illustrates the historical charts of investments by life insurers. The chart shows that lending assets configured most major investment assets by life insurers from the 1980s to early 2000s.

This backdrop is mainly due to the growing demands from the corporate industries for new plants and facilities and due to less sufficient market availability for fund raising through direct finance market during the 1970s and 1980s. Based on this fact, life insurers acted as a provider for the long-term corporate finance and contributed to industry growth.

Although the long-term nature in lending assets may be effective in matching long-term liability to a certain degree, there are underlying inflexibilities in the corporate lending; such
as (1) less flexibility in market liquidity under growing occurrence of insurance claims, (2) risks in early redemption by borrowers and (3) underlying costs and operational fees to coordinate the contracts with other lenders and borrowers.

Figure 6 illustrates the historical chart on total assets and investments in life insurers. The graph indicates that the current investments have shifted to JGBs and foreign bonds as the amount of JGB issuance has increased since late 1990s and insurers seek returns between domestic and foreign interest rates under the long-standing low interest rate environment in Japan. These shifts would be mainly motivated by more effective asset allocation and match of liability duration. However, concentrated investment in lending would cause problems in liquidity if insurance claims are increasingly demanding.

Some are of the view that large lending activities outside the banking sector might now be regarded as a form of shadow banking. This underlying inflexibility of lending assets in liquidity was one of the potential liquidity risks entailed by life insurers but there is no direct relevance between large lending structure and the collective failures experienced in the late 1990s.

In the lessons from the last crisis, the liquidity risks have escalated from structural distortion through the excessive leverage and complex derivatives. In the following section, we will review whether there were similar structural problems (e.g. leverage, mismatching) in the midst of collective failures in the late 1990s.
III-4. Implicit leverage by means of the off-balanced liability – sizable expansion and its distortion

The expansion of liability from market funding was seen in the last crisis. Northern Rock is typical case of expanding liability from market funding, which caused liquidity problems due to the mismatched maturity through mortgage lending.

Before the global crisis, Northern Rock did not have a presence in the UK banking system in comparison with the other large institutions (e.g. Barclays, HSBC and RBS). However, following features were shown in the business activities of Northern Rock.

Firstly, Northern Rock had a high debt-to-equity ratio compared with other major banks in the U.K. It relied on market funding rather than traditional deposit taking. Secondly, the loan-to-deposit ratio was imbalanced and its leveraged funding was especially extended to investments for residential mortgages. This mismatched structure exacerbated the bank’s liquidity and also caused a depositor run afterwards.

As seen in the case of Northern Rock, a structure of liability expansion could be identified in Japanese life insurers, especially during the period from the 1970s to late 1990s.

As illustrated, Figure 2 indicates the fact of the sharp liability expansion by increasing the policy amounts in force. In other word, there was a quite sharp expansion of insurance liability in life insurers. Based on this fact, we could observe similar liability structure as

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FSB, IMF and BIS (2009b) II. CASE STUDY 1: Northern Rock etc.
seen in Northern Rock.

Figure 7 contrasts the total assets, total technical reserves and total policy amounts in force.

As shown in Figure 2, the total policy amounts in force accumulated to around 2,000 trillion yen in the late 1990s. This amount was equivalent to the total fund volume in the financial system of Japan as indicated in Figure 3 and a series of figures demonstrate that there had been highly inflated off-balance liability till late 1990s.

In Figure 7, a distinctive sign of expansion is identified from 1975 to 1998. During the 23 years, the outstanding policy amounts increased about seven-fold. Contrast to the inflated policy amounts, the total technical reserves maintained a gradual increase to around 170 trillion yen in 1998. The gap between two enlarged and total policy amounts increased to 11 times as much as the amount of technical reserves in 1998.

This mechanism is identical to the leverage structure as seen in the last crisis but the technical difference exists in that this implicit leverage was inflated in off-balanced liability.

Let me closely examine this off-balance structure between policy amounts and technical reserves. Although there are various reasons why the policy amounts expanded, the most prominent factor is insurers’ addition of a term rider onto the primary policy of whole life coverage. This additional rider could accommodate the leverage of protection coverage and policyholders could earn a large amount of mortality coverage using its non-refundable nature.

