Affinity
Insurance

Marriverkary

STAT3953 – Fundamentals of Actuarial practice

2020-2021 Semester 1

Final Group Project

Group 10

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0.   Preface

Product development and pricing are iterative processes. This report is completed with only minimal iterations due to time and resources constraints. This report does not reflect a final product design. Many possible improvements and modifications to the product design are discovered after a few development iterations, which are included in the final section of the report.

Moreover, this report is prepared without the support of other corporate functions. Without company information or past experience as reference, many company-specific assumptions are selected relatively arbitrarily. The reader should focus on the idea and the methodology used in the report instead of the exact numeric results.

0.   Preface

1. Executive Summary

This report aims to provide a proposal on a new project to the board of shareholders of *Affinity Insurance*, which is composite of a Hong Kong based equity firm, a China-based property developer, a European-based family office, and a group of wealthy HKU alumni. On behalf of the new management team *of Affinity Insurance*, we would like to suggest a new product to diversify our business portfolio in the financial security market. All product designs, pricing strategies, market plans, and profit projections would be elaborated and justified in this report. The proposed new product is called *Marriversary*, which will be the first endowment marriage product in Hong Kong and possibly in the overseas market. We strongly believe that *Marriversary* can generate a sizeable amount of profit and enhance our business competitiveness.

1.1. Market Consideration

The number of divorces in Hong Kong has rocketed from 13,425 in 2001 to 21,157 in 2019, showing a drastic rise by 60% in the past 20 years.[1] Increasing financial insecurity and evolving modern values towards marriage and individual liberty in Hong Kong are principal factors contributing to such phenomenon. With the proliferation of divorce cases in Hong Kong, the need for marriage prolongation for sustaining a long-lasting relationship, and the demand for divorce protection, such as ensuring fair distribution of benefits during legal divorce procedure, have increased simultaneously. Especially for spouses who have comparatively weaker financial status among the pairs, the requisite for umbrella against risk of divorce is demanding.

Affinity Insurance will provide the first and only endowment marriage product – *Marriversary* – in Hong Kong, which provides contingent benefits to meet couples' needs in the courses of marriage and divorce. Clients can purchase *Marriversary* for their spouses, so that their partners can receive benefit upon maturity or divorce. Therefore, not only does *Marriversary* safeguard couples' interests when handling divorce, it can also be treated as a unique wedding anniversary gift to clients' loved ones for celebrating the milestones the couples have walked through. By meeting the current market's demand, we believe that *Marriversary* as an innovative insurance product can be a kickstarter in exploring this niche market and establish *Affinity Insurance* as the market leader in this field.

1.2. Product Highlights

Affinity Insurance will be the pioneer in the insurance market by launching *Marriversary*. The product highlights of *Marriversary* are summarized as follows:

➢ *Marriversary* is the first and only marriage endowment product in the insurance market that can shield policyholders against future uncertainty on both marriage and divorce;

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[1] Census and Statistics Department, "Women and Men in Hong Kong - Key Statistics," Hong Kong: Census and Statistics Department, 2020, https://www.censtatd.gov.hk/hkstat/sub/sp180.jsp?productCode=B1130303.

- *Marriversary* provides maturity, divorce, and death benefits to protect policyholders against divorce and mortality risks;
- *Marriversary* creates a no-fault situation when couples divorce to reduce legal disputes, and provide a 3-year Grace Period to file for divorce;
- *Marriversary* provides flexible options on sum assured and time to maturity in order to cater different personal preferences and financial abilities;
- *Marriversary* can be purchased through brokers, direct agents, and online platforms with a simplified underwriting process.

1.3. Expected Financial Impact

Cash flow model, pricing and reserving assumptions, and business plans complying company and legal standards are formulated. Moreover, strict sensitivity testing and risk analysis are carried out to generate the expected profit margins under different scenarios. Several key financial analyses are listed as follows:

- Profit Margin is 10.08%, new business value per AP is 76.25%, and new business strain is 22.82%;
- Premium breakdown: 70% Benefits, 13% Overhead, 8% Expense, 7% Commission, and 3% Tax;
- Sensitivity testing suggests that the key risks of this product are divorce risk and interest rate risk.

