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Corporate Finance of Small and Medium-sized Enterprises and Life Insurance Surrender

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Abstract

Small and medium-sized Enterprises (SMEs), in general, face stronger financial constraints than listed firms. While numerous articles have attempted to clarify the characteristics of SME financing, such as relationship banking, the role of life insurance in SME financing has not been analyzed. For the first time, we analyze the role of life insurance surrender in SME financing by utilizing a questionnaire survey method. First, we find that SMEs that have weaker relationships with main bank tend to surrender life insurance due to financial deficits. Second, firms with tax incentives tend to surrender life insurance to cover the cost of corporate managers' retirement allowance. Third, life insurance surrender is used in independent firms to mitigate financial deficits. The empirical evidence suggests that life insurance surrender plays important roles in SME financing.

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1. Introduction

Financial constraints have traditionally been and remain a key issue in the corporate finance literature. It is well known that small and medium-sized enterprises (hereafter SMEs) face stronger financial constraints than listed firms do because SMEs are generally not able to issue corporate bonds or new stocks. Therefore, the financing of SMEs is often different from that of listed firms. For SMEs, borrowing from banks is one of the main and most important corporate financing sources. Thus, it is important for SMEs to have stronger relationships with banks in order to alleviate financial problems that arise from asymmetric information.

The recent literature on SME financing has analyzed the roles of relationship banking and found that strong relationships with banks, particularly with main bank, mitigate the problems that arise from financial constraints. Specially, this literature has revealed that close relationships with banks enable SMEs to borrow funds with lower interest rates and larger amounts of money by mitigating asymmetric information problems (e.g., Berger and Udell (1995), D'Auria, Foglia and Reedt (1999), Lehmann and Neuberger (2001) and Bodenhorn (2003)).

While bank relationships are important for SME financing, not all SMEs are able to have strong relationships with banks to meet their financial needs. Thus, they must have options other than borrowing from banks. The recent academic literature has begun to clarify the roles of SME financing methods other than borrowing from banks¹.

This article is one such attempt to elucidate the role of SME financing methods other than bank borrowing, and it is the first study to examine *life insurance surrender*. Life insurance surrender is not a widely acknowledged corporate financing tool for SMEs. However, on a practical level, it is known that SMEs that face deficits can surrender life insurance to alleviate financial deficits. According to Asai (2015), 10.1% of SMEs surrendered their life insurance contracts from 2009 to 2013 due to financial deficits².

Most SMEs try to avoid financial deficits or reduce the amount of negative earnings because they may not be able to borrow funds from banks, and suppliers may stop delivering materials. Therefore, SMEs have incentives to avoid financial deficits even if they surrender life insurance contracts³. Suppose a firm faces a \$1000 deficit. If the firm has life insurance contracts and can obtain \$1000 by surrendering life insurance, then the deficit will be cancelled out.

Needless to say, sudden and unscheduled life insurance surrender caused by a financial deficit usually results in a lower cash value than at the maturity date. However, for SMEs with higher credit risk, life insurance surrender can be an attractive financing method because life insurance premiums are not

¹ For example, SMEs can obtain credits from business partners as a form of trade credit (e.g., Burkart, and Ellingsen (2004) and Fabbri (2016)).

² Although the results are based on data from households in the U.S., Russell, Fier, Carson and Dumm (2013) analyze life insurance surrender and find that the emergency fund hypothesis is supported.

³ In the accounting process, claims paid by life insurance will be treated as miscellaneous income.

associated with credit risk. SMEs with higher credit risk must pay higher interest rates. To make matters worse, they would not be able to borrow money even if they paid high interest rates. In this situation, life insurance surrender can work as an emergency source of funding for SMEs.

Additionally, life insurance surrender may have another role in SME financing. That is, it can be used to stabilize profits and deficits in SMEs, and this works as a tax-saving strategy⁴. SMEs may get into the red when they need to pay a large amount for managers' retirement allowance at one time⁵. To avoid this, some SMEs purchase life insurance to prepare for covering the cost of managers' retirement allowance, and they keep paying life insurance premiums utilizing a tax deductible every year^{6,7}. That is, they surrender life insurance and then use the claims paid to pay for managers' retirement allowance. A tax deductible is applied to most life insurance products, particularly to term life insurance premiums. Thus, SMEs will be able to utilize tax deductibles, and these life insurance products are designed such that SMEs will be able to receive enough claims paid at the retirement time point. In fact, Asai (2015) reports that 26.1% of SMEs surrender their life insurance contracts to pay for managers' retirement allowances in Japan.

