

Characteristics of Japanese Life Insurance Companies  
Disclosing Embedded Value

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# CHARACTERISTICS OF JAPANESE LIFE INSURANCE COMPANIES DISCLOSING EMBEDDED VALUE

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[Abstract]\*

In this paper, we analyze the disclosure of Embedded Value (EV) information by Japanese firms with life insurance operations to examine the characteristics that promote unregulated disclosure. As a result of the analysis, we found that companies with a larger solvency-margin ratio (disclosure is required by a statutory solvency standard in Japan) and smaller profits tend to disclose EV. Thus, based on the information required in statutory accounting, companies that perceive that their operating and financial positions are not properly valued voluntarily report EV. This suggests that companies try to eliminate information asymmetry through the disclosure. Furthermore, this result was observed in Japan, where several life insurance companies are structured as mutual companies. This suggests that life insurance companies disclose EV for stakeholders other than shareholders. Therefore, we found the role of EV is different from that described in previous research focusing on value relevance.

**Keyword:** embedded value; Japanese firm; unregulated disclosure; life insurance accounting

## 1. Introduction

Embedded Value (EV) refers to unregulated disclosure to report an estimate of the present value of future net cash flows from an in-force life insurance covered business. Disclosing EV allows for the quantification of the value of an in-force covered business. EV is a forward-looking measure that captures the expected net value of the underlying contracts signed by the insurer, and is a component of equity, with profits calculated as the change in equity between two consecutive periods (Serafeim, 2011).

Prior studies have mainly discussed the role of the information in the stock market (Horton, 2007; Almezweq and Liu, 2013; Tudini et al., 2011; Gerstner et al., 2015). These studies consider the relevance of EV from an international perspective, and describe how EV disclosure reduces information asymmetry between investors (especially shareholders) and management. However, in insurance settings, the possibility exists that some incentives for EV disclosure have more to do with policyholders than with investors. In Japan, studies have

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described a number of life insurers that disclose EV, including some non-listed and mutual companies (Nakamura and Nishiyama, 2014). For this reason, we focus on Japanese life insurers in this paper. In other words, it is often assumed life insurance companies aim to inform shareholders when they disclose EV; however, some Japanese mutual companies do not have any shareholders. Why, then, would they disclose EV? Focusing on life insurance companies in Japan may help shed light on other incentives for disclosing EV.

First, we discuss the definitions and roles of EV disclosure. Second, we investigate how companies are disclosing EV in Japan. Next, we refer to prefaces, and through multivariate analysis, determine the features of life insurers disclosing EV. We set the hypothesis that the incentive for EV disclosure does not arise from shareholders but from other stakeholders, such as policyholders. In other words, company managers who believe that GAAP valuations are not appropriate will voluntarily disclose EV. At the end of this paper, we discuss the probabilities of EV disclosure without stakeholders.

## **2. Embedded value**

### **2.1 EV**

EV generally has several components, such as the present value of future shareholders' cash flows from the in-force covered business (PVIF) plus required capital, less the cost of holding the capital, plus free surplus allocated to the business. EV disclosure recognizes the value of new business and any unexpected change in the in-force covered business in the year it occurs. As such, EV is considered a leading indicator of future changes in accounting earnings (El-Gazzar et al., 2015). Both components, PVIF and required capital, are measured on an economic value (market price) basis. EV is said to be based on the corporate valuation method developed during the M&A of a life insurance company (Serafeim, 2011).

The concept of Appraisal Value (AV), based on discounted cash flow, approximates the shareholder value of EV. However, since AV will also include revenue from contracts expected to be acquired in the future, it is difficult for it to be the optimal corporate value indicator. In that respect, EV is a more objective evaluation index because it limits the measurement target to the in-force covered business.

Furthermore, in the calculation of the value of the in-force covered business, sensitivities have been published on how changes in preconditions affect the EV. In addition to this, a statement by a third-party organization (actuary firm) is attached to the EV disclosure, and the assumptions, calculation method, and results are verified (Ishizaka, 2009). Thus, a certain degree of credibility and objectivity is attached to EV.