As illustrated in Figure 7 and Figure 8, this non-refundable rider contributed to the expansion of policy amount, and thereby the gap enlarged between policy amounts and techni-
In order to recognize the off-balance structure, we should distinguish the on-and-off-balance structure in (1) the exposure of whole life coverage as a primary vehicle and (2) the exposure of non-refundable coverage based on a rider. It is noted that the total on-and-off-balance amount of the above (1) plus (2) constitute the total policy amounts in force.

As for the portion of whole life coverage, which is part of the primary vehicle, the policy reserves are cumulatively retained based on the premiums paid by policyholders. The vehicle has a savings nature similar to saving deposits in commercial banks. In addition, the policyholder premium payment is not generally based on a single payment but rather on payment leveled on a monthly basis. The policies benefit upon maturity and policyholders will gain mortality benefits when the cases of an accident (e.g. death, inability) or maturity occurs. The unreserved portion is considered as the off-balanced liability and will transform the on-balance reserves along with the premiums which will be paid by policyholders in the future.

In this context, the off-balance liability of primary vehicle (saving) will be cumulatively affected by the negative gap between the current rate and assumed rate.

On the other hand, as regards the term rider, this has a non-refundable nature and term coverage. This rider could enlarge the capacity of protection coverage by a small amount of premiums and could create the leverage structure as illustrated in Figure 7.

Approaching maturity, the technical reserves will theoretically diminish to zero. Therefore, the gap between the policies in force and technical reserves shown in Figure 7 is not fully affected by the interest gap.

Figure 8 illustrates the on-balance and off-balance structure between the primary vehicle
and term rider. The off-balanced liability in term rider earned the mortality gains which functioned as loss absorbent sources to counter the negative gap under the downward directions of interest rate, while this would generate the claim payments once the insured events (e.g. death or disability) occur.

Under the Japan’s low interest environment since the 1990s, life insurers have been exposed to the negative gap between the assumed interest rate and investment returns. However, the cumulative off-balanced portion caused by the large policy amounts in force has not fully enlarged losses from negative gaps. Rather, the off-balance position in the term rider generated mortality gains under the situation where people live longer and the gains offset the losses that arose from the negative spread of savings portion.

This offsetting mechanism worked in the implicit off-balance structure between the policy amount and technical provisions in Figure 7. In result, material disruption caused by negative spread turned out not to be true by this offsetting mechanism.

Since the mid-2000s, the source of profits in insurance policies has been disclosed among Japanese life insurers.

Figure 9 displays the results of three sources of profits, namely cost, interest rate and mortality gains and losses by seven major life insurers, where they have been continuously disclosing values (including some approximation by some insurers) since the fiscal year 2006.

This graph indicates there are negative results that have been from the source of the interest rate due to the negative gaps. Contrast to source of interest rate, the mortality gains

Figure 9
Profit Analysis (Cost, Mortality, Interst Benefits)
Seven major insures (trillion yen)

(Source) The disclosed reports on seven major insurers (Nippon Life, Daiich Life, Sumitomo Life, Meiji-Yasuda Life, Mitsui-Life, Asahi Life, Fukoku Life, Aflac)
have been positive and fully cover the negative gap made by source of interest rate. This structure between mortality profits and negative spread ensures the soundness of life insurers even under the prolonged low interest rate environment in Japan.

On the other hand, behind the scenes in the benign interest rate environment during the 1980s, some insurers were heavily committed to the high guaranteed pension products and went insolvent afterward when the interest rate fell lower in the 1990s. Such insolvent insurers could not earn mortality profits that would grant risk offsetting effects and could not endure under downward interest rate pressure.

If more life insurers were committed to high guaranteed pensions (which would have negative impacts on low interest rate and aging society) in 1980s, adverse negative consequences could have materialized by losses from negative gaps in the life insurance sector, which might have exacerbated the financial system as well as real economy in Japan.

In addition, Japanese life insurers have had the potential to lean on sizable liability expansion in the late 1990s. Therefore, their cumulative impacts formed by sharp expansion would create risks and could affect the financial system if offsetting effects were not earned.

III-5. **Liquidity risk under high surrender and lapse - life insurers**

An insurance policy itself is simply a reciprocal contract between an insurer and a policyholder. This nature is similar to a bank deposit. What is the difference from bank deposit is that insurance policies do not have a multifaceted settlement function, and therefore are not thought to be a source of systemic risk.

In this regard, the interconnectedness stemming from intra-insurance-policies would be limited. In the case of insurance policies, the increase of interconnectedness is argued to be caused by concentration on liabilities other than technical reserves (e.g. liabilities funded by the market). This feature is reflected in the interconnectedness indictor of the IAIS assessment methodology on G-SIIs.

