Deciding Whether a Life Insurance Contract Should Be Reinstated

Hong Mao,1 Krzysztof M. Ostaszewski,2 and Yuling Wang3

Abstract: In this article, a process for deciding whether a life insurance contract should be reinstated is proposed. The present values of net premium of two alternatives are calculated and compared. Our analysis shows that reinstatement of the original policy is not always beneficial. When the holding time of insurance policy before lapse is longer, reinstatement is more favorable, under the assumption of a constant interest rate. However, when the valuation interest rate is a stochastic process, buying a new policy is better than reinstatement of the original one if the equilibrium interest rate and the holding time of insurance policy before lapse have small values; otherwise, reinstatement of the original policy is better. [Key words: Life insurance, reinstatement, decision analysis.]

INTRODUCTION

The decision to purchase the “right” life insurance policy is very important to a consumer. Bernheim, Formi, and Kotlikoff (2003) find that consumers make poor decisions about life insurance holdings. It appears that development of a better model for those decisions may be a valuable research contribution. And researchers from many areas have contributed to studies on this issue. Puelz and Snow (1991) discuss and establish a model for contractual agreements between insurance firms and their agents with the observation of a high commission rate for a new policy and a low one for a renewed policy. Carson and Forster (2000) provide an

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The authors wish to thank the editors and reviewers of this Journal for their helpful comments and improvements to our manuscript.
analytical tool to decide whether life insurance should be replaced. Carson and Ostaszewski (2004) explore the actuarial value of life insurance backdating. In this article, we concentrate on deciding whether it is advantageous to reinstate a lapsed policy or to buy a new policy. In such a situation, the consumer must evaluate which alternative is more beneficial. We propose models designed to help the consumer to make a rational selection. This paper is the first study to quantitatively evaluate life insurance reinstatement.

A traditional life insurance policy lapses if the policyholder does not pay the premium by the end of the grace period and does not use a policy loan to pay the premium. The reinstatement provision allows the policyholder to reinstate a life insurance contract that has lapsed within a certain period, typically three or five years in the United States. The policyholder needs to analyze carefully whether it is beneficial to reinstate or to buy a new policy when exercising the right of reinstatement. Rejda (2004) lists five advantages for a policyholder to reinstate a lapsed policy rather than purchase a new one:

- The premium is lower because the reinstated policy was issued at an earlier age. [We will perform some quantitative analyses on this issue.]
- The acquisition expenses incurred in issuing the policy must be paid again under a new policy.
- The cash values and dividends are usually higher under the reinstated policy, as the new policy may not develop any cash value until the end of the third year. [Here, we would like to note that the policyholder can obtain the surrender value of the lapsed policy, which can partly or completely offset the cash value he/she cannot obtain from the new policy until the end of the third year.]
- The incontestable period and suicide period under the old policy may have expired. Reinstatement of a lapsed policy does not reopen the suicide period, and a new contestable period generally applies only to statements contained in the application for reinstatement. Statements contained in the original application cannot be contested after the original contestable period expires.
- The reinstated policy may contain more favorable policy provisions, such as a lower interest rate on policy loans.

While the second, fourth and fifth advantages proposed by Rejda (2004) may not be questionable, we believe further analysis is warranted on the first and third. In this article, we calculate the present values of the
net premium and the cash values of two alternatives, and analyze which alternative is optimal, and under what conditions.

ASSUMPTIONS AND THE DECISION MODELS

We assume the following:

(1) The objective that the decision maker hopes to reach is that the premium paid by the policyholder is minimized while the amount of insurance is the same.

(2) There are only two alternatives to choose. Alternative 1 is to apply for reinstatement within a period set in the provisions of the contract. Alternative 2 is to buy a new policy that has the same amount of insurance as the original policy.

(3) The policyholder buys a whole life insurance policy under either of the alternatives. The policyholder pays the premium at the beginning of each year. The insurer will pay the claim at the end of the year of death.

(4) We consider two situations. One is that there is a predetermined interest rate used by the insurer to calculate the premium, that is, $i$. Another is that there is a stochastic interest rate used by the insurer to calculate the premium, that is, $r$. The age of the insured when the insurance policy is issued is $x$. The insurance policy lapses after it has been held for $h$ years. The policyholder applies for reinstatement within the allowed period, at time of $h + y$, where $y$ does not exceed the allowed reinstatement period. For the whole life insurance, the insurance term for alternative 1 is $105 - x$ and the insurance term for alternative 2 is $105 - h - y - x$. In other words, a whole life insurance policy is assumed to endow at age 105.