### **2.2 Types of EV**

EV is classified into three types: Traditional (TEV), European (EEV), and Market Consistent

(MCEV),<sup>1</sup> depending on the method of measurement. TEV was developed in the 1990s by the CFO Forum, a group of Chief Financial Officers (CFOs) from major European life insurance companies. However, in TEV valuation there were disagreements about how to estimate the value of the in-force covered business, leading to concerns about comparability in the beginning (CFO Forum, 2016b). In response to this disagreement, in May of 2004, the CFO Forum defined the EEV principle for the purpose of standardization (CFO Forum, 2016a). The EEV principle was standardized by establishing uniform provisions for calculating the values of in-force covered businesses that had variations. However, this modification did not completely allay concerns about unification in the methods of calculation. For example, it has been pointed out that some discretion is permitted in the decision about the discount rate used to evaluate the value of an in-force covered business (CFO Forum, 2016b).

Under these circumstances, the CFO Forum developed MCEV in June of 2008, in response to criticism of the EEV principle. Unlike EEV, MCEV uses risk-free rates for future return and discount rates to calculate the value of an in-force covered business. At first, the idea was to require all members of the CFO Forum to disclose MCEV (CFO Forum, 2009). However, even now, disclosure is not required, perhaps because the 2008 Lehman Brothers-triggered financial crisis caused the future profits of new contracts to be negative or precipitated large fluctuations in MCEV for some companies. After the crisis, in April 2011, the CFO Forum withdrew its idea, and thereafter, the use of MCEV has been limited to publication as one of the EVs. Today, companies have some discretion about the EV content of disclosures, as long as they show the calculation methods, assumptions, and sensitivities for both EEV and MCEV. (CFO Forum, 2016a; CFO Forum, 2016b).

### **2.3 Limitation of GAAP disclosure**

In the life insurance industry, there are two main viewpoints on statutory accounting GAAP limitations that stem mainly from peculiarities in business models and practices. The first viewpoint is as follows. There is typically a peak of cumulative cash outflow up to the point of sale and even beyond if initial commissions, policy record-keeping, and administration costs exceed initial premiums. This is followed by a steady level of cash inflows (premiums less ongoing expenses) that grow with reinvestment, and, finally, by a large cash outflow at termination. The primary returns of life insurers are often recognized later in long-term contracts. On the other hand, the costs are concentrated when the contract is acquired. Initial costs are incurred to acquire a new contract, which puts pressure on performance. The investment is realized as profit in a later stage of the contract, but then matching of income and expenses cannot be fulfilled. Therefore, statutory accounting is said to be unsuitable for evaluating the performance of life insurance companies (Sumitomo Mitsui Aioi Life Insurance,

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2017).

The second viewpoint is related to limits in the evaluation of some insurance liabilities recorded at the time of contract acquisition. The “reserve,” which is estimated and recorded as a liability in preparation for future insurance payments, is often calculated based on assumptions at the time of the contract. However, then, it may not be possible to make changes in response to the latest economic developments and the continuity rate. Therefore, accounting information may not provide a sufficient basis for the determination of corporate value during an M&A (Hoshino, 2018).

To address these statutory accounting limitations, EV disclosures in the life insurance industry are beginning to consider future cash flow generated from the in-force covered business, with the idea that this approach to EV disclosure is more relevant and credible than statutory accounting (IFRS4, BC140). However, concerns about comparability remain, as mentioned above (IFRS 4, BC141).

## 2.4 EV disclosure in Japan

This section shows the results of a survey about EV disclosure in Japan. By the end of July, 2018, we surveyed 41 companies belonging to The Life Insurance Association of Japan (including those companies that were consolidated in the past). Most of these companies disclose EVs in their published annual reports and press releases. Based on the survey findings, we investigated EV disclosures in annual reports from the fiscal year ending in March of 2009 to the fiscal year ending in March of 2018. If EV was disclosed, we documented what kind of EV was disclosed. The sample based on the above criteria was 400 companies per year.