2.   Background Research

2.1.   Product Rationale and Suitability

2.1.1. Divorce Trend in Hong Kong

The Census and Statistics Department, the Government of Hong Kong Special Administrative Region, has published a review in 2020 summarizing the marriage and divorce trends in the city between 2001 and 2019. According to this report, the number of divorces among Hong Kong residents soared from 13,425 in 2001 to 21,157 in 2019, showing a staggering increase by 60%.[2] Experts attribute the surge to increasing financial insecurity and changing values towards marriage.
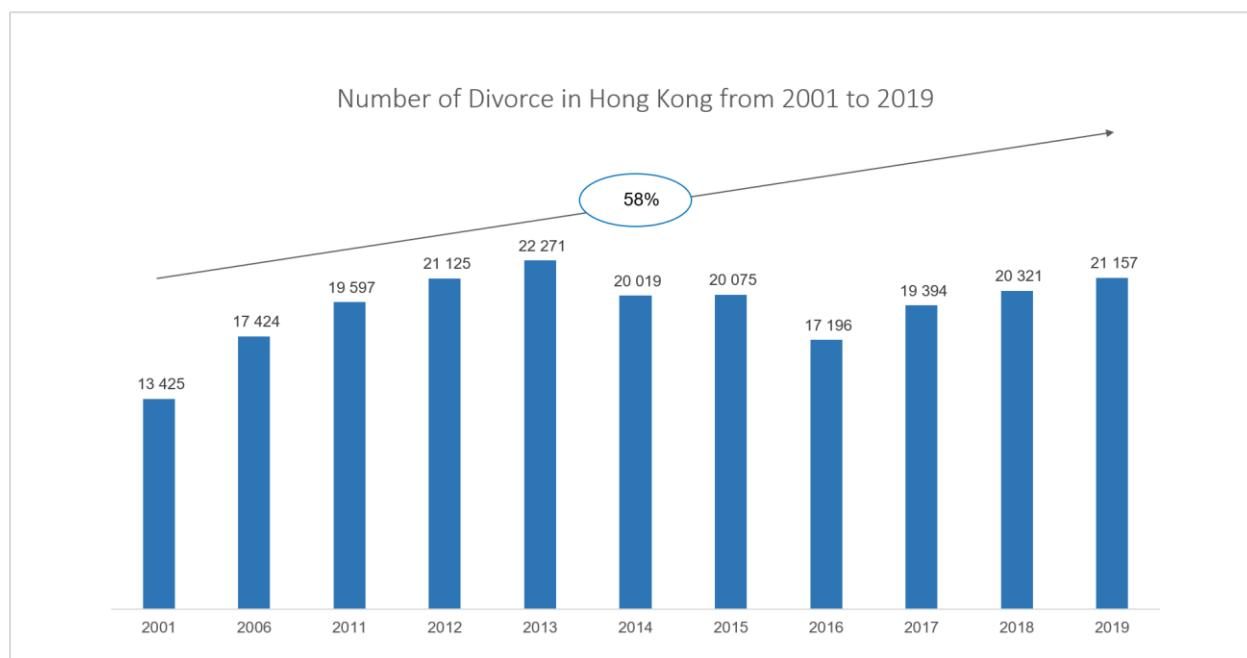
Figure 1. Number of divorce in Hong Kong from 2001 to 2019[3]

According to the Census and Statistics Department, the rising divorce rate is underpinned by changing values and expectations. Figures show that divorce is more popular among better-educated couples.[4] Affected by western values towards marriage, Hong Kong people are more individualistic and both sexes aspire to pursue their own interests and career. In the past, family was of the top priority, so people were expected to live up to the commitment of marriage and responsibility of forming new families for keeping their family names alive. In the contemporary world, people are ambitious of fulfilling their individual goals, so possible

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[2]Census and Statistics Department, "Women and Men in Hong Kong - Key Statistics," Hong Kong: Census and Statistics Department, 2020,
https://www.censtatd.gov.hk/hkstat/sub/sp180.jsp?productCode=B1130303.
[3]Ibid.
[4]Ibid.

conflicts among couples will arise when one wants more freedom and sees family as a burden, thereby getting divorced.[5]

2.1.2. Impact of Divorce on the Couple

Under HKSAR marriage law, the couples who are getting a divorce will have to split their total asset, including savings, endowment insurance, and many other items accordingly.[6] Total assets available are calculated on an after-debt basis, which in turn might greatly decrease the amount received by the party with weaker financial status.

For example, if the husband has a housing mortgage of HK$1.5 million, and the total asset before debt is HK$2 million, then the total asset to be distributed will be HK$0.5 million (the difference of HK$2 million and HK$1.5 million). In this case, both parties will receive HK$0.25 million after divorce.

It is very often that the two do not receive enough money for supporting their living after divorce. Regarding this, the party of weaker financial status could request alimony, as a lump sum or monthly payment, from the party with better financial status.

Unfortunately, alimony is an extremely complicated issue after divorce. From the perspective of the party with better financial status, he or she may already incur a vast amount of expenses due to the potential creation of a new family or unemployment. Providing alimony or child support to his or her previous spouse and children will create further financial burden. From the perspective of the party with weaker financial status, the situation is more pessimistic if he or she has custody of their children. Despite that the party of better financial status has the legal responsibility to provide child support after a divorce, it is very often that he or she runs away from this obligation.