As of the end of fiscal year 2013, of the total amount of insurance liabilities and net assets, about 5% consist of liabilities that are not policy reserves. Most of the liabilities, about 89%, are composed of policy reserves. This represents less dependency on market funding in liabilities.

On the other hand, the similarity between bank deposits and policy contracts could extend to the problem of a bank-like run, namely the problem of collective surrenders of contracts, which could cause systemic impacts. In fact, the IAIS methodology applies the indicator of liquidity liability as a source of systemic relevance and addresses the similarity of nature between bank deposits and policy contracts in a systemic context.

The particular paths of liquidity risks in insurers could be assumed in the following cases. One particular case is that collective surrenders could happen due to simultaneous can-

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31 LIAJ (2014)
32 During the year of 2000, the technical reserves were composed of around 90% in the total of liabilities and net assets. (Japan Institute of Life Insurance (2000))
cellations of policies. The other is that collective claims could occur due to simultaneous insurance incidents.

The latter issue is rarely materialized, assuming the laws of large numbers embedded in insurance policies, and is only supposed in peculiar stressed cases (e.g. a pandemic due to a virulent epidemic). Therefore, the liquidity risks in insurance could materialize in the event of a huge number of policy cancellations.

There are some examples of insurers’ liquidity risks triggered by collective cancellation. One typical example is the case of Ethias in Belgium and another is Equitable Life in the U.K.

Around the time of the last crisis, Ethias suffered from losses of equity exposure to Dexia bank. In addition, it provided annuity products with options of the minimum guarantee rate, which had the potential to impact its financial soundness under a low interest rate environment. The policyholders were concerned about the soundness of their policies.

This minimum guarantee option was similar to products with minimum guarantee risks. In addition, this high guarantee product granted a non-penalty in surrender and was able to be withdrawn at any time, like a bank deposit. In general, long-term insurance policies are deductible when early surrender occurs as a penalty of cancellation. This deduction generally helps prevent early surrender and sustain the policies over the long term. However, due to such product with high guarantee and without penalty Ethias experienced collective surrenders in a short period of time and could not halt such over-withdrawals. As a result, the Belgium government intervened to halt the surrender and granted government guarantees to policies.

As another example, Equitable Life halted the solicitation of new contracts and unveiled a run-off in December 2000, after which, its lapse rate soared over 10%. It mainly provided with-profit policies and assumed a fixed annuity rate. However, it added guarantee options to the policies and the guarantee rate was higher than the current rate. As seen in Japanese life products, Equitable Life’s products had the structure of negative gaps between the assumed rate and the current interest rate.

Equitable Life is under run-off and a part of policies are compensated by financial support from the government, but not in the name of liquidity enhancement. However, in reality, its lapse rate soared from around 12% to 15% in 2001 and its liquidity was a serious concern.

Let us look at the situation in Japan concerning the liquidity risk under the failures experienced in the late 1990s. Figure 10 displays the historical rates of lapse and surrender in the retail insurance and pension.

Several years after 1997, when Nissan Life failed, it was identified that life insurers ex-

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33 In IAIS (2013a), the “liquidity liability” is regarded as NTNIs indicator. This factor could be effective to address the level of surrender by using threshold of with or without penalty of early surrender. However, it does not fully address the huge surrender risk.

34 See Geneva Association (2010a)

35 See Geneva Association (2010b) Appendix D. “Insurer winds-ups: Equitable Life and HIH”
experienced a high lapse and surrender rate of over 10%. In 1997, they experienced a lapse and surrender rate greater than 10% and a further hike to around 12% in 2001.

Figure 11 illustrates the total balance between the insurance premium received and claims paid. Although they frequently experienced negative balances from 1996 to 2001 and exacerbated the balance that fell to around 2.2 trillion yen in deficits in 2001, the material liquidity risks and the systemic impacts were not identified to cause negative consequences to the economy at that point in time.

As identified in Figure 6, even in the high lapse rate experienced, fire sales of assets was not seen from 1997 to 2001, while total asset value was somewhat decreased due to a stock price decrease around these times.

In Japan, the financial authority is statutorily granted to halt contracts when an insurer becomes insolvent. Amid the collective failures in the late 1990s, this measure was taken in the process of resolution. Thus, we have not experienced material disruption in the insurance system and not undergone injecting public funds to insurers especially for liquidity reason.