[Figure 1: Transition of EV disclosure]

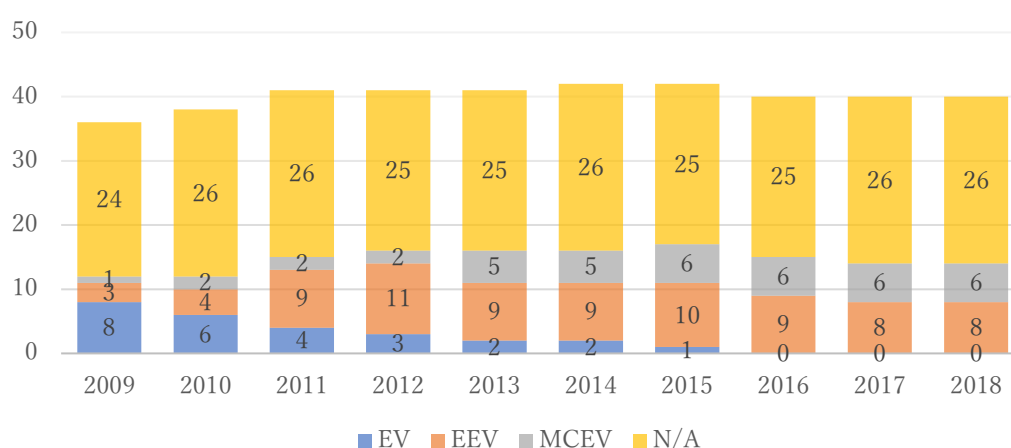


Figure 1 shows the transition in the kinds of EV disclosed by companies in the analysis sample. Of the samples analyzed, the percentage of companies disclosing any EV was approximately 30% to 40%. The number and percentage of companies disclosing was the

largest in 2015 (17 out of 42 samples, with a disclosure rate of about 40.5%), with the disclosure ratio being similar to the overall disclosure ratio for all years.

Notable is the fact that no company was disclosing TEV by the end of 2015. Companies disclosing TEV were the most numerous until 2010; companies disclosing EEV became the majority after 2011, followed by companies disclosing MCEV.

Table 1 shows the numbers and percentages of companies disclosing EV by type of life insurance company. The disclosure ratio in mutual companies was about 26.8%, and in corporations, it was about 38.7%. Companies disclosing EV were not only corporations, but also mutual companies. This suggests that the target of information disclosure was not limited to shareholders.

[Table 1: EV disclosure by type of company]

	Mutual Company	Corporation
EV Disclosure	15	133
EV Non-disclosure	41	211
Gross	56	344
Percentage disclosing EV	26.8%	38.7%

### 3. Prior research

Prior studies have mainly examined the value relevance of EV in European countries. Horton (2007) found that for UK insurers, EV was incrementally value relevant after controlling for statutory accounting information during 2000–2004. Tudini et al. (2011) and Almezweq and Liu (2012) also provided evidence on value relevance in European life insurance companies. Conversely, Gerstner et al. (2015) examined the relevance of IFRS-based indicators and EV to European life insurers during 2005–2014 and found that the incremental information content of EVs decreased after 2009.

El-Gazzar et al. (2015) investigated the EV of life insurance companies listed in America during 2001–2010. The authors found that EV had more relative and incremental information content than accounting numbers based on US-GAAP. Serafeim (2011) explored potential benefits to companies from disclosing EV and reducing asymmetry of information in capital markets, as measured by the bid–ask spread. The author identified a reduction in the bid–ask spread for life insurers after the disclosure of EV.

In other areas, Préfontaine et al. (2009) found EV value relevance in a sample of Canadian life insurers during the period 2000–2008. The authors confirmed the value relevance of EV disclosure except in 2008. Wu and Hsu (2011) investigated EV value relevance in Taiwan from 2005–2008. The authors documented that EV disclosure provided useful information compared to traditional financial reporting. Tsukahara et al. (2018) examined the value relevance of EV in Japanese companies and confirmed that EV disclosure had incremental and relative information. Although EV is generally value relevant, it is doubtful that information content exists in some areas.