According to a questionnaire provided by the Hong Kong Federation of Women's Centres regarding divorced women's status of recognition of alimony, more than 92% of the 1000 participants experienced various troubles during the collection of alimony.[7]

Regarding the recovery of alimony, 75% of the interviewees who were in arrears tried to recover alimony. Among the 25% of respondents who did not try to recover alimony, 82% said that the reasons behind were "the process of filing a lawsuit is too complicated" and "lack of

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[5]Bryan Harris, "Divorces soar and more remain unmarried in loveless Hong Kong," *South China Morning Post*, January 16, 2015, https://www.scmp.com/news/hong-kong/article/1680357/divorces-soar-and-more-remain-unmarried-loveless-hong-kong

[6]Hong Kong e-Legislation, "Cap.192 Matrimonial Proceedings and Property Ordinance," accessed October 4, 2020, https://www.elegislation.gov.hk/hk/cap192!en?INDEX_CS=N&xpid=ID_1438402816826_001.

[7]"「離婚婦女收取贍養費的狀況」問卷調查發布," 香港婦女中心協會, (English translation: "Release of the result of the questionnaire regarding on the current situation of divorced women in receiving alimony," Hong Kong Federation of Women's Centers) https://womencentre.org.hk/Zh/Newsroom/Pressrelease/legal_seminar_2017/.

confidence in the recovery process", and 64% explained that "the other party is unable or will not pay".[8]
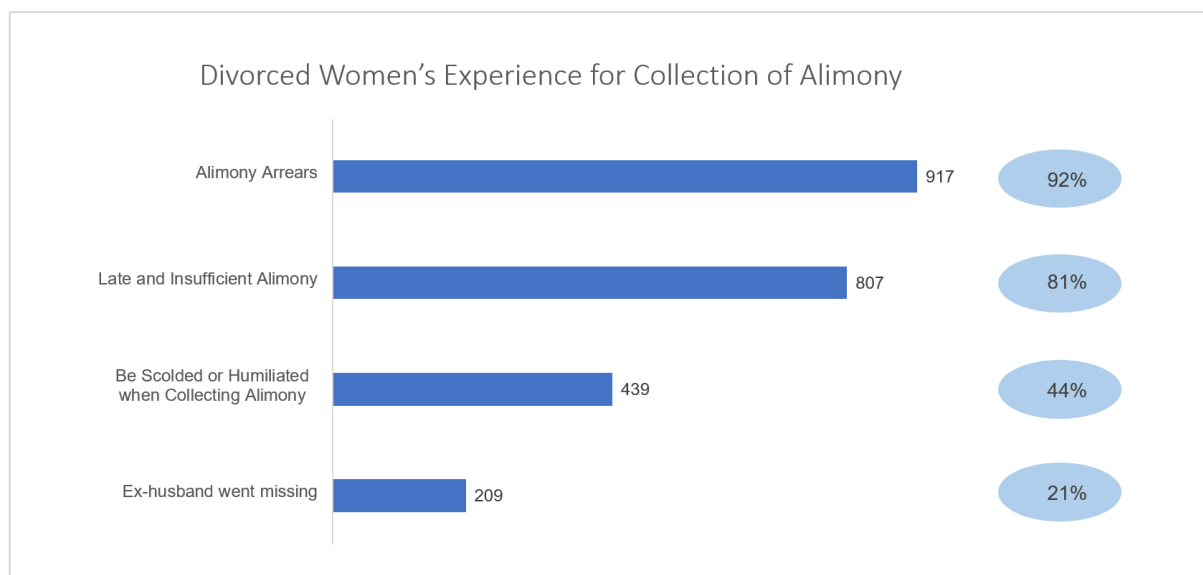
Figure 2. Divorced women's experience for collection of alimony in 2016 in Hong Kong[9]

In many cases, recovering alimony costs a large amount of time, energy, and money, without a guaranteed payoff. Therefore, divorce may scare off many helpless people, especially the ones with weaker financial status in a marriage.

2.1.3 Preparation for Legal Divorce in Hong Kong

Under HKSAR Marriage Law, a legal and effective divorce requires satisfaction of at least one of the following conditions:[10][11]

1) If both agree to divorce, a proof of at least 1 year of separation (consecutively) is needed prior filing a divorce petition; or
2) If only one party wishes to divorce, a proof of at least 2 years of separation (consecutively) is needed prior filing a divorce petition; or
3) A proof that one party has deserted the other party for at least 1 year (consecutively) prior filing a divorce petition; or
4) A proof of adultery of either party; or

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[8]Ibid.
[9]Ibid.
[10]Hong Kong e-Legislation, "Cap.192 Matrimonial Proceedings and Property Ordinance," accessed October 4, 2020,
https://www.elegislation.gov.hk/hk/cap192!en?INDEX_CS=N&xpid=ID_1438402816826_001.
[11]Hong Kong e-Legislation, "Cap. 179 Matrimonial Causes Ordinance," accessed October 4, 2020, https://www.elegislation.gov.hk/hk/cap179!en-zh-Hant-HK?INDEX_CS=N.

5) A proof that either party has behaved in such a way that it cannot be reasonably expected to live with together.

The time needed for the divorce progress varies under different conditions:

1) If both agree to divorce using a proof of 1 year of separation, legal procedure takes around 6-9 months, so the total time needed for the whole progress will be about 2 years;
2) If only 1 party wishes to divorce, or / and, dispute occurs (e.g. asset split, child support and etc.), the whole process would be longer. In this case, 2 years of separation are required before legal procedure starts, while the legal procedure can last very long in extreme cases.

