The conversion option in the individual life insurance policies in Japan

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Abstract

This study investigates the conversion option tagged with life insurance policies in Japan. The policy conversion here denotes the privilege that an existing policyholder can purchase a new policy without paying the total amount of surrender fee. A customer can renew the coverage with less expense by virtue of the option and in fact two or three percent of the total in-force policies are converted in recent years. However, it is sometimes pointed out that an insurer is prone to instigate a customer to contract an unnecessary policy in order to improve insurers' business performance. If this is true with respect to the conversion option, the number of converted policies relates to the number of sales personnel as the primary sales channel in Japan as well as to insurers' business performance. Examining this assumption by the empirical studies, the significant relations between these variables are detected for some life insurance companies.

1. Introduction

The term of conversion option or conversion privilege in life insurance business has various meanings between countries, laws and regulations, or the contexts in which one refers to it. For example, the conversion privilege denotes the right under the contract to convert one's group life insurance into individual life insurance when the insurance is terminated on her or his retiring age. In this paper, the term of conversion is not used as the meaning of switching a group life into an individual life policy but converting a certain type of individual life insurance policy into another type.

While theoretical studies can be listed such as Ekern and Persson (1996), Buchardt et al. (2013), and Buchardt and Møller (2015), there are a few articles which expound the details of the conversion option or privileges in the real life insurance markets. Gatzert (2009) introduces various implicit options provided by insurance companies in Eurpoe and the United States, including the conversion option in life insurance contracts. He explains the conversion option allows converting a term insurance policy into an endowment insurance or annuity policy. Although this is in common with insurance contracts in Japan, a policyholder in the country has to undergo further proof of insurability when he or she exercises the conversion option. That is, a physical examination is required of an insured in

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This study is supported by KAMPO FOUNDATION.

Japan. Since regulations concerning insurance contracts are different between nations, the researchers have dealt with the issues with respect to a country. However, there are few studies investigating an issue in the conversion contracts in Japan.

In general, a policyholder does not surrender her or his contract to purchase a new policy without facing an abrupt change of her or his risk profile such as matrimony, childbirth, and decease of a dependent family member. This is because a surrender fee is settled to be so high that a policyholder cannot accept the deducted surrender value. The conversion option is that a policyholder expends the policy value of the ongoing contract on a new policy without paying the surrender fee. Therefore, the conversion privilege should give a policyholder benefits, comparing to a contract without that option.

2. Exercise of the conversion option

While not all the individual life insurance policies are tagged with the conversion option in Japan, around three percent of the total number of in-force policies are converted in recent years as seen in Figure 1. A reduction of the average amount of an in-force policy is caused by the decline of the amount of a new policy. Although it is said that this is from the expansion in the nuclear families, as well as sluggish growth of individual income, the proportion of them to total private households has been diminished in recent years (Table 1). Instead, families of single-person, especially aged sixty-five and over are increasing.