Thus, research has examined EV in the context of the stock market. However, EV disclosure is not only important in capital markets. Particularly in Japan, there are cases of even mutual companies disclosing, as described in the previous section, 2-4.<sup>2</sup> If the primary incentive for life insurance companies—including mutual companies—to disclose EV is to reduce asymmetry of information, the target of information disclosure may not be limited to shareholders but may also include policyholders and creditors. Therefore, in the next section, we examine the economic incentives for Japanese life insurers that disclose EV.

#### **4. Hypotheses development**

##### **(1) Solvency Margin Ratio and EV Disclosure: Revealing the Potential Profitability of Firms**

EV, which reveals intrinsic value, can be defined as the sum of “adjusted net worth (=required capital)” and “the value of the in-force covered business” based on the future cash flow, discount rate, the premise of risk adjustment, and contractual service margin. The value of the in-force covered business is defined as the present value of future profits expected from the in-force covered business, including new contracts written in the reporting period. Therefore, life insurers with the potential for profitability may have an incentive to reveal hidden earning power through EV disclosure. Because of the peculiarities of the business, Japanese insurance companies are forced by the Insurance Business Act to proceed conservatively, which is different from the requirements under GAAP.

According to Usui (2012), highly-capitalized liabilities such as policy reserves and reserves for outstanding claims, policyholder dividends, and price fluctuations accounted for 85.5% of total debt in the 2006 industry average. Additionally, securities held by non-financial companies as appropriate policy reserves accounted for 73.7% of total assets. EV is constructed such that it cannot be explained through statutory accounting. Thus, differences between the results of statutory accounting and the actual performance of life insurers may create an incentive for companies to disclose EV. A profound difference lies in the treatment of the highly capitalized reserves included in the liability. Therefore, insurance companies announce adjusted net assets, which refer to highly capitalized liability plus net assets as the solvency margin ratio—an indicator of financial soundness.<sup>3</sup>

The solvency margin ratio is an index that reveals the payment capacity for risk beyond forecast. It consists of the "total amount of solvency margin" that is provided, which is calculated by adding a highly capital reserve, and so on. Specifically, it is calculated as follows.

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<sup>2</sup> While demutualization has become common in foreign countries since the 1990s, mutual companies still occupy an important leadership position in the insurance business as well as among stock companies (Maruyama, 2016).

<sup>3</sup> The solvency margin ratio was introduced in the revised Insurance Business Act in 1995 and was required to be disclosed by life insurance companies in 1997. The laws and regulations concerning calculation were revised at the end of 2011 to make risk measurement more rigorous.

$$\text{solvency margin ratio} = \frac{\text{total amount of solvency margin}}{\text{total amount of risks} \times \frac{1}{2}}$$

【Table 2: Components of total amount of solvency margin】

ASSETS	General allowance for doubtful accounts
LIABILITIES	Excess of premium reserve
	Contingency reserve
	Price fluctuation reserve
	Catastrophe loss reserve
	Subordinated debt, etc.
NET ASSETS	Shareholders' equity
OFF-BALANCE ITEMS	Unrealized gains (losses) on land Unrealized gains (losses) on available-for-sale securities and deferred gains (losses) on hedge transactions (before tax effect deductions) Total amount of unrecognized actuarial difference and unrecognized prior service costs (before tax effect deductions)

A high solvency margin ratio means that the liquidity of the company is high. However, the liability is transferred to revenue if no payment events occur beyond the forecast. Taking this into consideration, a company with a high solvency margin ratio may potentially be profitable. Based on this ratio, the regulatory agency in Japan uses 200% as a criterion for early corrective action. However, when the business of Daiwa Life failed in 2008, the solvency margin ratio was as high as 555%. This case raised doubts about the credibility of the ratio itself.