While life insurance surrender is widespread and appears to be an important financial method, very little direct empirical research has examined the role of life insurance surrender in SME financing. Instead, the academic literature on the role of insurance in corporate finance has focused on insurance demand, which is defined as the insurance premium divided by insurable assets (e.g., Yamori (1999), Hoyt and Khang (2000), Zou and Adams (2006) and Regan and Hur (2007)). As prior studies have been able to access only hard information, such as insurance premiums, we have long tried to understand the role of insurance in corporate finance based on insurance demand. Prior studies have also focused on listed and larger firms and the role of property-liability insurance in corporate finance.

The purpose of this article is to contribute to filling in the gap by providing empirical evidence on the role of life insurance surrender in SME financing *for the first time*. To achieve this aim, we depart from conventional approaches and directly test the impacts of financial constraints and tax incentives on life insurance surrender. We use data from a survey sent to managers of SMEs across Japan⁸. The survey combined a questionnaire with financial statements, which enables us to provide concrete evidence on

⁴ Increasing term life insurance, which offers constantly increasing death benefits, is often purchased by SMEs in Japan for tax-saving purposes. Increasing term life insurance is usually expected to be surrendered, and penalties for surrender are not large, but SMEs will be able to obtain more than the total life insurance premium during a certain period. They can enjoy tax exempt status when they pay life insurance premiums.

⁵ In Japan, it is common for firms to pay a retirement allowance for managers and employees. According to the survey by the Ministry of Internal Affairs and Communications regarding retirement benefits for officers in 2013, 52.9% of SMEs (size: 100 to 300 employees) offered retirement benefits for officers.

⁶ Chapter 8 of Doherty (2000) illustrates examples about how insurance purchases reduce the expected amount of tax.

⁷ If the amount of retirement allowance is the same as the amount of insurance payments obtained by life insurance surrender, then managers' retirement will have little financial influence on the firm.

⁸ For the Japanese insurance market, see Yamori (1999), Yamori and Kobayashi (2002) and Yamori and Okada (2009).

how insurance is used in SME corporate finance. The survey method is popular in recent corporate finance research (e.g., Graham and Harvey (2001)) and is particularly effective for analyzing SMEs because the information disclosed by SMEs is more limited than that disclosed by listed firms (e.g., Ono and Uesugi (2009) and Uchida, Udell and Yamori (2012)). The survey, conducted in Japan in January and February 2014, allows us to analyze data that were not available in previous studies.

To test the role of life insurance surrender in SME financing, Japan is a desirable market for the following reasons. First, given that Japan is generally considered to have a bank relationship-based financial system, the main banks play a central role in corporate finance (Rajan and Zingale (2003)); thus, the study helps to improve the understanding of relationship banking and the role of life insurance surrender. Second, the corporate tax rate in Japan is one of the highest among advanced countries. Thus, SMEs are expected to have stronger tax incentives, and life insurance surrender is expected to work in reducing taxes.

The survey results allows us to analyze issues that have not been investigated. First, we are able to access information on life insurance surrender. While it is well known that life insurance surrender is used in SMEs, this information has not been widely disclosed. The survey method enables us to see the picture of life insurance surrender by exploiting questions that ask respondent firms about whether they surrendered life insurance for five years (2009-2013).

Second, the survey enables us to access information on the reasons why SMEs surrendered the life insurance contracts. That is, we can distinguish between life insurance surrender due to financial deficits and life insurance surrender due to tax incentives. We can use this information to examine whether relationships with banks and tax incentives affect life insurance surrender activities in SME financing.

The implications of the study results are important for regulators and industries since SMEs utilize life insurance surrender to address financial deficits and to save on taxes. For example, the Financial Services Agency in Japan evaluated relationship banking through interviews with SMEs, and the information was reflected in its policies. However, the results obtained in this article study indicate that SMEs also use life insurance surrender as a financing tool. Therefore, policy makers and industries must consider the roles and potential of insurance in SME financing.

The remainder of the article is organized as follows. Section 2 develops the empirical hypotheses, which are based on previous theoretical models and empirical research. Section 3 describes the data used in this study. Section 4 describes and explains the variables used in this study. Section 5 presents the results of the empirical analysis, and Section 6 concludes.