On the other hand, liquidity problems at insurers in a run-off (e.g. the case of Equitable Life) would pose a serious challenge as they are not insolvent and do not constitute a trigger to halt surrenders under current regime. Prescribed resolution scheme and measures may not be enforceable under the liquidity problems by insurers who are still viable. This should be

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36 Figure 5 and 6 indicate that the equity decreased value from 2000 to 2002. This is due to devaluation by declining equity price but is not due to the fire sale of equity.
noted as the statutory challenges among jurisdictions since the FRB experienced serious challenges on the public funds injection to still viable insurers in the last crisis.

**III-6. Substitutability - Life Insurers**

Lastly in this chapter, we touch upon the issue of substitutability in Japanese life insurers. As stated, past failures were resolved within the prescribed resolution scheme and the policies were taken over by the succeeding insurers. In this fact, substitutability is not given special consideration in life insurers.

Unlike bank deposits, policy transfers are practically accepted even in sound insurers. This transfer is statutorily allowed by insurers in the Japanese insurance regulations. Issues of substitutability could arise in the case of an insurance failure, where a particular insurance product is dominantly sold by a single insurer. However, Otsuka (2014) stated that, as life insurers can hardly provide other types of benefit structure and pricing system that are completely different from other insurers, well-selling products could be simply duplicated by other insurers under not having patent rights reserved to insurance products. The issue of lack of substitutability would not be feasible in current Japanese life insurance market.
Chapter IV. Systemic relevance of Japanese Non-Life Insurers

IV-1. Social function and its systemic relevance

In general, non-life insurance is an economic system that mitigates economic losses. Kamiyama (1998) defines the function of non-life insurance (e.g. property and casualty insurance) as a form of an economic system that

1. collectively forms the insurance groups unifying the individuals and corporates,
2. statistically estimates the rate of accident frequency and depth of damages in the groups and calculates the incurred losses, and
3. compensates the losses due to accidents and disburses claims to policyholders who already paid premiums against uncertainty.

In brief, non-life insurers have a function that mitigates risks in economic losses under uncertainty on the basis of the insurance premiums of policyholders. For example, coverage for natural disaster risks is a typical case of compensating for social losses and diminishing the negative impacts on the real economy.

Due to this fact, it seems that non-life insurers are not directly relevant to systemic importance. Rather, it functionally contribute to mitigating negative impacts on the real economy. In light of the definition provided by the guidance of FSB, IMF and BIS (2009), non-life insurers are regarded as stabilizer of social losses and would run counter to institutions which may generate potential systemic risks.

Kamiyama (1995) stated that non-life insurers could contribute to the national economy by reducing losses by means of skilled underwritings and risk diversification of reinsurance transactions. In fact, the Japanese non-life insurers demonstrated in the Great Eastern Japan Earthquake occurred in 2011 that their insurance undertaking contributed to social restoration through immediate payments to policyholders.

Unlike Japanese life insurers, the systemic relevance of Japanese non-life insurers seems to be less significant in terms of the scale as indicated in Figure 3.

On the other hand, assuming the adverse case where they are not capable to fully provide the social function to the economy, such impaired situation would be a concern to the real economy. In this chapter, we would like to consider the substitutability of social functions in the nature of non-life insurers and its impact to the real economy.

IV-2. Development of underwritings – historical background and nature of non-life insurance underwritings

The Japanese non-life insurance sector is one of the industries that achieved growth and developed risk capacity. After World War II, traditional property insurance, such as fire and marine insurance, was a centerpiece of underwritings. As the economy developed rapidly, motorization developed and it transformed the landscape of non-life insurance underwrit-
ings in the 1960s and 1970s. The auto-related insurance, including compulsory insurance, prevailed in the insurance market. In the 1980s, as the insurance needs grew in response to increased social responsibility by cooperates, liability insurance has increased as the products of emerging risks.

Figure 12 illustrates the snapshots of composition of underwritings by non-life insurers. It is recognized that the capacity of non-life underwritings developed and extended the range of coverage from traditional property-type insurance to liability insurance in response to social needs. Especially in the 1990s, so-called third area insurance covering accidents and injuries was developed, which corresponded to the deregulation of mid 1990s.

As indicated in Figure 12, Japanese non-life insurers have grown based on the qualitative enhancement in underwritings. This is unlike life insurers which have grown with quantitative expansion of policy amounts. The growth of their capacity has been extending the range of the width and depth of underwritings.