The Financial Service Agency of Japan treats the solvency margin based on economic value as equivalent to Europe's Solvency II from a long-term perspective (Financial Services Agency, 2007). On the other hand, EV has a property in common with the total solvency margin, in that they are both components of 'adjusted net worth'. As described earlier, by incorporating the value of the in-force covered business, the EV may have a greater power to predict potential profitability than the solvency margin ratio. Therefore, companies with high potential profitability have a high solvency margin ratio and may have an incentive to disclose EV as an additional signal of high potential profitability and strong financial health.



Hypothesis 1: Life insurance companies with higher solvency margin ratios disclose EV.

(2) Financial indicators and EV disclosure: Underestimation of profitability and liquidity

In statutory accounting, there is a temporal difference between the signing of new contracts and accounting revenue recognition, and the cancellation takes a very long time. Therefore, EV is used as a reference that recognizes future profit from winning new contracts.<sup>4</sup> In other words, companies that have lower reported earnings may continue to permanently disclose EV to signal potential profitability and thus, enhance the fairness of evaluations.

Hypothesis 2-1: Life insurance companies with smaller accounting earnings disclose EV.

Furthermore, we consider the possibility that EV is a supplement to general liquidity indicators. One of the administrative supervisory indicators for determining the financial health of life insurance companies is "adjusted net assets." The index equals assets that include the unrealized gains on securities and real estate minus liabilities. It is considered a substantial equity capital after evaluating the market value (Japanese Insurance Business Act, par.132; Taiyo Life Insurance, 2018<sup>5</sup>).

“Adjusted net assets” is an indicator of payment capacity with the assumption of immediate liquidation. However, it does not reflect information on future earnings equivalent to the “value of the in-force covered business” disclosed in the EV. Therefore, life insurance companies whose liquidity indicators are worse when based solely on adjusted net assets may have a stronger incentive to disclose EV; else, they face the possibility of inappropriate evaluations from stakeholders.

Hypothesis 2-2: Life insurance companies with lower adjusted net assets disclose EV.

## **5. Sample selection and research design**

### **5.1 Sample selection**

The samples used in the analysis were as follows: (1) firms listed in the “Nikkei Value Search” provided by Nikkei Inc.(2) firms belonging to the sample period (2009–2018) that could be

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<sup>4</sup> Jacob et al. (2017) maintained that development of the EV measure was driven largely by concerns within the international life insurance industry about the mismatch between accounting results and economic performance because of delayed recognition of revenues and expenses and the mismatch between the valuation bases for assets (fair values) and liabilities (estimated future benefits). Transactions that affect the long-term value of a life insurer are recognized immediately in EV but may be deferred under accounting conventions.

<sup>5</sup> [https://www.taiyo-seimei.co.jp/company/ir/total\\_equity.html](https://www.taiyo-seimei.co.jp/company/ir/total_equity.html)

acquired through the database,<sup>6</sup> (3) firms classified as "life insurance" in the industry minor classification, (4) firms with financial and non-financial data required for verification, (5) firms that were part of this group after 2011, when the calculation standard for the solvency margin ratio was changed. In addition, non-financial data required for verification were manually collected from the "Annual Report"<sup>7</sup> published by the insurance company. According to El-Gazzar et al. (2015), US companies (except those listed in the US with a cross-listing) do not disclose EV. Therefore, they were excluded from the sample.

## 5.2 Research design

In this paper, we performed multiple regression analysis with the EV disclosure dummy as the dependent variable and the elements set in the hypothesis as the explanatory variables.

$$\begin{aligned} Prob(DiscD_{i,t} = 1) = & \alpha + \beta_1 Solvency_{i,t} + \beta_2 ROA_{i,t} + \beta_3 Equity_{i,t} + \beta_4 LnAsset_{i,t} \\ & + \beta_5 Market_{i,t} + \Sigma Year + \epsilon_{i,t} \end{aligned}$$

We analyzed panel data and did not distinguish between the first, second, and subsequent years of disclosure. In other words, we assumed that firm managers believe that information is not sufficiently provided by the compulsory disclosure of EV in the expectation of continuous disclosure effects.