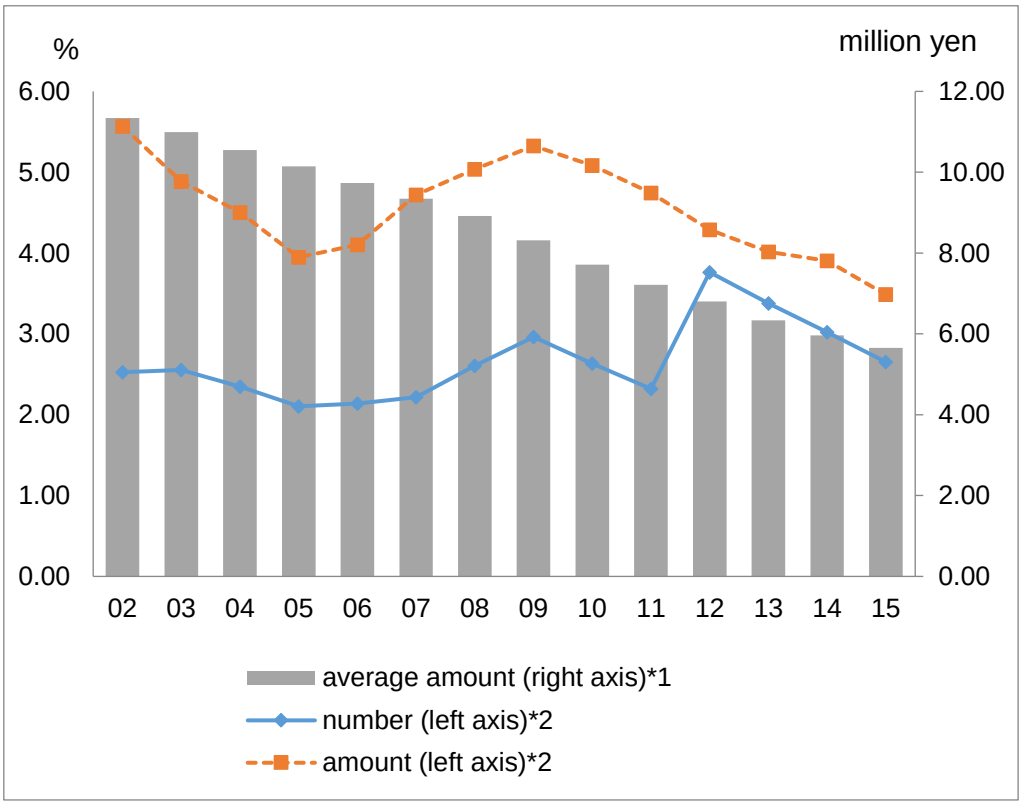

Figure 1 Exercised conversion option

*1 The amount of policies in-force per contract

*2 The rate of policies contracted by exercising conversion option to the in-force policy in previous year counted by number (amount)

Source: "Statistics of Life Insurance Business in Japan, 2002–2016" edited by Hoken Kenkyujo (the Insurance Research Institute).

Table 1 Nuclear and single-person family

	Proportion to total private households			
Household type	2000	2005	2010	2015
Nuclear family	58.4%	57.9%	56.3%	55.8%
Single-person family	27.6%	29.5%	32.4%	34.5%
(Single-person aged 65 and over)	6.5%	7.9%	9.2%	11.1%

Source: "2000-2015 Population Censuses," Statistics Bureau of Japan.

Population decline and aging society also spell the shrinkage of life insurance market. Figure 2 depicts changes of the amount of policies for new contracts, exercised conversion option, and in-force contracts from FY 2001 to FY 2015. After the amount of new policies dropped near sixty trillion yen in FY 2007, it turned to rise marginally. However, the amount

of in-force policies was continuously declining until FY 2014 and it increased by no more than one trillion yen in FY 2015.