2. Empirical Hypothesis

2.1 Financial Constraints

Much of the empirical literature in this field examines theoretical predictions of financial constraints. If SMEs cannot borrow from their main bank, then they tend to borrow from more banks. It follows that

SMEs with financial constraints will borrow from more banks. SMEs facing a financial deficit are less likely to borrow new funds from banks. Hence, SMEs borrowing from more banks tend to surrender life insurance when they are likely to face financial deficits.

Our first hypothesis for the empirical analysis is as follows:

Hypothesis 1 (H1). The use of life insurance surrender among SMEs increases with their financial constraints. Namely, SMEs borrowing from many banks tend to surrender life insurance due to financial deficits.

2.2 Tax Incentives

Main (1983) shows that one strong motivation for purchasing insurance lies in tax laws. That is, this motivation stems from the fact that insurance premium payments are deductible from taxable profits. According to Graham and Smith (1999), the average tax saving from a five percent reduction in the volatility of taxable income is about 5.4 percent of expected tax liabilities.

While SMEs can enjoy tax exemption when they pay life insurance premiums, their life insurance claims will be subject to taxation when they surrender life insurance in the future. However, if SMEs are able to surrender life insurance and receive life insurance claims at the time that they must pay large expenses and are about to go into the red, the profits from life insurance surrender will be cancelled out. More specifically, tax saving by using life insurance will be completed by life insurance surrender at the proper time. In other words, purchasing life insurance to cover managers' retirement allowance should be well prepared for and scheduled. Hence, we focus on the relationship between the tax incentives for life insurance purchase and life insurance surrender. On the contrary, tax incentives are expected not to be associated with life insurance surrender due to financial deficits.

Yamori (1999) and other previous articles that analyzed listed firms' insurance demand use the amount of tax paid as a proxy for tax consideration. Our survey method enables us to directly ask respondents about the purpose of their life insurance purchase. Therefore, we propose our second empirical hypothesis:

Hypothesis 2 (H2). The use of life insurance surrender to cover the cost of managers' retirement allowance is frequent if firms purchase life insurance for tax-saving purposes. Then, we expect a positive relationship between tax incentive and life insurance surrender.

2.3 Independent Firms

According to Hsieh, Yeh and Chen (2010), a business group acts as a network for the exchange and integration of resources among affiliated firms⁹. For example, affiliated firms deliver materials to one

⁹ The *Keiretsu* affiliation is usually characterized as cross-shareholding among group firms and lending from

another within the parent firm network, and the transaction may continue when they go into the red.

On the other hand, independent firms (owner-managers) do not have a parent firm and thus do not have a group network. Therefore, suppliers to independent firms are more sensitive to their financial conditions. Suppliers may stop delivery when independent firms temporarily face financial deficits. Thus, independent firms try not go into the red even if they surrender life insurance. Hence, we propose our third empirical hypothesis:

Hypothesis 3 (H3). Independent firms more frequently use life insurance surrender than affiliated firms due to financial deficits. Thus, we expect a positive relationship between independent firms and life insurance surrender.

3. Data

This study utilizes *The Management Survey of Corporate Insurance Issues* in Japan, which was conducted in January and February 2014. The survey asked SMEs about firm characteristics, insurance purchases, bank relationships, and the Great East Japan earthquake. The survey distribution, data collection, and data aggregation were outsourced to Teikoku Data Bank (TDB). TDB is a business credit bureau similar to Dun and Bradstreet in the U.S.

Questionnaires were mailed to 3,500 manufacturing firms across Japan. These firms were chosen from TDB's database. A total of 6,535 manufacturing firms matched our criteria, and we chose firms randomly in consideration of the population size of the prefectural product and the number of enterprises. The reason we chose manufacturing firms is to control for the effects arising from different industries. Additionally, we are able to observe risk management in manufacturing firms, particularly in relation to property-liability insurance and seismic strengthening against earthquakes.

Smaller firms often use a dwelling house as a factory, and they purchase insurance for households, such as earthquake insurance. As a result, a sample with smaller firms may blur the boundaries between firms and households. Therefore, this survey also covers firms with 21 to 300 employees. By focusing on companies of a certain size and unlisted stock firms, we succeed in examining the roles of insurance in SME financing.