In addition, they expanded the capacities of underwriting to the natural disaster risks (e.g. typhoon and earthquake risk) inherent to risk profiles in Japan.

On the other hand, there is one exceptional form of development in their history. Under the benign economic situation in the 1980s, they developed savings products corresponding to the higher interest rate environment. This development is considered as the same type of quantity-driven development as seen among Japanese life insurers.

Figure 13 is a historical chart indicating direct premiums and net premiums. Direct premiums are the gross premiums received by insurers before outward reinsurance transactions and include the savings premiums thereof. Net premiums are premiums after the net balance

Figure 12
Composition of Non-life products - Non Life (%)

(Source) GIAJ, Insurance
of reinsurance transactions and exclude savings premiums.

As the graph shows, direct premiums have clearly increased since 1980 in the midst of the benign interest rate environment due to the increase of saving premiums which is inclusive in the value of direct premiums and exclusive in that of net premiums. Although the value after reinsurance transaction is reflected in the net premiums, the gap between direct and net premiums widened mostly due to increase of the savings premiums. The charts demonstrate that non-life insurers substantially gained premiums from savings insurance under benign economy. Although the non-life insurers generally provide short term coverage, the benign interest environment motivated non-life insurers to write longer-term savings products.

IV-3. Systemic relevance of the Japanese non-life insurers – issue of substitutability

The Japanese non-life insurance sector experienced two small failures in the early 2000s. Unlike the Japanese life insurance sector, no particular signs to amplify its systemic relevance had been seen in the past failures.

The failure of Daiichi Mutual Fire and Marine Insurance Company in 2000 was mainly triggered by a cumulative negative gap between assumed interest and investment returns. They had concentrated saving products with high assumed investment returns in the midst of the benign interest rate environment in the 1980s.

The other failure is the case of Taisei Fire and Marine Insurance. The main driver of fail-
ure is due to inappropriate underwriting management in outsourced reinsurance transactions. The blind management in outsourced reinsurance caused huge losses from the shock of September 11, 2001.

Even in the case of non-life insurers, some insurers concentrated on saving insurance as seen in Daiichi Fire. However, available with-profits products are generally conditioned by non-permanent coverage and such coverage is regarded as auxiliary in the non-life insurance market, where underwritings of auto insurance are dominant after the 1970s.

As the non-life underwritings cover more various risks compared with life insurers, it should be assessed whether the systemic impacts are caused by the complexity and interconnectedness inherent to their underwritings.

In this context, the risk transfer of reinsurance transaction in non-life insurers is one of the potential impacts to the system taking into account the interconnectedness feature inherent to reinsurance transactions.

In the assessment methodology for designation of G-SIIs in IAIS, ceded risk undertakings by (re)insurers form a key parameter for gauging interconnectedness and its systemic relevance.

The nature of risk transfer is closely similar to that of the securitized products. On the other hand, there are some differences between them. In case of reinsurance underwritings, the transferred risks are generally undertaken by (re)insurers who are regulated by the authorities, therefore risks may not be dispersed out of institutions under supervision.

Retrocession is one of the forms of reinsurance transactions and has the nature of secondary transfer that causes more dispersion of risks. These transactions may not be properly addressed in the statistical data and even in the management of (re)insurers. In reality, one small insurer in Japan failed due to counterparty risks of outsourced reinsurance. Therefore, it should be minded that structural complexity in risk transfer would cause the dispersion of risks in the case of reinsurance transactions.

Figure 14 illustrates the balance of reinsurance transactions by Japanese non-life insurers both from inward and outward reinsurance premiums and claims payments. Especially for natural disaster risks, risk sharing through reinsurance transaction is indispensable for Japanese non-life insurers. In ordinary times, natural disaster risks are shared with reinsurers, so that the total balances from the reinsurance transactions fall to deficits throughout the years.

In the case of the Great Eastern Japan Earthquake occurred in 2011, reinsurance claims were collected from reinsurers, which contributed to becoming a surplus of 150 billion yen.

After the earthquake in 2011, the total gross reinsurance transactions have gradually increased as indicated in Figure 14. It seems that this is a sign of potential increase of interconnectedness in reinsurance transactions.

However, it is a challenge for us to verify the explicit systemic relevance empirically based solely on data from increased reinsurance transactions. More qualitative studies would be additionally needed.