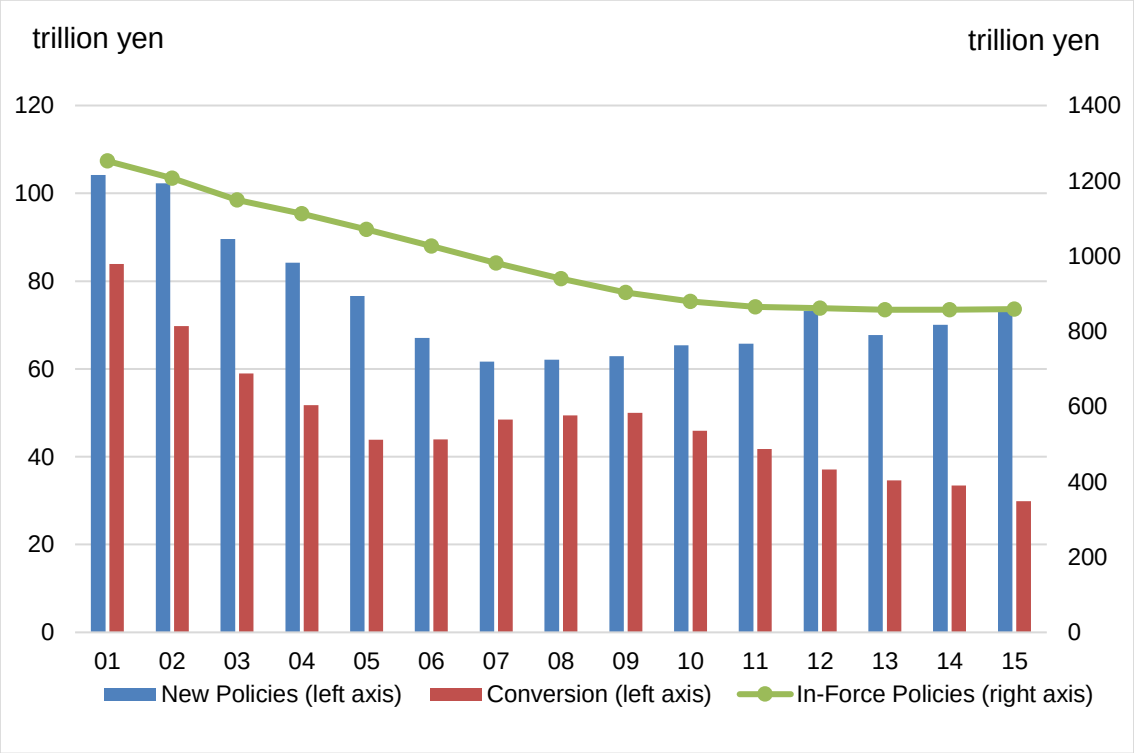

Figure 2 Total amount of policies

Source: “Statistics of Life Insurance Business in Japan, 2002–2016” edited by Hoken Kenkyujo (the Insurance Research Institute).

Since the conversion option is exercised on an in-force policy contracted several years ago, each figure in Figure 1 calculated in terms of monetary amount is larger than that in terms of the number of policies. In Japan, the conversion option is exercised on more than four million policies, whose value is about thirty billion USD, during the period from FY 2012 to FY 2015.

Although a fair value or price can be theoretically calculated for an insurance policy under certain conditions, few ordinary consumers are confident in themselves to evaluate their own risk facing in the future. If a consumer is easily influenced by what a salesperson of life insurance firm describes, she or he can sell a policy with larger coverage by assessing the consumer’s risk at extremely higher level. The transaction of insurance commodities necessarily entails the conflict of interest between an insured and an insurance company or its salesperson. This problem also occurs when a policyholder considers exercising the conversion option. As well as a salesperson who wants to improve her or his sales

performance gets in touch with latent customers, she or he may recommend the existing policyholders to purchase a novel product. If an insurer holds the policy which can be converted into the novel one with the option, the salesperson often emphasizes the advantages of it. Nevertheless, as the conversion option requires reexamination of insured's health status under the Insurance Business Law in Japan, the aim of the salesperson is not always achieved.

While forty-one insurers provide life insurance policies in FY 2015, eleven of them have had certain number of conversion contracts during the period from FY 2001 to FY 2015. As Meiji Yasuda Life was founded from the merger of Meiji Life and Yasuda Life in FY 2002, the data are available since FY 2003. The business results for the converted policies of Taiyo Life and Manulife Life are also available since FY 2003 and FY 2002, respectively. AXA Life had the policies with conversion privilege since AXA Group Life had been merged with it in FY 2005.

The number of converted policies and the yields of eleven insurers during each period are depicted in Figure 3.1 through Figure 3.11[1]. The abrupt decline of yields spelled by the economic turmoil in 2008 is striking for every insurer in Figure 3. If an insurer intends to compensate the decline of its yields with the fee from exercising the conversion contracts as well as selling new policies, the opposite movements of both variables are observed in the figures. However, clear signs indicating such relationship are not found in Figure 3.1 through Figure 3.11. More rigorous investigation with statistics is needed to gain the exact conclusion.

Figure 3 Yields and Converted Policies

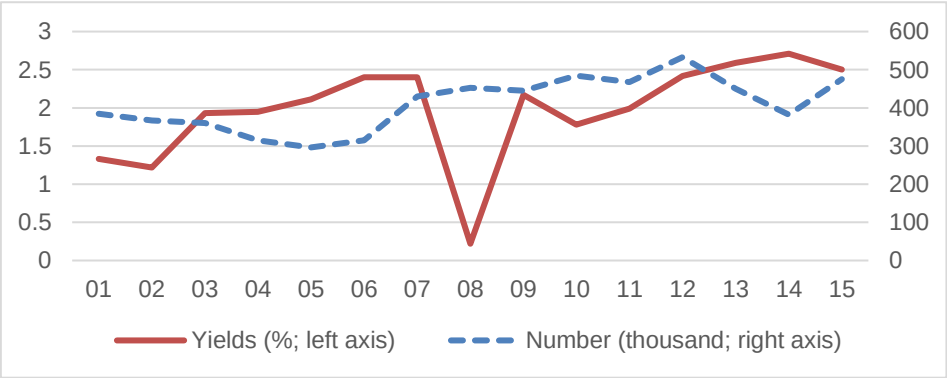

Figure 3.1 Dai-ichi Life

Source: "Statistics of Life Insurance Business in Japan, 2002-2016" edited by Hoken Kenkyjo (the Insurance Research Institute).