(5) Adverse selection is not considered.\(^4\)

(6) Of course, there are other factors to affect the decision, such as the financial strength of the insurers and the coverage of the insurance contract provisions. To simplify our analysis, we assume that

\(^4\)The insured who is healthy can do significant comparison shopping with other companies and thus has less incentive to consider reinstatement. The result is that the group of former policyholders who return for reinstatement are likely to be of higher mortality than the general population. Arguably, however, if they are clearly aware of any deterioration in their health, and they have the means to pay the premium, they would not lapse the original policy in the first place. Thus, while adverse selection among those who reinstate is likely, it is reasonable to expect it to be of lesser significance than with respect to the process of lapses and withdrawals in general, where clearly good risks are more likely to leave. Furthermore, if there is adverse selection, we can assume that the underwriting process will serve to minimize it.
differences in the strength of the insurers and the coverage of the insurance contract provisions can be ignored.

(7) To simplify our analysis, we assume that there are no guaranteed benefits or other warranted benefits. And we also do not consider the cases when policyholders are rejected for reinstatement because of health conditions. The notations used in this paper are listed below:

- \( i \): a predetermined interest rate used by the insurer to calculate the premium
- \( r \): a stochastic interest rate used by the insurer to calculate the premium
- \( h \): the holding time of the insurance policy before it lapses
- \( y \): the period between the time of lapse and the time of applying for reinstatement
- \( x \): the age of the insured when the insurance policy is issued
- \( P_1 \): the single premium for a $1 benefit for Alternative 1
  Alternative 1: to apply for reinstatement within a period set in the provisions of the contract
- \( P_2 \): the single premium for Alternative 2
  Alternative 2: to buy a new policy that has the same amount of insurance as the original policy
- \( A_1 \): the annual level premium paid by the policyholder when he/she reinstates the lapsed policy
- \( A_2 \): the annual level benefit premium for the new policy
- \( hCV_t \): the cash value at time \( t \)
- \( K \): the ratio of the cash value to the reserve of the reinstated policy
- \( K_{\text{new}} \): the ratio of the cash value to the reserve for the new policy
- \( \sigma \): the volatility of interest rates
- \( \mu \): the long-run equilibrium rate of interest
- \( \mu - r \): the gap between the current and long-run equilibrium level
- \( \kappa \): a measure of the sense of urgency exhibited in financial markets to close the gap
- \( l_x \): The number of persons alive from the initial birth cohort at age \( x \)
- \( d_x \): The number of deaths at age \( x \)

The Decision Models

1. Assume that the interest rate is a constant

   Let \( P_2 \) be the single premium for a $1 benefit for Alternative 1 and be the single premium for Alternative 2. The decision process is about
comparing these two values, and possible cash values. The first premium, \( P_1 \), is equal to the single premium applicable for Alternative 1 with possible adjustment for interest due to differences in timing of payments of the two premiums. The second premium, \( P_2 \), is the single premium for buying a new life insurance policy, but adjusted for any surrender value received from the lapsed policy. Let \( i \) be the constant interest rate.

Based on the actuarial equivalence principle, we have

\[
P_1 = \sum_{j=1}^{y} A_1 (1 + i)^{y-j} + \sum_{j=0}^{105-y-h-x-1} \frac{A_1 \cdot \frac{l_{x+y+j}}{l_{x+h+y}}}{1} \tag{1}
\]

where \( A_1 \) is the annual level premium paid by the policyholder when he/she reinstates his/her lapsed policy, so that

\[
A_1 = \frac{\sum_{j=0}^{105-x-1} 1/(1+i)^j \cdot \frac{d_{x+j}}{l_x}}{\sum_{j=0}^{105-x-1} \frac{l_{x+j}}{l_x}} . \tag{2}
\]

Similarly, for Alternative 2,

\[
P_2 = \begin{cases} 
  \sum_{j=0}^{105-y-h-1} 1/(1+i)^j \cdot \frac{l_{x+h+y+j}}{l_{x+h+y}} & \text{when } h \leq 2 \\
  \sum_{j=0}^{105-y-h-1} 1/(1+i)^j \cdot \frac{l_{x+h+y+j}}{l_{x+h+y}} + -hCV_x & \text{when } h \leq 2
\end{cases} \tag{3}
\]

where \( A_2 \) is the annual level premium for the new policy, i.e.,
where $K$ is the ratio of the cash value to the reserve.