2.2. Objectives

Though largely untapped at the moment, the potential of the pre-wed or married market is foreseen to grow substantially in the near future given the increasing figures of divorce in Hong Kong. Launching *Marriversary* is a pioneering move to position *Affinity Insurance* in the lead of this market segment. It is also a step forward in the strategic direction of tailoring product design to target customer groups.

Marriversary attempts to create a no-fault situation during divorce. Alimony payment for the weaker party can be covered by *Marriversary*, which prevents costly legal expenses and potential further deterioration in relationship, especially for couples that have children.

Moreover, *Marriversary* offers the opportunity for potential long-term capital growth up to 135.8% of the total premium paid, which translates to a 1.96% annual customer yield rate. [12] Premiums are not foregone if the couple happily stays together. To suit customers' needs and their budgets, they can choose flexible premium payment terms offering different policy returns and death benefits.

Specifically, *Affinity Insurance* provides *Marriversary* to aim for:

➢ Strengthening couples' love bonding and provide sense of security for the non-breadwinner (the party who has lower financial status) as *Marriversary* serves as a trust fund that is constantly supplied by the breadwinner (the party who has higher financial status) of the family; and could be given to their loved ones as a gift for anniversary when the policy matures;

➢ Helping married couples to set aside a portion of salary to meet long-term saving targets;

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[12]The potential long-term capital growth up and the customer yield are for 25-year maturity policy purchased by non-smoking couple, both aged 40.

➢ Creating a no-fault situation when couples divorce to reduce legal arguments, which can help couples that are getting a divorce to prepare for separate living expense, or covering the future cost of alimony, without further deterioration in relationship.

3.   Product Design

3.1.   Product Descriptive Summary

Marriversary is an endowment marriage product, and it can be included into a pre-marital or post-martial agreement in order to clarify the distribution of benefits after divorce.

The product involves 2 people of a married couple, in which

1) The payer will pay the premium annually or monthly;
2) The beneficiary will receive benefit upon maturity, divorce, or death according to the following description.

The product will provide 3 types of benefit as follows:

1) A lump sum maturity benefit when the policy matures and the couple is still married;
2) A divorce benefit when the decree of divorce is granted by the Hong Kong Judiciary;
3) A death benefit upon death of payer or beneficiary before maturity.

There is a 3-year Elimination Period, during which if divorce occurs, no benefit will be paid.

After the 3-year Elimination Period, if premium payment ceases and the couple is intending to proceed to a divorce, the policy will enter a 3-year Grace Period. With reference to Section 2.1.3, generally a divorce petition can be filed in 3 years, so this 3-year Grace Period will be provided to our customers to keep the policy in-force when they are separated but not legally divorced. A divorce petition should be filed within the Grace Period. Those didn't will be considered as surrendering the policy.

In case the payer wants to stop paying premium without the intention to divorce, the beneficiary can choose to convert the policy into a paid-up reduced sum assured policy.

3.2.   Product Features

Product Name	*Marriversary*		
Plan Type	Marriage Saving Plan with Divorce Protection		
Currency	HKD		
Sum Assured	Minimum: HK$100,000 Maximum: HK$3,000,000		
Issue Age	Age 18 – 50	Age 18 – 45	Age 18 – 40
Policy Term	15	20	25
Premium Payment Term	12-pay	17-pay	20-pay
Premium Payment Mode	Annual or monthly		

Premium Structure	• Level and guaranteed • Premium varies by plan, issue ages, genders, and smoking status of both payer and beneficiary • Premium is waived for 3-years upon indication of divorce • Refer to Section 3.2.1 for premium rates
Maturity Benefit	100% of sum assured (SA)
Divorce Benefit	Benefit amount depends on when premiums are first missed: • Before 3rd policy anniversary: 0% of SA • On and after 3rd policy anniversary and before the 7th policy anniversary: Linearly increasing percentage of SA, from 0% to 100% • On and after 7th policy anniversary and before maturity: 100% of SA Benefit is paid if divorce is filed within 3-year Grace Period after premium is missed and at the time of divorce decree being granted
Death Benefit	• Only beneficiary dies: Return of premium to payer • Only payer dies: 100% of SA • Couple dies within a policy month (common shock): 100% of SA
Surrender Charge	• Before Grace Period: 10% of paid-up SA • During Grace Period: Linearly increasing percentage of paid-up SA, from 30% to 60%
Surrender Benefit	• Surrender before 3rd policy anniversary: No surrender benefits • Surrender after 3rd policy anniversary: Paid-up policy with reduced and unguaranteed SA less surrender charge

The increasing surrender charge is in place to encourage policyholders to inform the company when they stop paying the premium as they are intended to divorce or surrender. The company is required to hold a large amount of reserve in place when policyholders enter the 3-year Grace Period for applying a divorce, which would cause a large strain in capital. Surrendering the policy will not cause an increase in reserve, so it will relieve us from capital strain.