[1] The yields are calculated as the value of daily average.

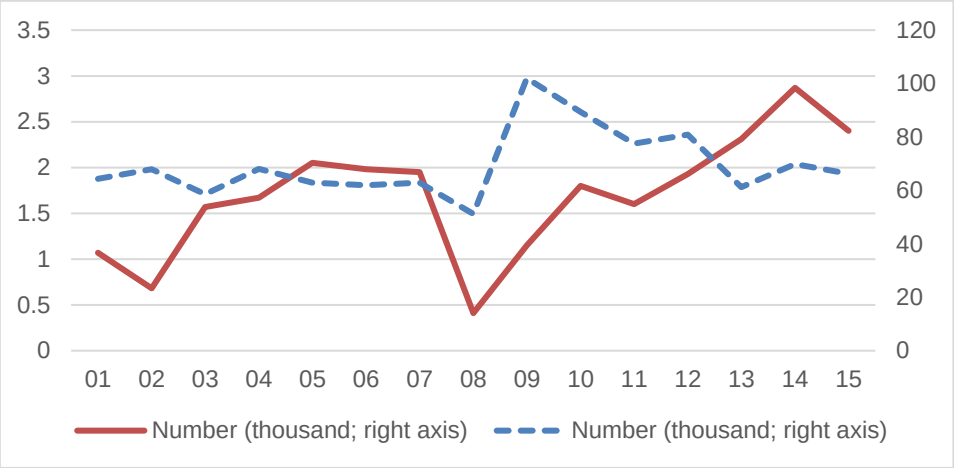

Figure 3.2 Fukoku Life

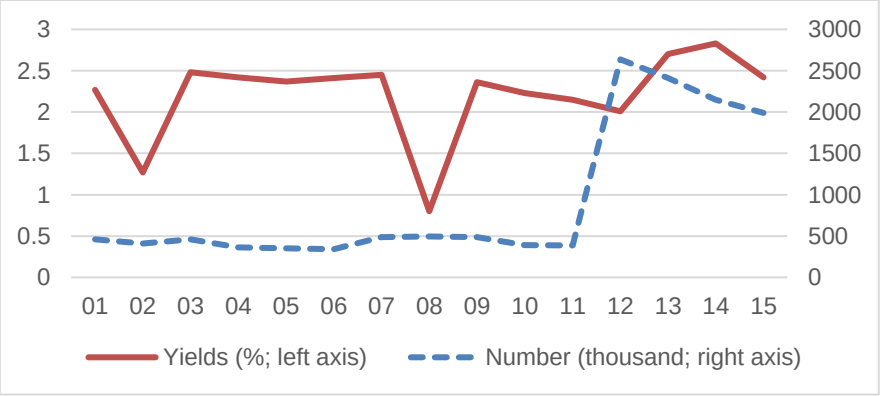

Figure 3.3 Nippon Life

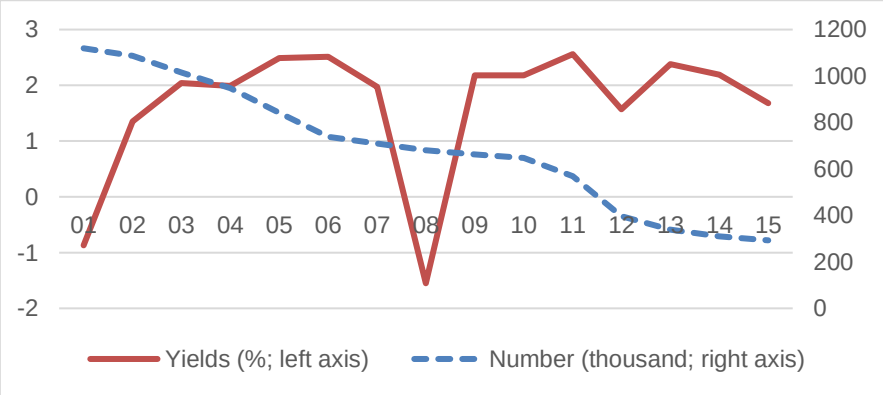

Figure 3.4 Asahi Life

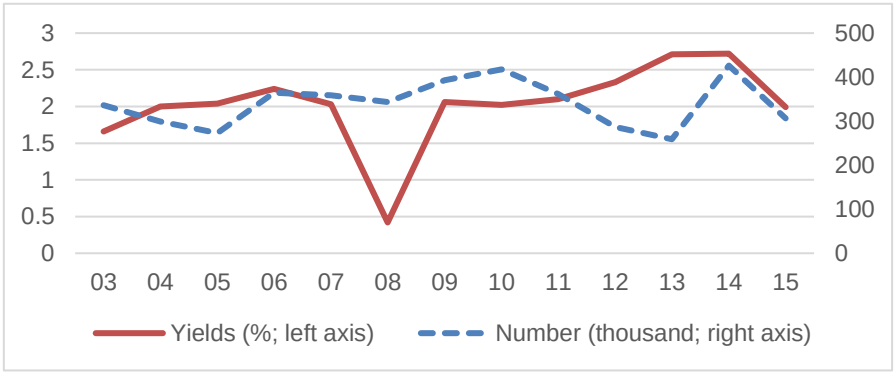

Figure 3.5 Meiji Yasuda Life

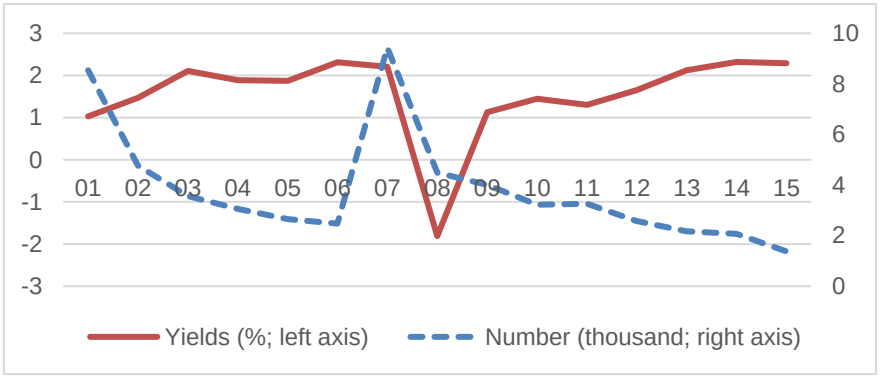

Figure 3.6 Daido Life

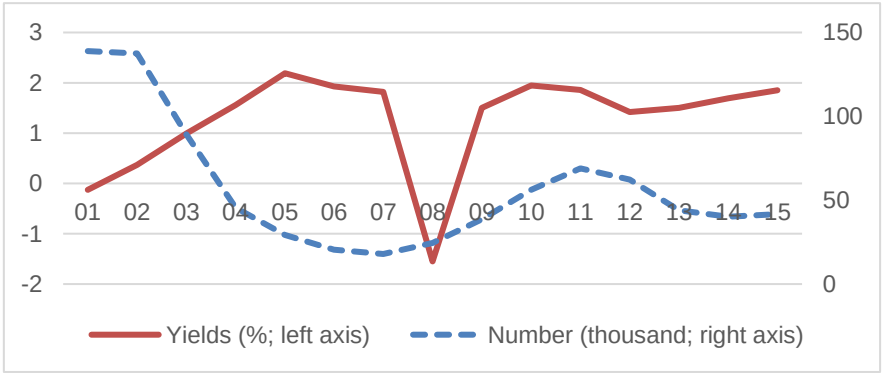

Figure 3.7 Mitsui Life