The value of $K$ will affect the decision, because it is a measure of surrender charge. When $K$ and the reserve are larger, the cash value owned by the policyholder will be larger and the conditions for buying a new policy will be more favorable.

Note that the quantity $\min(P_1, P_2)$ affects the optimal alternative for the policyholder.

In the following, we will perform sensitivity analysis. Let $x = 20, y = 5, K = 0.6$. Table 1 lists the values of single premium for one dollar of benefit of $P_1$ and $P_2$ when the interest rate, $i$, and the holding time of the insurance policy before it lapses, $h$, take different values.

Figure 1, Figure 2, and Figure 3 show the relationships between the single premium for one dollar benefit of reinstatement, $P_1$, the single premium for one dollar benefit of buying a new policy, $P_2$, and the holding time of the insurance policy before it lapses, $h$, when the interest rate $i =$ 0.03, 0.05, and 0.10. We can see that there exists a break-even point $(h^*, P_1^*, P_2^*)$ in all three figures. The value of $P_1$ is greater than the value $P_2$ when $h$ is smaller than $h^*$ and vice versa. Thus, buying a new policy is better than reinstating original the one when $h$ is smaller than $h^*$, but reinstating the original policy is better than buying a new one when $h$ is larger than $h^*$. Therefore, reinstating a lapsed contract is not always better than buying a new policy from the aspect of net premium paid by the policyholder. From Table 1, we can see that the values of premiums for the two alternatives are very sensitive to the changes in the interest rate, and the premiums for the
Table 1. Values of Single Premiums ($P_1$ and $P_2$) for One Dollar of Benefit for Varying Parameters $i$ and $h$

<table>
<thead>
<tr>
<th>$h$</th>
<th>1</th>
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<th>5</th>
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<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_1$</td>
<td>0.6373</td>
<td>0.6351</td>
<td>0.6329</td>
<td>0.6306</td>
<td>0.6282</td>
<td>0.6258</td>
<td>0.6233</td>
<td>0.6207</td>
</tr>
<tr>
<td>$P_2$</td>
<td>0.5948</td>
<td>0.6103</td>
<td>0.6263</td>
<td>0.6428</td>
<td>0.6597</td>
<td>0.6772</td>
<td>0.6951</td>
<td>0.7136</td>
</tr>
</tbody>
</table>

Notes: $i$ is the interest rate, $h$ is the holding time of the insurance policy before it lapses, and $P_1, P_2$ is the single premium for one dollar of benefit of the reinstated policy (a new policy). The mortality data is from the China Life Insurance Mortality Table 2000 (CIRC, 2005).

Fig. 1. The values of the single premium of $P_1$ and $P_2$ when $i = 0.03$.

two alternatives are negatively related to the interest rates. From Figure 1 to Figure 3, we can also find that the lines of the single premium of Alternative 1 are much flatter than the lines of the single premium of Alternative 2, which illustrates that buying new policy is much more
sensitive to the change of the holding time of the insurance policy before it lapses than is reinstating the original one.

Table 2 lists the break-even points when interest rate $i = 0.10$, while the ratio of cash value to the reserve, $K$, takes different values.

In what follows now, we give formulas for calculating cash values of these two alternatives, and further find the crossover points. Let $\mathcal{CV}^1_x$ and $\mathcal{CV}^2_x$ express the cash values of Alternative 1 and Alternative 2, respectively, at time $t$. Then we have
Table 2. Break-Even Points (h*) when $i = 0.10$ for Varying $K$

<table>
<thead>
<tr>
<th>$K$</th>
<th>0.1</th>
<th>0.3</th>
<th>0.5</th>
<th>0.7</th>
<th>0.9</th>
</tr>
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<tbody>
<tr>
<td>$h^*$</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>$P_1^<em>(P_2^</em>)$</td>
<td>2.3442</td>
<td>2.3518</td>
<td>2.3414</td>
<td>2.3311</td>
<td>2.3270</td>
</tr>
</tbody>
</table>