TDB received 909 responses (by postal mail), yielding a response rate of 26.0%. We eliminated two observations because we were unable to link these firm observations with TDB's database. All 907 firms have financial statements for 2013 or later. However, we want to observe the impact of financial constraints on life insurance surrender from 2009 to 2013. Thus, the financial data used in our analysis are from financial statements in 2008 or the latest year before 2008. Out of 907 firms, we deleted 148 firms because we were not able to obtain financial data for 2008. Additionally, we dropped 148 firms that did

the six largest banks (Mcguire and Dow (2008)). In this article, affiliated firms are defined as having parent firms; the *Keiretsu* definition is not applied in this article.

not answer whether they were independent firms or affiliated firms or that had 0 shareholders because our sample consists of stock companies. Eventually, this left a sample of 611 firms to use in our regression.

Our data set has three main advantages. First, the survey asked whether SMEs surrendered life insurance or not, which enables us to analyze life insurance surrender activities in SME financing. These activities constitute soft information that is not reported on balance sheets or in disclosures of profits and losses, and this information is difficult to obtain from outside the firm. Second, the survey enables us to closely investigate the reasons why SMEs surrender life insurance (due to deficits or tax savings). Third, by matching the survey results with financial statements obtained from TDB, we are able to control for SME characteristics in examining the determinants of life insurance surrender.

Although our data set contains the most detailed data available on financing and life insurance surrender in Japan, a caveat must be mentioned. As is the often case with surveys, our survey data relate only to surviving firms. Thus, the survey focuses on SME that survived despite surrendering life insurance due to financial deficits.

4. Variables and Empirical Model

A list of the variables used in our empirical analysis and their definitions is provided in Table 1, while Table 2 presents the summary statistics of these variables.

Table 1 Definition of Variables

Definition of Variables	
Variable	Definition
Dependent Variable	
<i>Deficit Surrender</i>	1 if the firm surrenders life insurance due to financial deficits, 0 otherwise
<i>Retirement Surrender</i>	1 if the firm surrenders life insurance due to managers' retirement, 0 otherwise
Independent Variables	
<i>Bank Relationship</i>	
<i>Banks</i>	Number of banks the borrower firm has transactions with
<i>Distance</i>	Amount of time required to travel from the firm to the main bank branch
Tax Incentive	
<i>Tax</i>	1 if the firm indicated that it purchased life insurance for tax saving, 0

otherwise

Firm Characteristics

<i>Credit Score</i>	TDB credit score (0-100)
<i>Independent</i>	1 if the firm indicated that it was an independent firm, 0 otherwise
<i>Shareholders</i>	Number of shareholders
<i>Cash Ratio</i>	Ratio of cash to assets
<i>Log Assets</i>	Log of assets

Table 2 Descriptive Statistics

	Number of Sample	Average	Median	S.D.	Max	Min
Dependent Variables						
<i>Deficit Surrender</i>	611	0.092	0	0.289	1	0
<i>Retirement Allowance Surrender</i>	611	0.241	0	0.428	1	0
Independent Variables						
<i>Banks</i>	611	4.511	4	2.023	10	0
<i>Distance</i>	550	2.649	2	1.594	7	1
<i>Independent</i>	611	0.723	1	0.448	1	0
<i>Credit Score</i>	609	55.322	55	6.401	76	0
<i>Tax Incentive</i>	611	0.327	0	0.470	1	0
<i>Shareholders</i>	519	17.927	8	34.698	539	1
<i>Cash Ratio</i>	611	0.149	0.116	0.117	0.799	-0.028
<i>Log Assets</i>	611	6.133	6.135	0.382	7.346	4.728

4.1 Dependent Variable

The dependent variables are defined based on two patterns. First, firms surrender life insurance due to financial deficit (*Deficit Surrender*). Second, firms surrender life insurance to pay retirement allowance (*Retirement Surrender*). Fortunately, our survey data enable us to distinguish between financial deficit and managerial retirement reasons. If the firm answered, “We surrendered life insurance because we were likely to face financial deficits”, then the dependent variable takes the value of 1; otherwise, 0. Similarly, if the firm answered, “We surrendered life insurance to cope with managers’ retirement”, then dependent variable takes the value of 1; otherwise, 0. The percentages of firms that surrendered life insurance due to deficits and retirement allowance are 9.2% and 24.1%, respectively¹⁰.