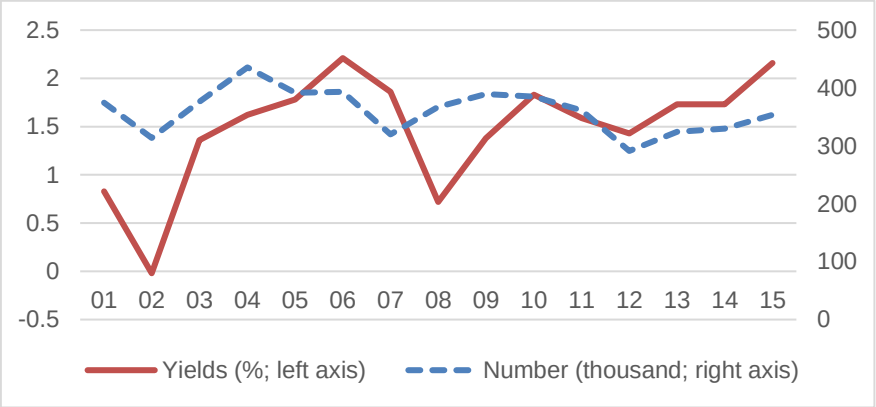

Figure 3.8 Sumitomo Life

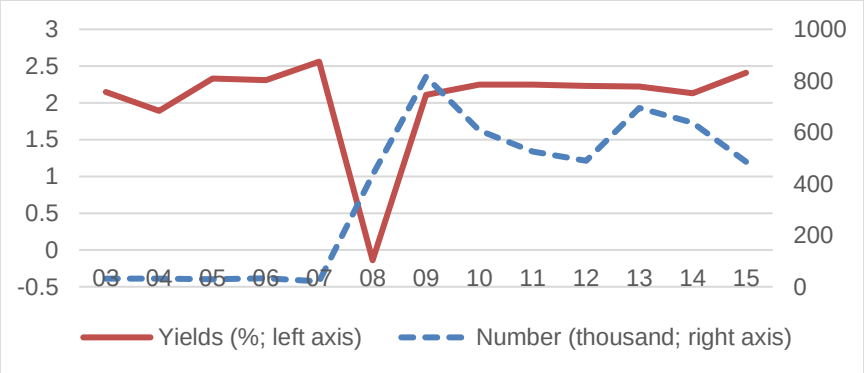

Figure 3.9 Taiyo Life

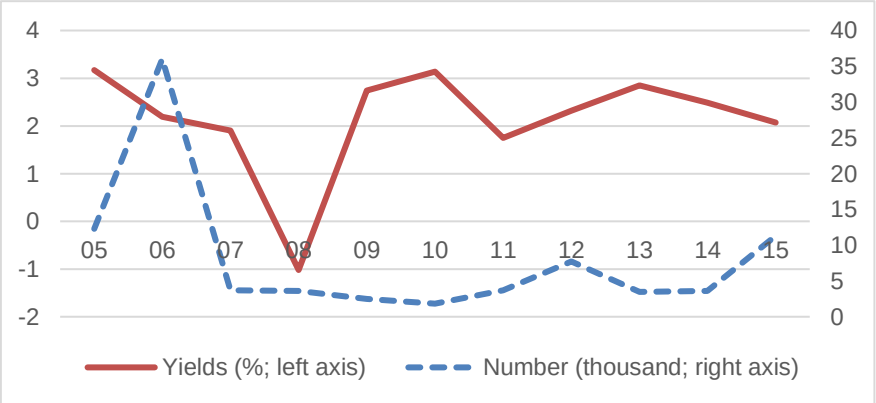

Figure 3.10 AXA Life

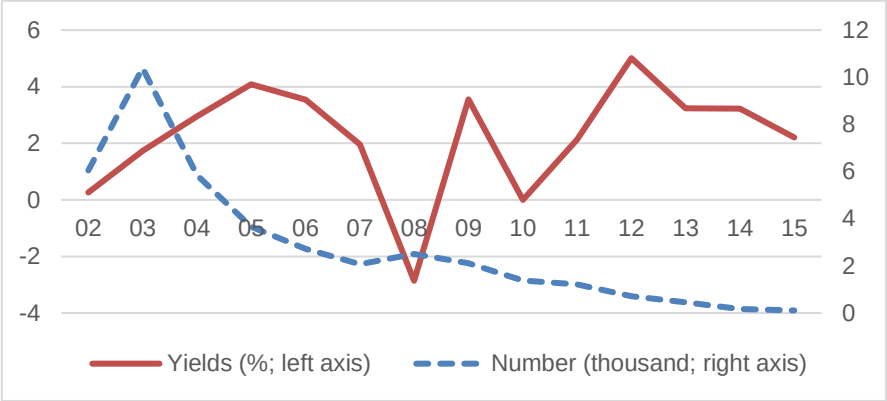

Figure 3.11 Manulife Life

* The value of the yields in FY 2010 is missing, so it is treated as zero.

3. Model

The rate of returns on the assets of insurance companies have fluctuated during these two decades, although it remains lower since the depression of the 1990s than in the previous decades. Especially, the long-term interest rates had sometimes reduced close to zero because of the economic downturns after 2000. The insurance companies suspended selling the policies with a relatively higher predicted interest rate and settled it lower for the policies newly provided. As mentioned above, the insurers promote their insureds to exercise the conversion option and to purchase a new policy with lower assumed interest rate.