Note: $i$ is interest rate, $K$ is the ratio of cash value to reserve, and $P_1(P_2)$ is the single premium of the reinstated policy (a new policy).

\[
t^*CV_x^1 = K \left[ 1 - \frac{\sum_{j=1}^{105-x-t} \frac{1}{1+i} \cdot l_{x+t+j}}{\sum_{j=1}^{105-x} \frac{1}{1+i} \cdot l_{x+j}} \right],
\]

(6)

and

\[
t^*CV_x^2 = K_{new} \left[ 1 - \frac{\sum_{j=1}^{105-x-t} \frac{1}{1+i} \cdot l_{x+t+j}/l_{x+t}}{\sum_{j=1}^{105-x-h-y} \frac{1}{1+i} \cdot l_{x+h+y+j}/l_{x+h+y}} \right] +
\]

(7)

\[
h^*CV_x^1 \cdot (1+i)^{t-h-y}, \quad t > h + y + 2,
\]

where $K_{new}$ is the ratio of the cash value to the reserve of new policy.

Table 3 lists the change patterns of cash values of the two alternatives with the changes of surrender time $t$ when the ratios of the cash values to the reserves take different values.

In Table 3, we list three cases, and there exists a break-even point for all three cases. But for different values of $K$ and $K_{new}$, the break-even points are different. The corresponding values of $t^*$ in break-even points decrease with the increase of $K$ and $K_{new}$. Therefore, selection of the optimal plan is dependent on the values of $K$ and $K_{new}$.
2. Assume that the interest rate is a stochastic process

Assume that the volatility of interest rates is constant and that the Cox, Ingersoll, and Ross (1985) model\(^5\) is used in valuation. Interest rate \(r\) satisfies a stochastic differential equation

\[
dr = \kappa(\mu - r)dt + \sigma \sqrt{r} dw,
\]

where \(w\) is a Wiener process, \(\sigma\) denotes the volatility of interest rates, \(\mu\) is the long-run equilibrium rate of interest, \((\mu - r)\) is the gap between its current and long-run equilibrium level, and \(\kappa\) is a measure of the sense of urgency exhibited in financial markets to close the gap, i.e., it gives the speed at which the gap is reduced, where the speed is expressed in annual terms.

The premium for Alternative 1 can be expressed as follows:

\[\begin{align*}
K = 0.3, K_{\text{new}} = 0.2 & \\
t & 60 & 61 & 62 & 63 & 64 & 65 & 66 & 67 \\
\mathcal{CV}_1 & 0.2254 & 0.2336 & 0.2419 & 0.2503 & 0.2586 & 0.2685 & 0.2754 & 0.2837 \\
\mathcal{CV}_2 & 0.2235 & 0.2334 & 0.2437 & 0.2545 & 0.2658 & 0.2760 & 0.2903 & 0.3070 \\
K = 0.5, K_{\text{new}} = 0.4 & \\
t & 17 & 18 & 19 & 20 & 21 & 22 & 23 & 24 \\
\mathcal{CV}_1 & 0.0455 & 0.0484 & 0.0514 & 0.0545 & 0.0578 & 0.0612 & 0.0648 & 0.0684 \\
\mathcal{CV}_2 & 0.0438 & 0.0469 & 0.0502 & 0.0537 & 0.0573 & 0.0611 & 0.0651 & 0.0692 \\
K = 0.7, K_{\text{new}} = 0.6 & \\
t & 12 & 13 & 14 & 15 & 16 & 17 & 18 & 19 \\
\mathcal{CV}_1 & 0.0464 & 0.0496 & 0.0529 & 0.0563 & 0.0599 & 0.0637 & 0.0677 & 0.0719 \\
\mathcal{CV}_2 & 0.0436 & 0.0473 & 0.0521 & 0.0552 & 0.0595 & 0.0639 & 0.0685 & 0.0734 \\
\end{align*}\]

Notes: \(t\) is the time, \(K(K_{\text{new}})\) is the ratio of cash value to reserve used in the reinstated policy (a new policy), and \(\mathcal{CV}_1(\mathcal{CV}_2)\) is the cash value of the reinstated policy (a new policy).