3.2.1. Premium Rates

The following table shows examples of annual premium rates per 1,000,000 sum assured. Monthly rates are 3.5% higher than annual rates.

Payer			Beneficiary			15-mature	20-mature	25-mature
Age	Sex	Smoking	Age	Sex	Smoking	12-pay	17-pay	20-pay
20	M	No	20	F	No	74,320	51,730	42,360
30	M	No	20	F	No	74,190	50,980	41,250
30	M	No	30	F	No	73,760	49,770	39,600
40	M	No	30	F	No	73,510	48,790	38,240
20	F	No	20	M	No	74,190	51,600	42,220
30	F	No	20	M	No	73,930	50,590	40,810
30	F	No	30	M	No	73,630	49,620	39,450
40	F	No	30	M	No	73,290	48,420	37,820

For the complete Premium Rates table, please refer to Appendix 2.

3.3.   Underwriting

This product only requires a simplified issue underwriting for the payer, which involves asking limited number of questions. Moreover, no underwriting is required for the beneficiary. Such underwriting procedure is implemented because the product is not sensitive to both parties' mortality.

4. Marketing Plan

4.1. Marketing Strategies

Affinity Insurance is the first in Hong Kong to introduce a novel insurance product regarding marriage. We expect little competition in market share in the first few years.

Our target customers cover a wide age range, from unmarried couples to well-settled lifelong partners. For unmarried couples, they are eligible to purchase our product, but the policy will only be in-force after they are married on legal terms. As for married couples, they are welcomed to purchase our product in any stage of their marriage. We also provide flexible options on sum assured and time to maturity in order to cater for different personal preferences and financial abilities. To promote *Marriversary*, we will advertise it through various channels as follows:

➢ Partnering with wedding planners;

➢ Advertisement in MTR stations and buses;

➢ Social media pages of our company;

➢ Promotional emails to our existing married clients;

➢ Promotion through agents.

4.2. Distribution Channels

We will distribute *Marriversary* through brokers and direct agents. Their strong bases of customer connections will be the major source of business income, as well as a way to extend the reach of this new product.

In addition, we will offer the option of online purchase through our company website. Since this product only requires simple underwriting, all essential information can be obtained through online process in the form of a questionnaire. This could provide more convenience to clients when they purchase *Marriversary*.

4.2.1 Commission Rates

Initial Commission Rate	30% of the first premium
Trailing Commission Expense	5% of future renewals

Initial commission is paid to the agent when he or she sells *Marriversary*. *Marriversary* is similar to an endowment policy in life insurance, which pays sum assured on maturity and benefit on death. For *Marriversary*, the sum assured is paid to the receiver when he or she

survives and has not divorced with the payer at designated maturity, and the benefit is paid upon time of legal divorce or the payer's death. Hence, the initial commission rate is set with reference to the 15-year endowment products in India, which is in between 25% to 35%.[13]

High trailing commissions provide an incentive for the agent to keep in touch and follow-up with his or her clients, in order to ensure that the payer can pay premium on time. If the payer stops paying premium without a prior inform, we may not know the intention of such action (whether the payer would like to lapse, or the payer would like to enter the 3-year Grace Period for the upcoming preparation of divorce), which may result the company to hold a sum of unnecessary reserves. We would like to pay trailing commissions to the agent, so that agent's income is tied with the duration of the product. Hence, the agent can make sure that the company can receive the payer's intention, information, and concerns timely. In the United States, the agent may receive 3%-10% of annual premium as client renews the policy, so our trailing commission expense is set according to the range in the current market.[14]

In summary, around 7-8% of the total premium will be paid for commission.

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[13]"Agents commission in Insurance Policies?," Jagoinvestor,
https://www.jagoinvestor.com/2010/04/agents-commission-in-insurance-policies.html
[14]Ken Clark, "Becoming a Life insurance Agent," Investopedia, June 30, 2019,
https://www.investopedia.com/articles/financial-careers/08/become-insurance-agent.asp#citation-3.

5. Competitive Positioning

5.1. Target Markets and Customer Needs

Marriversary targets mass affluent pre-wed and married couples with possible imbalance in earning abilities and financial status. The product is also suitable for couples who are going through stages of life that may diminish partner's earning ability, such as giving birth, becoming a housewife or househusband, and etc.

However, the high annual premium along with the reducing marriage rate may limit access to the mass market.

Customer insights were obtained by understanding their marriage protection needs, major purchase consideration factors, and ideal product features.

Characteristic of *Marriversary* in the view of customers:

Extend protection after premium payment ceased – During years before legal divorce (i.e. preparation of legal divorce through legal separation), the beneficiary may be put in a very vulnerable position, because he or she cannot force the payer to continue paying the premiums. A 3-year Grace Period ensures the beneficiary's interests, so his or her benefits would not be undermined when relationship starts deterring before the actual legal divorce. Moreover, the couple is only required to file the divorce within the 3-year Grace Period instead of completing the full legal procedure, so the payer cannot undermine the beneficiary's benefits if he or she intentionally delays divorce proceedings.