Therefore, the number of sales personnel, by which this promotion is considered to be conducted, is treated as one primary explanatory variable in the empirical examination as well as the yields. Equation (1) indicates the fundamental regression equation applied for the panel data set, consisted by forty-seven prefectures and fourteen annual periods. While around forty companies provide life insurance services after 2000 in Japan, not all of them sell the individual life insurance policies with the conversion option. The regression is applied for the eleven companies whose sales data are available to statistical analysis.

In the view of supplier side, the dependent variable ($Conversion$) is the ratio of the number of converted policies to the number of the in-force policies in the previous year. It is counted with respect to a prefecture (i) and a year (t). The two primary independent variables are the number of sales personnel deployed in a prefecture ($Personnel$) and the yields defined as the value of daily average ($Yields$) in the year and in the previous year[2]. The Herfindahl Hirschman Index, calculated with respect to the amount of the in-force policies of individual life insurance, is installed as the variable to represent the market

[2] The number of sales personnel is the value per resident.

condition.

$$Conversion_{it}^{S} = \beta_0 + \beta_1 \cdot Personnel_{it} + \beta_2 \cdot Yields_t + \beta_3 Yields_{t-1} + \beta_4 \cdot HI_{it} + \sigma_{it} \quad (1)$$

On the other hand, the sales personnel can also affect the demand of insurance policies. If the optimum size of them is determined for each insurer to balance the supply to the demand, then it should be treated as an endogenous variable in the model. Therefore, the share of annuities in the regional market ($Share$) and the first lag of the endogenous variable are selected as the instrumental variables for it.

$$Personnel_{it} = \gamma_1 \cdot Personnel_{it-1} + \gamma_2 \cdot Share_{it} \quad (2)$$

Table 2 Descriptive statistics (a)

	Number of converted policies				Number of sales personnel			
Insurer	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Dai-ichi	3.27	1.06	1.20	8.16	0.28	0.07	0.14	0.55
Fukoku	0.68	0.50	0.11	4.26	0.09	0.06	0.02	0.32
Nippon	7.03	7.19	0.93	36.62	0.35	0.07	0.22	0.66
Asahi	5.78	2.71	1.13	18.04	0.10	0.04	0.03	0.34
Meiji Yasuda	2.77	0.87	0.99	5.61	0.22	0.05	0.11	0.44
Daido	0.03	0.03	0.00	0.20	0.02	0.01	0.01	0.06
Mitsui	0.40	0.32	0.04	2.03	0.06	0.02	0.01	0.17
Sumitomo	3.23	1.19	1.09	7.50	0.27	0.09	0.12	0.59
Taiyo	2.54	2.88	0.00	16.78	0.06	0.03	0.01	0.15
AXA	0.08	0.14	0.00	1.18	0.05	0.03	0.01	0.40
Manulife	0.03	0.03	0.00	0.26	0.03	0.02	0.00	0.13

Each figure denotes the value per thousand residents referred from “The Residential Basic Book”. The population is the value at the end of the fiscal year. Business results are from “Statistics of Life Insurance Business in Japan, 2002-2015” edited by Hoken Kenkyujo (the Insurance Research Institute).

4. Estimation results

The regression equation is estimated with the generalized moment method, GMM. Since the model is under the hypothesis that the sales personnel are determined to be an optimum size, it is treated as the endogenous variable. In the first stage, it is regressed to the first lag

of itself and insurer's share of the in-force policy of annuities in terms of the amount[3]. The endogeneity, the weakness of correlation between the endogenous variable and instrumental variables, and the overidentifying restriction are examined by the Durbin-Wu-Hausman test, Wald test, and Hausman-Sargan test, respectively. As the significant level is fixed to five percent in this study, the null hypotheses are rejected if the significant probability of the statistics is lower than ninety-five percent. The regression coefficient is also treated as significant one if its significant probability is under that level.

The panels in Figure 3 indicate the considerably slump of yields, wreaked by the worldwide economic turmoil in 2008. Thus, our estimation period from FY 2001 through FY 2015 is divided into the former from FY 2001 to FY 2007 and the latter from FY 2009 to FY 2015. However, the period becomes shorter for the newly founded firms or dew to the absence of the data.

As seen in Table 3-5, the regression coefficients of the sales personnel are significant positive and those of the yields are negative for Fukoku Life in the all periods, as well as the results of three statistical tests are passed under the five percent significant level. This indicates the salespersons of the company recommended exercising the conversion privileges in the year or in the following year when its yields declined. Although the coefficients of the yields in present year are significant positive in the former and the total periods, the effects of yields in previous year on the dependent variable are larger than those in present year.