4.2 Independent Variables

4.2.1 Key Variables

Bank Relationship

To examine Hypothesis 1, bank relationship is proxied by the number of banks that SMEs transact with, which is a common metric of the relationships between banks and firms. According to the relationship banking literature (Petersen and Rajan (1994) and Blackwell and Winters (1997)), the greater the number of banks a firm borrows from, the weaker its relationship with each bank. We use the number of banks that a firm transacts with from financial data obtained from TDB. Firms that do not have a good relationship with main bank are not able to borrow enough money tend to transact with more banks. Thus, number of banks (*Banks*) is one of the most popular variables to measure the relationships between firms and banks.

We also use the distance (*Distance*) between the firm and the bank branch in the analysis for a robustness check to investigate the link between bank relationship and life insurance surrender. In the bank relationship literature, the distance from the firm to the main bank branch is used to measure the firm’s relationship with the bank (Degryse and Ongega (2005) and Alessandrini, Presbitero and Zazzaro (2008)). This is because it becomes more difficult for bank officers to visit firms (or for firms to visit bank branches) as the physical distance becomes greater. Therefore, the distance makes it difficult for both of them to produce soft information. In our analysis, the question is “How long does it take from your office to main bank branch?” The answers include 1. 0-10 minutes, 2. 10-20 minutes, 3. 20-30 minutes, 4. 30-40 minutes, 5. 40-50 minutes, 6. 50-60 minutes, and 7. More than 60 minutes. Thus, the further main bank branch is from the office, the weaker the relationship between the firm and the bank. That is, we expect that the more banks SMEs borrow (the further the distance), the more SMEs surrender life insurance due

¹⁰ Out of 761 firms, 219 (28.8%) did not purchase life insurance or answer regarding the amount of life insurance; we deleted and analyzed these data. Those results were not different from the results reported in this article.

to financial deficits¹¹.

Tax Incentive

To examine Hypothesis 2, we use the tax incentive variable *Tax Incentive*, which represents why SMEs purchase life insurance. The survey asked SMEs, “Why does your firm purchase life insurance?” The answers consisted of the following choices: 1. To mitigate impacts of managers’ death on the firm, 2. Tax saving, 3. Asset building for paying retirement allowance, 4. Benefit package for employees, 5. Requirement from banks, 6. Requirement from business partner, 7. Accountability for shareholders and 8. Other. Multiple answers were allowed. If the firm answered, “We purchase life insurance for tax saving”, then the independent variable takes the value of 1; otherwise, 0. Main (1983) notes that one strong motivation for purchasing insurance lies in taxes, as insurance premium payments are deductible from taxable profits.

The Japanese corporate tax rate is unrelated to the amount of profit, and interest on bonds, losses, and some types of insurance premiums are deductible; these items reduce the corporate income that is taxable. Until recently, the recent corporate tax rate was approximately 40 percent in Japan. In fact, 38.2% of SMEs purchase life insurance for tax-saving purposes. If firms are able to surrender life insurance at the right time, then life insurance will work as a tax-saving tool. Thus, tax incentive is a key variable for explaining life insurance surrender.

Ownership Structure

Finally, to investigate Hypothesis 3, we use the ownership structure variable *Independent Firms*. In this article, independent firms are firms that do not have a parent firm, and affiliated firms are those that have a parent firm. Affiliated SMEs operate mainly in their parent firms’ networks, and financial deficits are not very serious for their business. On the contrary, independent firms do not have such business networks, and financial deficits could lead to delivery stoppage from suppliers. Therefore, independent firms want to avoid financial deficits even if they surrender life insurance contracts.

In addition, independent firms have discretion on their financing strategy because they do not have parent firms. Thus, they can decide whether to purchase life insurance and surrender it on their own. Hence, independent firms are expected to actively use life insurance surrender as a financing tool, particularly when they face financial deficits¹².

4.2.2 Other Variables

In addition to the key variables mentioned previously, we control for the SME characteristics with which life insurance surrender may be associated.

¹¹ While some prior studies have used the number of years the borrower has been transacting with its main bank (Ono, Sakai and Uesugi (2012)), we do not use this simply because we do not have information about this.

¹² In the survey, firms answered whether they were independent firms or affiliated firms.