Beneficiary makes decisions – Modification to the policy, such as surrendering the policy before entering the Grace Period, is at the sole discretion of the beneficiary, empowering the beneficiary to protect his or her own benefit. Such arrangement provides an additional sense of security to the beneficiary and avoids bad-faith decisions made by the payer.

Saving component – Most customers, especially newly-weds, tend to underestimate the chance of divorce. Having an endowment saving component encourages them to pay and save for marriage protection.

Life protection – To the beneficiary, the passing of the payer creates a similar financial burden as of a divorce. Life protection can provide a similar safety net if the beneficiary losses his or her source of income due to the death of the payer.

Return of premium – Return of premium is important to the payers especially for those who may outlive their beneficiaries. Return of premium ensures the premium payments would not be forfeited when the protection is ultimately not needed.

Level premium – Level premium provides guarantees and easy financial planning. It is a must-have.

Marriversary intends to be a marriage protection and saving solution that meet customer needs as the product possesses all the key elements. We believe that customer would be satisfied to have *Marriversary*, because it is an ideal marriage protection product.

5.2.   Internal Positioning

No similar product exists in our current product line. New product sales will open a new market as well as access to new customers, resulting in additional business volume and more opportunities for cross-selling products. This product will not cannibalize sale of our other products.

Moreover, the introduction of divorce risk can diversify our business portfolio.

5.3.   External Positioning

No similar products are offered in the market. Our product will be the first in Hong Kong. It is expected that the product will be able to gain and maintain a large market share.

However, we expect competitors to emerge if the product is popular. Therefore, it is critical for us to introduce more customized product features to remain competitive.

6.   Case Study

6.1.   Case 1

Payer	Policyholder	Mr. Chan
	Age at Entry	28
	Smoking Status at Entry	Non-smoker
Beneficiary	Policyholder	Mrs. Chan
	Age at Entry	28
	Smoking Status at Entry	Non-smoker
Sum Assured		HK$1,000,000
Policy Term		25 years
Premium Payment Term		20-pay
Premium Payment Mode		Annual
Premium Payment		HK$40,070

Mr. Chan bought *Marriversary* at age 28. Every year, Mr. Chan pays a premium of HK$40,070. After 25 years, Mr. Chan and Mrs. Chan did not divorce and neither of them died. Hence, they received HK$1,000,000 as maturity benefit and earned an annual yield of 1.42%.

6.2. Case 2
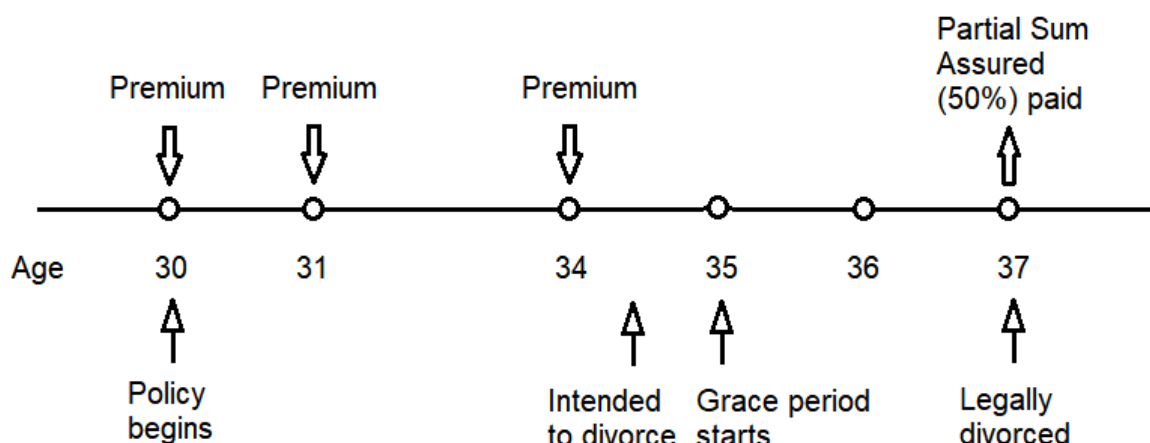
Figure 3. Timeline of Case 2 policy

Payer	Policyholder	Mr. Lee
	Age at Entry	30
	Smoking Status at Entry	Smoker
Beneficiary	Policyholder	Mrs. Lee
	Age at Entry	30
	Smoking Status at Entry	Non-smoker
Sum Assured		HK$1,000,000
Policy Term		20 years
Premium Payment Term		17-pay
Premium Payment Mode		Annual
Premium Payment		HK$50,110

Mr. Lee bought *Marriversary* at age 30. Every year, Mr. Lee pays a premium of HK$50,110. After 4 years (i.e. after the 5th premium payment), Mr. Lee and Mrs. Lee started a quarrel and Mr. Lee intended to divorce. He did not make the 6th premium payment at age 35 and enters the Grace Period. Within the 3-year Grace Period, the couple filed a divorce petition and received a divorce decree at age 37. Then, HK$500,000 (50% of the original sum assured) will be paid to Mrs. Lee, where the sum assured factor is determined by the year when the Grace Period starts.