\(^5\)Other interest rate models, such as Vasicek (1977), Langetieg (1980), and Yao (1999), assume that the interest rates are normally distributed and there is a positive probability of negative interest rates, which implies arbitrage opportunities. We do not use these models in our paper.
\[ P_1 = \sum_{j=1}^{y} A_1 e^j + \sum_{j=0}^{y} A_1 e^j \int_0^{r(u)du} \frac{l_{x+h+y+j}}{l_{x+h+y}}. \]

where \( A_1 \) is the annual level benefit premium paid by the policyholder annually when he reinstates his lapsed policy, so that

\[ A_1 = \left[ \sum_{j=1}^{y} e^j \int_0^{r(u)du} \frac{105-y-x-h-1}{l_x} \cdot \frac{d_{x+j}}{l_x} \right] \]

Similarly, for Alternative 2

\[ P_2 = \left\{ \begin{array}{ll}
\sum_{j=0}^{105-y-h-1} A_2 e^j & \int_0^{r(u)du} \frac{l_{x+h+y+j}}{l_{x+h+y}} \quad \text{when } h \leq 2 \\
\sum_{j=0}^{105-y-h-1} A_2 e^j \int_0^{r(u)du} \cdot \frac{l_{x+h+y+j}}{l_{x+h+y}} - hCV_x & \quad \text{when } h > 2 
\end{array} \right. \]
where $A_2$ is the annual level benefit premium for the new policy, i.e.,

$$A_2 = \frac{\sum_{j=0}^{j+1} 105 - y - h - x - 1 e^{-r(u)} \int_0^u \frac{d_x + y + j}{l_{x + y}}}{\sum_{j=0}^{j+1} 105 - y - h - x - 1 e^{-r(u)} \int_0^u \frac{d_x + y + j}{l_{x + y}}}$$

(11)

and

$$h CV_x = K h V_x = K \left[ 1 - \frac{\sum_{j=1}^{j+1} 105 - x - h e^{-r(u)} \int_0^u \frac{l_{x + y}}{l_{x + y}}}{\sum_{j=1}^{j+1} 105 - x - h e^{-r(u)} \int_0^u \frac{l_{x + y}}{l_{x + y}}} \right],$$

(12)

where $K$ is the ratio of the cash value to the reserve.

In what follows now, we will perform sensitivity analysis. Let $x = 20$, $y = 5$, $K = 0.06$, $\kappa = 0.3$, and $\sigma = 0.12$. Table 4 lists the values of single premiums ($P_1$ and $P_2$) for one dollar of benefit when the equilibrium interest rate of long term ($\mu$) and the holding time of the insurance policy before it lapses ($h$) vary.

From Figure 4, Figure 5, and Figure 6, and Table 4, we can see that there exists a break-even point when $\mu = 0.3$. In this case, purchasing a new policy is better than reinstatement when $h < 4$, and worse when $h > 4$. In addition, we find that when $\mu = 0.4$, there also exists the break-even point ($h^* = 2$). But when $\mu = 0.4$, there are no break-even points, and reinstatement is always better than purchasing a new policy in these cases. We can see that this situation is similar to the cases of constant interest rates, as the lines of the single premium of Alternative 1 in that case are also flatter than the lines of the single premium of Alternative 2, which illustrates the fact that the single premium for a new policy is more sensitive to the changes in the holding time of the insurance policy before it lapses than that of the reinstated policy.
Table 4. Values of Single Premium for One Dollar of Benefit $P_1$ and $P_2$ When Interest Rate Is a Stochastic Process

<table>
<thead>
<tr>
<th>$h$</th>
<th>1</th>
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<tbody>
<tr>
<td>$P_1$</td>
<td>0.7989</td>
<td>0.7958</td>
<td>0.7926</td>
<td>0.7892</td>
<td>0.7858</td>
<td>0.7823</td>
<td>0.7787</td>
<td>0.7750</td>
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<tr>
<td>$P_2$</td>
<td>0.7421</td>
<td>0.7606</td>
<td>0.7797</td>
<td>0.7993</td>
<td>0.8194</td>
<td>0.8401</td>
<td>0.8613</td>
<td>0.8832</td>
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$\mu = 0.05$

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<tbody>
<tr>
<td>$P_1$</td>
<td>0.2031</td>
<td>0.2028</td>
<td>0.2024</td>
<td>0.2020</td>
<td>0.2016</td>
<td>0.2012</td>
<td>0.2008</td>
<td>0.2003</td>
</tr>
<tr>
<td>$P_2$</td>
<td>0.2380</td>
<td>0.2480</td>
<td>0.2585</td>
<td>0.2695</td>
<td>0.2811</td>
<td>0.2931</td>
<td>0.3057</td>
<td>0.3189</td>
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$\mu = 0.10$