Number of Shareholders

In this article, we also employ the number of shareholders and try to examine its impact on life insurance surrender. The number of shareholders is determined based on financial data from TDB. Main (1982) notes that if a corporation is held by few stockholders, the corporation demands more insurance than widely held corporations. Previous empirical studies on insurance demand, such as Yamori (1999), Hoyt and Khang (2000), Zou, Adams and Buckle (2003) and Regan and Hur (2007), employ a shareholder structure to measure the impacts on insurance demand. We expect firms with fewer shareholders to tend to use life insurance surrender because shareholders with a larger portion have a greater stake in the firm and require managers to avoid deficits and bankruptcy even if they surrender life insurance. In the same way, we expect firms with fewer shareholders to tend to use life insurance surrender to pay for retirement.

Credit Score

Ono and Uesugi (2009), Uchida, Udell and Yamori (2012) and many other studies use credit scores published by a credit survey company to measure a firm's riskiness. We also employ credit scores from TDB to examine the impact of a firm's riskiness on its life insurance surrender. In addition to financial statement information, credit scores contain nonfinancial statement information regarding, for example, the firm's reputation. Thus, we are able to use credit scores as a proxy for firms' riskiness¹³. High credit scores mean that SMEs are financially sound.

Due to financial deficits, we expect that firms with low scores tend to surrender life insurance frequently. On the other hand, due to managers' retirement, we expect that firms with higher scores will frequently surrender life insurance because they have leeway to prepare for managers' retirement allowance. Hence, we expect that credit scores will be associated with life insurance surrender in SME financing.

Cash Ratio

In particular, the recent academic literature emphasizes the large amount of cash that firms have (Bates, Kahle and Stulz (2009)). We use *Cash Ratio*, the amount of cash divided by total assets, obtained from TDB financial data.

Due to financial deficits, we expect that firms with a higher cash ratio do not tend to surrender life insurance. Therefore, we expect that the cash ratio is negatively associated with life insurance surrender. Due to managerial retirement, it is expected that firms with a higher cash ratio tend to surrender life insurance because they have already prepared a certain amount of money to pay retirement allowance.

Shareholders

Mayers and Smith (1990) insist that, as direct bankruptcy costs are less than proportional to firm size, small firms are more likely to demand insurance. On the contrary, O'Sullivan (1997) finds that larger firms tend to purchase directors' and officers' insurance because they have a more complex structure.

¹³ It is thought that credit rating is able to more accurately measure a firm's riskiness than leverage because it contains more information.

In the same way, life insurance surrender will be associated with a firm's size. For life insurance surrender due to financial constraints, we expect that smaller firms tend to surrender life insurance. On the contrary, for life insurance surrender due to manager retirement, we expect that larger firms tend to surrender life insurance. As a proxy of firm size, we use a logarithm of total assets that is obtained from financial data by TDB.

4.3 Empirical Models

To estimate Hypotheses 1, 2 and 3, we estimate the following equation:

$$\Pr(Y=1) = f(\text{Bank Relationship, Tax Incentive, Independent Firms, Credit Score, Shareholders, Cash Ratio, Log Assets})$$

where Y is either *Deficit Surrender* or *Retirement Allowance Surrender*. *Bank Relationship* is either *Banks* (number of banks SMEs transact with) or *Distance* (distance from the SME's headquarters to the nearest bank branch). *Tax Incentive* is a variable that indicates life insurance purchased for tax-saving purposes, and *Independent Firms* are those that do not have parent firms. Other control variables are used by related studies in this field, such as Yamori (1999), Hoyt and Khang (2000), Zou and Adams (2006) and Regan and Hur (2007).

5. Empirical Results

5.1 Life Insurance Surrender due to Financial Deficits

Table 3 reports the probit estimation and shows the determinants of life insurance surrender when SMEs face deficits. Note that Model 1 of Table 3 shows that the coefficient on *Banks* is positive and significant at the 10% level, indicating that SMEs that do not have strong relationships with banks are more likely to surrender life insurance due to financial deficits. The bank relationship is a key variable in this article. We also employ another variable, *Distance*, to measure the relationship between bank relationship and life insurance surrender in Model 2 of Table 3. We find that *Distance* is also positive and significantly (at the 5% level) associated with life insurance surrender. Hence, the regression results indicate that the further the distance between the firm's headquarters and the branch of the main bank, the more likely the firm is to surrender due to deficits. Thus, the physical distance between the firm and main bank is also related to life insurance surrender. Therefore, in our analysis, both *Bank Relationship* variables, *Banks* and *Distance*, show that SMEs' weaker relationship with banks is associated with more frequent life insurance due to financial deficits. Regarding our empirical hypothesis, the estimation results in Table 3 show that a weaker bank relationship is associated with more frequent life insurance surrender. As expected, *Tax Incentive* is not significantly associated with life insurance surrender due to financial deficits.