In this case, Mr. Lee and Mrs. Lee remained married during the 3-year Elimination Period. Then, the sum assured factor would increase linearly starting from age 33 to 37. Since the Grace Period starts at age 35, the factor applied will be 50% (i.e. linearly increased for 2 years after the Elimination Period).

6.3. Case 3
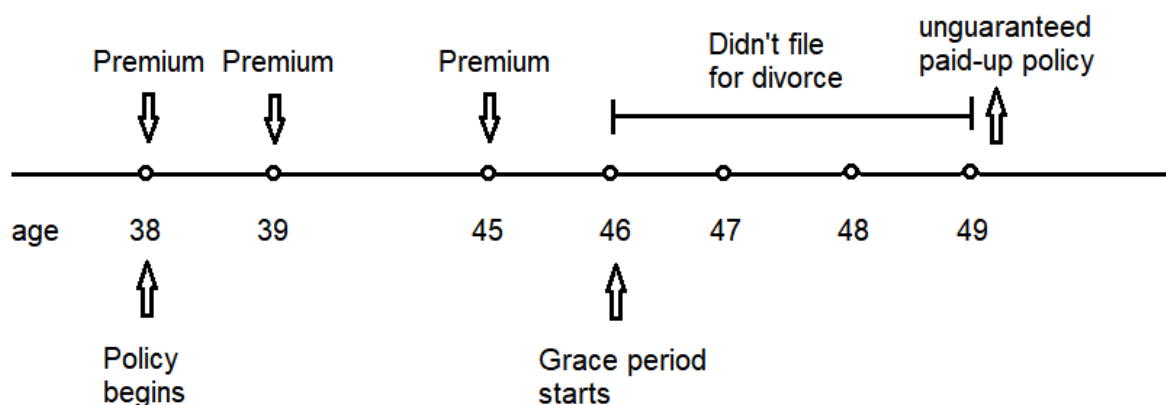
Figure 4. Timeline of Case 3 policy

Payer	Policyholder	Mr. Wong
	Age at Entry	38
	Smoking Status at Entry	Non-smoker
Beneficiary	Policyholder	Mrs. Wong
	Age at Entry	28
	Smoking Status at Entry	Non-smoker
Sum Assured		HK$1,000,000
Policy Term		15 years
Premium Payment Term		12-pay
Premium Payment Mode		Annually
Premium Payment		HK$73,650

Mr. Wong bought *Marriversary* at age 38. Every year, Mr. Wong pays a premium of HK$73,650. After 8 years, Mr. Wong stopped the premium payment at age 46, so the Grace Period starts. However, the couple did not file for divorce during the 3-year Grace Period. Then, the policy will be converted into a paid-up policy with a reduced and unguaranteed sum assured less 60% surrender charge after the Grace Period ended.

7.   Cash Flow Model

A multi-state model is used to model the 3-year divorce Grace Period. The probability of transition out of state 1 depends on the time the policy enters state 1. Therefore, strictly speaking, the model is a semi-Markov process. The descriptions of the two states are summarized as follows.

State	Description
0 (No Intention to Divorce)	Policyholder has no intention to divorce
1 (Intention to Divorce)	Policyholder has the intention to divorce within the next 3 years

Four decrement tables are created to determine the proportion of policies in the above 2 state. The descriptions of the four decrement tables are summarized as follows.

Table	Description
Population Decrement Table	In-force factor represents the proportion of policies held by married policyholders
State 0 Decrement Table	In-force factor represents the proportion of in-force policies in state 0 only
Policy Decrement Table	In-force factor represents the proportion of in-force policies in states 0 and 1
State 1 Decrement Table	In-force factor represents the proportion of in-force policies in state 1 only
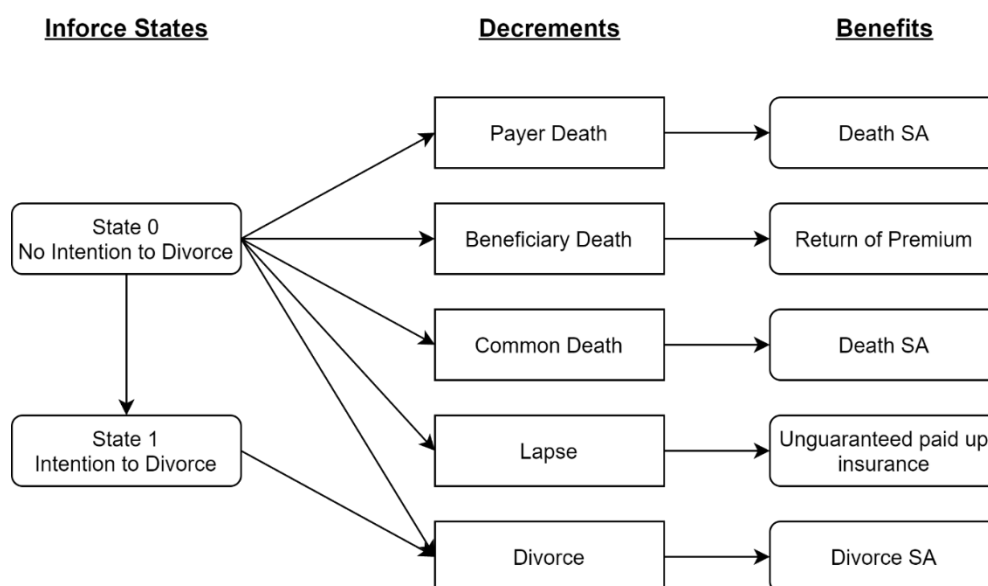
Figure 5. Multi-state model and the corresponding benefits for each decrement