Based on Hypothesis 1, companies with a higher solvency margin ratio ( $Solvency_{i,t}$ ) tend to disclose EV, so  $\beta_1$  is expected to be positive. Additionally, based on hypothesis 2, companies are more likely to disclose EV, since the index based on accounting information is worse. That is, lower the profitability ( $ROA_{i,t}$ ) and lower the equity ratio ( $Equity_{i,t}$ ), the more companies disclose EV. Thus,  $\beta_2$  and  $\beta_3$  are expected to be negative.

In addition,  $LnAsset_{i,t}$  and  $Market_{i,t}$  are set to control firm size and listing status (including the status of the parent company). Based on the agency cost hypothesis (Ng and Koh, 1994), large companies depend heavily on external capital. Such companies may seek to reduce the agency costs associated with scaling by actively disclosing information.

Additionally, based on the political cost hypothesis (Inchausti, 1997), the larger the firm is, the greater the political cost; it is expected that information disclosure will reduce this cost. Therefore, it is expected that coefficient  $\beta_4$  for firm size ( $LnAsset_{i,t}$ ) will be positive.

EV is an indicator of corporate value in the stock market. Therefore, managers of listed life insurance companies have an incentive to disclose EV to represent an appropriate valuation of the company.

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<sup>6</sup> The sample period is from 2009, as the target of the Nikkei Value Search is for the latest nine periods.

<sup>7</sup> An Annual Report is a disclosure document mandated by the Insurance Business Act. EV is defined as information voluntarily disclosed in this document.

As in Section 3, when a parent company discloses EV, other companies in the group will also disclose the same type of EV. Therefore,  $Market_{i,t} = 1$  is also applied to subsidiaries of listed companies. Finally, an annual dummy is added to control the annual effect. The definitions of variables are summarized in Table 3.

Table 3: Variable definition

Variable	Definition	
$DiscD_{i,t} = 1$	A dummy variable that is 1 if firm i disclosed the EV at the end of term t and 0 otherwise.	Dependent variable
$Solvency_{i,t}$	Firm i's solvency margin ratio at the end of the year t.	Hypothesis 1
$ROA_{i,t}$	Firm i's net income at the end of the year t divided by total assets at the end of the year t-1.	Hypothesis 2-1
$Equity_{i,t}$	Firm i's adjusted net worth (required capital) at end of year t divided by total assets at end of year t.	Hypothesis 2-2
$LnAsset_{i,t}$	Natural logarithm of the firm i's total assets at the end of year t.	Control variable
$Market_{i,t}$	A dummy variable that is 1 if firm i is listed on a Japanese stock market at the end of year t or is a subsidiary of a listed insurance company and 0 otherwise.	Control variable
$Year$	Year dummy.	Control variable

## 6. Results

### 6.1 Descriptive evidence

Table 4: Descriptive statistics

VARIABLES	N	Mean	SD	Min	p25	p50	p75	Max
$DiscD_{i,t}$	216	0.5370	0.4998	0	0	1	1	1
$Solvency_{i,t}$	216	12.6234	9.7337	4.6320	7.7800	9.6415	13.5280	99.6990
$ROA_{i,t}$	216	-0.0005	0.0289	-0.2017	0.0011	0.0034	0.0058	0.1240
$Equity_{i,t}$	216	0.2022	0.2267	0.0308	0.1091	0.1458	0.1962	1.6561
$LnAsset_{i,t}$	216	14.8458	1.9470	8.4894	14.2847	15.2147	15.7750	18.2571
$Market_{i,t}$	216	0.6250	0.4852	0	0	1	1	1

Table 4 shows the descriptive statistics. An average of 0.537 for  $DiscD_{i,t}$  indicates that about 53.7% of the sample companies disclosed EV. The mean ROA is slightly negative, but the value at p 25 is positive. The average value of  $Equity_{i,t}$  is 0.2022, indicating that the adjusted net worth ratio was about 20%. Adjusted net worth is, by definition, larger than the normal net asset ratio because some insurance liabilities are added to net assets.

The average value of  $Market_{i,t}$  is 0.625, indicating that 62.5% of the samples used for verification were listed companies.