Table 3 indicates that *Independent Firms* are significantly (at the 5% level) more likely to surrender life insurance due to financial deficits in Models 1 and 2. That is, *Independent Firms* tend to more actively surrender life insurance due to financial deficits. Regarding our empirical hypothesis, the estimation results in Table 3 show that independent firms are positively associated with life insurance surrender due to financial deficits.

Turning to the other control variables, the coefficients on *Credit Score* and *Log Assets* are negative but insignificant, indicating that high credit scores issued by the credit research company (TDB) and the size of a firm are not associated with life insurance surrender. The negative coefficient on *Evaluation* and *Log Assets* is consistent with our prediction because we expected that firms with a lower credit score and smaller firms would tend to surrender life insurance due to financial deficits, though the coefficient is not significant. *Cash Ratio* and *Shareholders* are positive but insignificant, showing that the degree of cash richness and the diversification of shareholders are not associated with life insurance surrender. We control for factors in accordance with previous studies on insurance demand (Yamori (1999), Hoyt and Khang (2000), Zou and Adams (2006) and Regan and Hur (2007)), but these factors had little impact on life insurance surrender.

5.2 Life Insurance Surrender to Cover Retirement Allowance

Table 4 shows the determinants of life insurance surrender to cover managers' retirement allowance. Models 1 and 2 in Table 4 indicate that the coefficient on *Tax Incentive* is positive and significant, suggesting that SMEs that purchased life insurance with tax incentives are more likely to utilize life insurance surrender. That is, firms that expect tax benefits purchase life insurance in advance and then surrender life insurance at the time of the manager's retirement. The results obtained are consistent with our predictions.

It is widespread convention that firms in Japan pay retirement allowance when managers retire. Therefore, firms in Japan, particularly SMEs, purchase life insurance products, and some of them are customized for managers' retirement allowance. That is, some SMEs prepare for their managers' retirement in advance, and most of those life insurance premiums include tax exemptions or reductions. Purchasing and surrendering life insurance is expected to work as a profit and loss *stabilizer* in SME management because it reduces the amount of tax paid and alleviates deficits from managers' retirement.

The coefficients on *Banks* and *Distance* are positive but insignificant. The results indicate that firms facing financial constraints do not tend to surrender life insurance for managerial retirement allowance¹⁴. Additionally, the coefficient on *Independent Firms* is positive but not significant. While we expected that *Independent Firms* would be positively and significantly related to life insurance surrender, it is not a

¹⁴ According to "The survey of retirement benefits for officers in private firms in 2013" conducted by the Ministry of Internal Affairs and Communications, 33.3% of firms with less than 50 employees, 42.1% of firms with 50-99 employees, and 52.3% of firms with 100-299 employees have retirement benefits for managers. In other words, more than half of SMEs do not have retirement benefits for managers.

significant factor that affects life insurance surrender.

Regarding the other control variables, Models 1 and 2 in Table 4 show that *Cash Ratio* is positively and significantly associated with life insurance surrender. Additionally, Table 4 shows that the marginal effect of *Cash Ratio* is relatively large. The empirical results indicate that SMEs with a high cash ratio tend to surrender life insurance. Thus, the results obtained with regard to cash ratios are interpreted as suggesting that firms with cash have a retirement benefits system in their firms and tend to surrender life insurance to cover the cost of managers' retirement benefits.

Table 4 indicates that the coefficients on *Credit Score* and *Log Assets* are positive but insignificant. The coefficient on *Evaluation* is positive is consistent with our prediction because we expected that firms with higher credit scores would tend to surrender life insurance retirement allowance, though the coefficient is not significant. We expected that larger firms would utilize life insurance surrender to cover retirement allowance, and the sign is consistent but not significant.

Table 4 also indicates that the coefficient of *Shareholders* is negative but not significant. Previous studies have focused on larger and listed firms to measure the impacts of shareholder structure on insurance demand because the separation of ownership and management is greater. While we expected that a diversified shareholder structure to cover retirement allowance would be negatively associated with life insurance surrender, we fail to find significant impacts of shareholder structure on life insurance surrender. We interpret the evidence as arising from the fact that this article focuses on smaller and unlisted firms, whose shareholder structure is not as diversified as listed firms.