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<tr>
<th>$h$</th>
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<tbody>
<tr>
<td>$P_1$</td>
<td>0.014</td>
<td>0.014</td>
<td>0.014</td>
<td>0.014</td>
<td>0.014</td>
<td>0.014</td>
<td>0.014</td>
<td>0.014</td>
</tr>
<tr>
<td>$P_2$</td>
<td>0.0221</td>
<td>0.0237</td>
<td>0.0255</td>
<td>0.0275</td>
<td>0.0296</td>
<td>0.0320</td>
<td>0.0345</td>
<td>0.0373</td>
</tr>
</tbody>
</table>

Notes: $\mu$ is the long-run equilibrium rate of interest, $h$ is the holding time of the insurance policy before it lapses, and $P_1(P_2)$ is the single premium for one dollar of benefit of the reinstated policy (a new policy).

Fig. 4. The values of single premium of $P_1$ and $P_2$ when $\mu = 0.03$. 
In the following, we will give formulas for calculating cash values of these two alternatives when the interest rate is assumed as a stochastic process, and show the process of finding the crossover points. The cash values of two alternatives can be expressed as the following:

\[ tCV_x^1 = K \left( 1 - \frac{\sum_{j=1}^{\infty} e^{-\int_0^{x+t} r(u)du} \cdot l_{x+t+j}}{\sum_{j=1}^{\infty} e^{-\int_0^{x} r(u)du} \cdot l_{x+j}} \right) \]

and

\[ tCV_x^2 = K_{new} \left( 1 - \frac{\sum_{j=1}^{\infty} e^{-\int_0^{x+t} r(u)du} \cdot l_{x+t+j}/l_{x+t}}{\sum_{j=1}^{\infty} e^{-\int_0^{x-h-y} r(u)du} \cdot l_{x+h+y+j}/l_{x+h+y}} \right) \]

\[ + \int_0^{x+h+y} r(u)du \cdot CV_x^h e^{-t} \quad , \quad t > h+y \]

where \( K_{new} \) is the ratio of the cash value to the reserve of new policy.

Table 5 illustrates the patterns of cash values of the two alternatives with the changes of surrender time \( t \) when the ratios of the cash values to the reserves take on different values.

Table 5 lists three cases with different \( K \) and \( K_{new} \). The results are similar to the cases of determinant interest rates, except that the value of \( t^* \) in break-even point of the first case here is much smaller.

**Example**

We now describe an example of this decision process based on real-world data from a major Chinese insurance company, China Life. The
interest rate $i = 5\%$, the ratio of cash value to reserve $K = 60\%$, and the data of mortality rate is from the China Life Insurance Mortality Table 2000 (CIRC, 2005). A woman aged 20 bought a whole life policy with a benefit of RMB 50000. The holding time of her policy before it lapsed was $h = 4$. The time of applying for reinstating or buying a new policy in the company is $y = 5$. Using the equations 1–5, we find that the single premium for reinstating RMB 1 benefit is 0.1817 (see Table 1) and $0.1817 \times 50000 = 9085$ (RMB) for RMB 50000 of benefit. Similarly, we find that the single premium for buying a new policy of RMB 50000 benefit is RMB 9745. Therefore, reinstatement is a better decision for this woman.
CONCLUSIONS

The attractiveness of reinstatement for a lapsed life insurance policy has been pointed out in Rejda (2004). Policyholders decide whether to reinstate a lapsed policy or purchase a new one. This article discusses and compares these two alternatives by developing quantitative models. Our calculations indicate that reinstating a lapsed policy is not always a good thing. Policyholders should carefully compare the premiums and cash values between these two alternatives and then make rational decisions. Our findings show that, under the assumption of a constant interest rate, when holding time of the insurance policy before lapse is longer, reinstatement of the original policy is better than buying a new one if the interest rate is constant. However, when the interest rate is a stochastic process, buying a new policy is better than reinstating the original one if the equilibrium interest rate ($\mu$) and the holding time of insurance policy before it lapses ($h$) assume small values; otherwise, reinstating the original policy is better.
REFERENCES