The accumulation of concentration risk is one of the inherent natures in their risk under-
takings, especially when they underwrite natural disaster risks.

As the law of large numbers is not effective under the accumulation of risks, this situation would enhance the probability of defaults of non-life insurers. Although the failure of non-life insurers in itself does not have sizable impacts to the financial system, an early restoration from the impaired function caused by failed insurers would be necessary in order to prevent negative impacts on the real economy especially if incidental stress, such as a massive disaster, is additionally cumulated onto the financial distress.

In this regard, the social and public natures inherent to non-insurance undertakings would cause the issue of lack of substitutability when functions of non-life insurers are impaired by a failure.

Figure 15 and Figure 16 compare the concentration of insurance industries in life and non-life insurers among countries. Although there are differences in calculation methods for premiums among nations, this chart indicates that the Japanese non-life industry is more concentrated than those of EU insurers.

Although the policy transfers are feasible in the insurance practice, a highly concentrated situation would cause a lack of substitutability of financial services when one non-life insurer fell into insolvent.

Lastly, let us review the case studies relating to issues of substitutability in non-life insurings underwritings.

In the United States, there was a series of insurance crises in liability coverages in the midst of the 1980s. Along with the rapid severity of corporate liabilities in regulation, the insurance premiums for liability coverage were hardened. Based on this situation, most non-
life insurers in the U.S. were obliged to refuse new underwritings or seek extremely higher premiums to corporates. Some non-life insurers dampened new underwritings by setting the severe limits of the liability risks. The shrink of new underwritings by non-life insurers af-

33 See Kamiyama (1995) and Konoike (2005)
fected corporate activities.

In addition to the corporate sector, medical sector were also affected by shrink of new risk undertakings. Due to the shrink of underwritings, some doctors went out of business as they were not able to take higher liability to patients without insurance coverage. Other doctors have transferred to the other area where liability risks were capable to be underwritten by insurers. These transfers caused lack of doctors in particular areas. This situation created by non-life insurers could bring social impacts and negative effects to the economic activities.

In another case, Australian HIH, which went bankrupt in 2001, caused the issue of substitutability. After the failure, un-substitutability of insurance underwritings occurred in particular liability coverage for the housebuilding industry to which HIH dominantly underwritten. HIH covered the liability risk for defects in buildings at a lower price, so that other insurers could not provide such coverage. As a result, the lack of substitutability occurred when they were insolvent and the failure affected the economic activities in housing sector.

Based on these cases, the issue of substitutability would be likely to arise in non-life insurance underwritings. On the other hand, compulsory automobile liability insurance and earthquake insurance for households are built based on the loss sharing mechanisms between the government and private insurers along with the underlying principle of social contribution without profit seeking. In Japan, this loss sharing system compensates the lack of substitutability in underwriting. The prescribed scheme would be necessary taking into account the lack of substitutability for particular risks which would cause negative impacts on society and the real economy.

Chapter V. Implications of Japan’s insurance sector hereafter

V-1. Summary

This paper particularly highlighted the structural factor which causes a potential source of systemic importance. In particular, the implicit leverage based on the sharp expansion of insurance policies was potential to the systemic importance in Japanese life insurers. However, the expansion of policies is not an evil in itself to ensure the effective underwritings based on the law of large numbers. Rather, the quantity-based insurance underwritings are indispensable for insurers to sustain the stable coverage of long-term protection.

The growth of the financial sector is also necessary in consistency with the growth of the real economy. However, an expansion of financial businesses and transactions in disorderly manner could often create structural distortion, as seen in the last crisis. The distortion could gradually spread to the financial system. In this sense, any signs of structural changes and its potential systemic impacts should be identified in the process of financial supervision and regulation. In the analysis of Japanese life insurance sector, the structural leverage contained in the protection coverage is particularly highlighted. In conclusion, the cumulatively leveraged protection demonstrated mutually offsetting risks in contrast with the situation in the
last crisis where leverage structure amplified the risks. As the counterbalance between sav-
ings and protection were interacted, the systemic impacts of negative gaps would not pre-
vail throughout the financial system even after collective failures in late 1990s.

Collective surrenders in insurance contracts, if they have a similar nature to bank depos-
its, which are cancellable any time, could enhance liquidity risks even in the case of insur-
ers. The surrender charge (penalty of surrender) embedded in an insurance contract is one of
the effective options to mitigate huge surrender risks, namely to prevent an insurance-run.