Table 3 Life Insurance Surrender to Address Deficits

Variables	Model 1				Model 2			
	Coefficient	Marginal Effect	Standard	t-value	Coefficient	Marginal Effect	Standard	t-value
Constant	0.12		1.30	0.10	-1.78		1.54	-1.16
Banks	0.07	0.01	0.04	1.72 *				
Distance					0.10	0.02	0.05	2.08 **
Independent	0.60	0.07	0.24	2.45 **	0.62	0.07	0.25	2.48 **
Tax	-0.11	-0.01	0.18	-0.61	-0.16	-0.02	0.18	-0.90
Cash Ratio	0.21	0.03	0.77	0.27	0.56	0.08	0.82	0.68
Credit Score	-0.02	-0.00	0.01	-1.12	-0.02	-0.00	0.01	-1.14
Shareholders	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.48
Log Assets	-0.00	-0.00	0.27	-0.00	0.09	0.01	0.27	0.33
Number of Sample		519				470		
McFadden R-squared		0.06				0.05		

***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 4 Life Insurance Surrender to Cover Retirement Allowance

Variables	Model 1				Model 2			
	Coefficient	Marginal Effect	Standard	t-value	Coefficient	Marginal Effect	Standard	t-value
Constant	-3.29		1.13	-2.91 ***	-3.87		1.22	-3.18 ***
Banks	0.02	0.01	0.03	0.69				
Distance					0.01	0.00	0.04	0.34
Independent	0.11	0.03	0.15	0.71	0.06	0.02	0.16	0.41
Tax	0.41	0.13	0.13	3.20 ***	0.40	0.13	0.13	2.96 ***
Cash Ratio	1.86	0.57	0.56	3.32 ***	2.08	0.65	0.64	3.25 ***
Credit Score	0.02	0.00	0.01	1.25	0.02	0.01	0.01	1.38
Shareholders	-0.00	-0.00	0.00	-0.32	-0.00	-0.00	0.00	-0.28
Log Assets	0.18	0.06	0.21	0.90	0.27	0.09	0.22	1.26
Number of Sample		519				470		
McFadden R-squared		0.06				0.06		

***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively.

The results shown in Table 3 and Table 4 indicate that different factors affect life insurance surrender for different reasons. For life insurance surrender arising from financial constraints, *Bank Relationship* and *Independent Firms* are positively and significantly related with life insurance surrender. On the one hand, *Tax Incentive* and *Cash Ratio* are positively and significantly associated with life insurance surrender to cover retirement benefits for managers.

The empirical results above suggest that life insurance surrender to address financial deficits is significantly associated with bank relationship and ownership structure. These results are interpreted as suggesting that SMEs that face difficulty borrowing funds from banks (*Bank Relationship*) and are exposed to pressures from suppliers (*Independent Firms*) tend to decide to surrender life insurance to compensate for financial deficits.

On the other hand, the empirical results above suggest that life insurance surrender to cover retirement allowance is significantly associated with *Tax Incentive* and *Cash Ratio*. These results are interpreted as indicating that SMEs that have long-term business plans (*Tax Incentive*) and cash at hand (*Cash Ratio*) tend to surrender life insurance. Life insurance surrender is used in corporate finance for both SMEs facing financial constraints and SMEs that are financially advantaged firms for each reason.

6. Concluding Remarks

This article investigated the role of life insurance surrender using a unique data set of Japanese SMEs in the manufacturing industry. We find that firms with a weak bank relationship are more likely to surrender life insurance due to financial deficits. We also find that firms with tax incentives tend to surrender life insurance to cover the cost of retirement benefits for managers. Thus, our empirical results suggest that life insurance surrender works as a source of emergency funds for firms that do not have a strong relationship with banks. Similarly, the results suggest that life insurance surrender is used for retirement benefits for managers and tax-saving purposes. Our empirical work provides the evidence that life insurance surrender has at least two functions in SME financing.

This article highlights the need for future studies on the issue of risk management of smaller firms (less than 20 employees) and other industries. Additionally, this article highlights the need for further surveys that can clarify whether SMEs escaped from financial deficits by surrendering life insurance. Further research on whether life insurance surrender improves future earnings will be important.

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