The similar disposition can be seen in the results for Sumitomo Life, Asahi Life, and Meiji Yasuda LIfe. Excluding that the coefficient of the sales personnel is not significant in the latter period, the statistical results delineate more in-force policies are converted after the decline of yields. While the coefficient of the yields in present year is significant positive and the value is rather large for Meiji Yasuda Life, the absolute value of the coefficient in former year is greater than that.

Table 3 Estimation results 2001-2007

	Personnel		Yields(t)		Yields(t−1)		Endogeneity	Weak Inst.	Over Ident.
Dai-ichi	0.1066		−0.1679	*	0.0342			*	*
Fukoku	0.1503	*	0.0834	*	−0.5478	*	*	*	*
Nippon	−1.828		−1.219	*	−0.9472	*		*	*
Asahi	0.2645		−0.1397	*	−0.2397	*	*	*	*

[3] While not all the insurance companies provide the individual annuities, those eleven firms sell them.

Meiji Yasuda[A)]	0.3467		0.2308	*	−0.2483	*	*		*		
Daido	0.4842	*	0.0239	*	0.0016		*		*		*
Mitsui	−0.1297		−0.0045		−0.1156	*			*		
Sumitomo	0.2798	*	−0.1129		−0.3196	*	*		*		*
Taiyo [A)]	0.4863		−6.168	*	−5.9155	*	*		*		
AXA [B)]	0.1064	*	0.0479	*	0.1554	*			*		*
Manulife [C)]	−0.0196		−0.0317	*	−0.0286	*			*		*

Notes: A) 2003-2007, B) 2005-2007, C) 2002-2007

Table 4 Estimation results 2009-2015

	Personnel		Yields(t)		Yields(t−1)		endogeneity	weak inst.	over ident.
Dai−ichi	−0.1131		−0.1553	*	0.0351			*	
Fukoku	0.4263	*	0.059		−0.5405	*	*	*	*
Nippon	−0.009		−1.221	*	−0.8533			*	*
Asahi	0.1439		−0.1419	*	−0.2292	*	*	*	*
Meiji Yasuda	0.9113	*	0.2293	*	−0.3026	*	*	*	*
Daido	0.001		0.0092		0.002			*	*
Mitsui	−0.0135		0.0386		−0.0701	*	*	*	
Sumitomo	−0.0424		−0.0972		−0.2866	*	*	*	*
Taiyo	−1.271	*	−7.202	*	−5.698	*		*	
AXA	0.0066		0.0787	*	0.1991	*		*	*
Manulife	−0.1317		−0.0193		−0.0307	*		*	*

Table 5 Estimation results 2001-2015

	Personnel		Yields(t)		Yields(t−1)		endogeneity	weak inst.	over ident.
Dai−ichi	−0.0514		−0.1571	*	0.037			*	
Fukoku	0.2298	*	0.0818	*	−0.5359	*	*	*	*
Nippon	0.8905		−1.223	*	−0.8134	*	*	*	*
Asahi	0.2998	*	−0.1345	*	−0.2141	*	*	*	
Meiji Yasuda[A)]	0.5718	*	0.2129	*	−0.2619	*	*	*	
Daido	0.0127		0.0207	*	0.0019		*	*	*

Mitsui	−0.0619		0.0079		−0.0952	*		*			
Sumitomo	0.1833	*	−0.1386	*	−0.3319	*	*	*	*		
Taiyo [A)]	0.0322		−6.516	*	−5.897	*		*			
AXA [B)]	0.1168	*	0.0544	*	0.1638	*		*			
Manulife [C)]	−0.0346		−0.0272	*	−0.0322	*		*			

Notes: A) 2003-2007, B) 2005-2007, C) 2002-2007

5. Conclusion

The conversion option gives a policyholder the chance to purchase a new policy without paying the surrender fee. While a proof of insurability is not required to a policyholder exercising the option in Europe and the United States, it is required in Japan. Nevertheless, it is said that insurance companies promote exercise of the conversion option as well as sales of new policies when the life insurance market faces the ordeal. In a recession, reducing the interest rates is a plausible economic policy, which exacerbates the circumstances for insurance companies. The empirical study here is to verify the assumption that more policies are contracted by exercising the conversion option in the area where more sales personnel are deployed when the yields of an insurer are lower. The results show three insurance companies, Fukoku, Meiji Yasuda, and Sumitomo, are consistent with the assumption as seen in Table 3-5.

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