Table 5: Correlation coefficients

	(1)	(2)	(3)	(4)	(5)	(6)
(1) $DiscD_{i,t}$		0.3222	-0.2382	0.1319	0.0700	-0.0288
(2) $Solvency_{i,t}$	0.2981		-0.0810	0.3897	-0.2297	0.3174
(3) $ROA_{i,t}$	-0.1725	-0.6014		0.0966	0.3045	-0.1065
(4) $Equity_{i,t}$	0.1090	0.6225	-0.4668		0.0512	0.1857
(5) $LnAsset_{i,t}$	0.0714	-0.3912	0.3242	-0.6191		-0.2209
(6) $Market_{i,t}$	-0.0288	0.2612	-0.0874	0.1934	-0.2338	

The lower left triangular matrix is Pearson's correlation coefficient, and the upper right triangular matrix is Spearman's correlation coefficient.

Table 5 shows the correlation coefficients. The solvency margin ratio ( $Solvency_{i,t}$ ), which is disclosure information specific to the life insurance industry, has a positive correlation with  $DiscD_{i,t}$ , and it has the same sign as the hypothesis. Profitability ( $ROA_{i,t}$ ) also has a positive correlation with the explained variables and is consistent with the hypothesis prediction. On the other hand, the adjusted net worth ratio ( $Equity_{i,t}$ ) shows a negative correlation, unlike the hypothesized prediction.

## 6.2 Empirical results

Table 6: Results of multiple regression analysis

VARIABLES	Prediction	Probit coeff (Std. Err)
$Solvency_{i,t}$	+	0.178*** (0.062)
$ROA_{i,t}$	-	-9.881** (4.902)
$Equity_{i,t}$	-	-0.367 (1.709)
$LnAsset_{i,t}$	+	0.268* (0.149)
$Market_{i,t}$	+	-0.466 (0.475)
<i>Constant</i>		-5.961** (2.600)
<i>Observations</i>		216
<i>Year FE</i>		YES
<i>Log – Likelihood</i>		-113.353

\*\*\*, \*\*, and \* indicate statistical significance at 1%, 5%, and 10%, respectively. We used z values based on the standard deviation with two-stage correction by the year and firm clusters. Similar results were obtained when only the yearly cluster correction and only the firm cluster correction were applied, and  $Pseudo R^2$  was 0.240.

Table 6 shows the results of multiple regression analysis. They indicate that the solvency margin ratio ( $Solvency_{i,t}$ ) and the profit ( $ROA_{i,t}$ ) are consistent with the hypothesis. Therefore, Hypothesis 1 and Hypothesis 2-1 are supported. On the other hand, for hypothesis 2-2—although it has the same sign as prediction—no statistically significant result was obtained. In addition, we calculated the variance inflation factor (VIF) in the estimation with all the variables except the yearly dummy for each variable listed, and it is generally less than 10. Thus, a suspected reference value for multiple collinearity has been confirmed (maximum value 2.43, average 1.85). In addition, the c statistic, indicating the fitness of the probit regression model, is 0.813, which exceeds 0.800. This is generally considered excessive and suggests that the influence of other unobserved covariates on the explained variable is small.

## **7. Conclusions and implications**

In this paper, we investigated the disclosure status of Embedded Value (EV)—the voluntary disclosure information of life insurance companies—and analyzed the characteristics of companies disclosing EV in Japan. We observed that companies with larger solvency-margin ratios and smaller profits tended to disclose EV. These results suggest that companies perceiving or predicting undervaluation (because of the nature of information required for institutional accounting or because the information provided will not adequately convey performance) disclose information in an attempt to mitigate asymmetry of information. The validity of the above hypothesis was demonstrated for Japan, where multiple life insurance companies operate as mutual companies. Thus, it appears that managers of life insurance companies believe that this information is useful for stakeholders other than shareholders. It is clear that the role of EV in our study is different from that in previous research focusing on the value relationship. However, the content of the EV information—that is, whether the future profit that is estimated by this indicator is actually generated at a later date—has yet to be examined. Considering this, the economic role of EV should be further examined.

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