However, we experienced the run risk in the case of Equitable Life that the surrender
rate was exacerbated by other factors than the deterrent effects of surrender penalty. The
penalty would be an effective tool to mitigate the run risks but it is not determinant factor.

V-2. *Japanese life insurers hereafter*

The life insurance sector has experienced growth of policy amounts in force along with
macroeconomic growth during 1960s and 1970s. At present, under the phase of depopu-
lation in Japan, quantity-driven growth is not expected. On the other hand, the structural
changes behind an aging society could generate new insurance needs from policyholders.

In fact, life insurers have been gradually reducing the amounts of policies in force relating
to mortality insurance. They are currently under the phase of deleverage of cumulative
policies, releasing the coverage with a term rider.

On the other hand, life insurers have been shifting the type of coverage to living benefits,
such as medical insurance, in conjunction with the shift of social demands under the aging society.

Figure 17 illustrates the policy amounts in force concerning the mortality coverages after the fiscal year of 1998. The seniority draws other demands, so that the leveraged mortality in term riders decreased from 902 trillion yen in 1998 to 174 trillion yen in 2013. The coverage structure of mortality is transformed into the coverage with a variable assumption or with a non-permanent term.

Figure 18 illustrates the annualized rate\(^{38}\) of premiums of medical insurance (frequently referred as “Third Area Insurance”). As indicated in the chart, the trend is with gradual increase at the moment.

Moreover, the growth dependent on the macroeconomic environment has faded under current environment in Japan. In addition, we are already under high penetration in the life market and the market is almost saturated. Under the tight market, insurers now confront challenges in gaining new policies in the domestic market. They have to provide more attractive products to meet the demands of potential customers in the younger generation, even though we are under a low interest rate environment.

The baby boomer generation, born after World War II, is coming to the age of over seventy, and claims payments from outstanding coverage will increase in the near future. Thus,

\(^{38}\) The annualized premium means the leveling premiums of single payment products over period of insurance coverage.
Japanese life insurers have the potential to structural changes in their products and businesses.

There is the issue of whether or not the major life insurers will seek capacity growth overseas, while we are under the almost saturated domestic market.
Along with market development, life insurers have achieved growth based on protection coverage, such as mortality and medical insurance. In line with such growth path, life insurers which are internationally active are able to seek overseas markets that have a similar nature to that of the Japanese market, while life insurance markets around the world are not identical in terms of product nature. Alternatively, they can seek new businesses that are not consistent with the nature of Japan in order to diversify their business portfolios. In any case, insurers should take into account that they would increase the complexity of business by incorporating new overseas businesses.

On the other hand, compared with global foreign life insurers, the group structure and product natures of Japanese life insurers are relatively simple or less complex. Therefore, life insurers have the strong potential to be more internationally active. In designing a business extension to overseas, it is very useful to take into account the potential systemic relevance of own activities and underwritings. In this context, such a study as made in this paper will contribute to an effective dialog with foreign supervisors as well as home supervisors under growing needs of cross-border supervision and cooperation.

V-3. Non-life insurance sector hereafter

As indicated in this paper, the lack of substitutability among Japanese non-life insurers is one of the potential concerns that may relate to systemic relevance and may have an impact on the real economy if they are functionally disrupted.

Although some non-life insurers relied heavily on the savings products and one small non-life insurer failed due to the negative gap in the low interest environment, their impacts on the financial system and the real economy are less significant in terms of size. On the other hand, the potential lack of substitutability in the Japanese non-life insurance sector may affect the activities in the real economy if they fall into disruption in the underwriting function that is socially important. In fact, the issue of lack of substitutability has been seriously experienced in other countries. Therefore, insurers should take into account the potential to risks in un-substitutability.

As regards potential risks in Japanese non-life insurers, they are aware of the inherent nature of accumulated concertation risks in underwritings. Therefore they seek to undertake risks in a diversified manner. In order to reconcile less substitutability under the highly concentrated market, it is indispensable for the non-life insurers of Japan to diversify risks geographically in an efficient and effective manner.

V-4. Endnotes

This paper focused on potential systemic relevance that has arisen in the life and non-life insurance sectors, and examined potential risks to financial system from sector-specific points of view rather than individual insurers’ points of view. Own assessment for potential systemic relevance by insurers will be of importance. Lastly, it is my hope that systemic
studies and assessments as shown in this paper are broadly adaptable to a wide range of institutions which are growing cross-border opportunities to extend their insurance business.

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