Mortality and lapse benefits would not affect the total benefit outgo to a large extent due to their small proportions within the total benefits. Therefore, the model assumes that all mortality and lapse decrements will only occur in state 0.

7.1.   Population Decrement Table

Population Decrement Table composites of decrement probability of a paired of married couple (i.e., the two policyholders) who does not have the intention to divorce when the policy is issued at time equals to 0 (i.e. t=0). In-force factor represents the proportion of policies held by married policyholders, including married couples who intended to divorce.

Mortality and divorce decrement rates are based on the year that the decrement is observed. This table is created using a multiple decrement model with SUDD assumption.

Note that divorce rates in the first 3 years are adjusted downwards because the product assumes that the policyholders would not have an intention to divorce at issue.

7.2.   State 0 Decrement Table

State 0 Decrement Table contains the decrement probability of the policyholders who have no intention to divorce (i.e., policyholders who stay in state 0). Policyholders in state 0 are paying premium if they are within the payment period.

Since completing a divorce filing usually takes 0-3 years, the company will observe policyholders entering the divorce Grace Period (i.e., entering state 1) 0-3 years before the legal divorce. This table calculates the transition probability from states 0 to 1 using the Divorce Progress Assumptions (see Appendix 1.4) and the divorce rates of the upcoming 3 years.
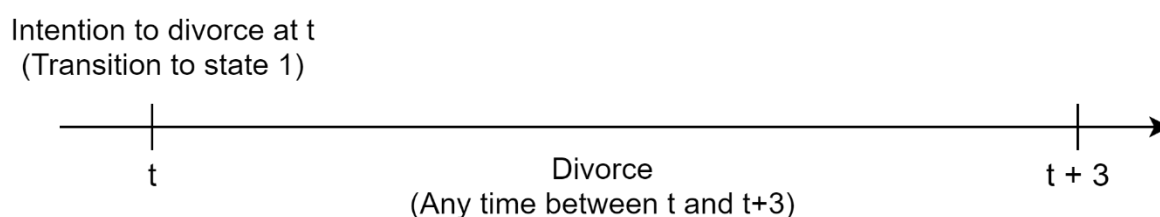
Figure 6. Diagram illustrating the 3-year Grace Period

7.3.   Policy Decrement Table

Policy Decrement Table separates the divorce decrements into lapse and divorce with benefits received. Policies would be considered as lapse if policyholders divorce or stop paying premiums in the first 3 years (i.e., during the 3-year Elimination Period). This table calculates

the proportion of observed policies that the policyholders would divorce and receive benefits in each month. The resulting in-force factor represents the proportion of in-force policies in both states 0 and 1.
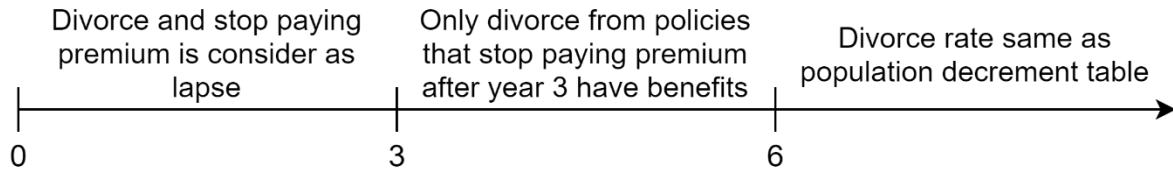
Figure 7. Diagram illustrating the 2 types of divorce decrements

7.4. State 1 Decrement Table

State 1 Decrement Table lists out the proportion of policies in state 1. State 1 can only be entered after the 3-year Elimination Period. The in-force factor is calculated based on the difference between Policy Decrement Table and State 0 Decrement Table.

7.5. In-force Cash Flow

For divorce benefit and the corresponding expense, the probability of receiving divorce benefit is calculated using the Policy Decrement Table. The sum assured depends on the time when policyholders enter state 1, so the sum assured is determined by the Divorce Progress Assumption (see Appendix 1.4). The divorce sum assured is linearly increasing from 0-100% during years 3 to 7. Since the Grace Period is only 3 years in length, the sum assured would not need to be adjusted for divorce occurring after year 10.
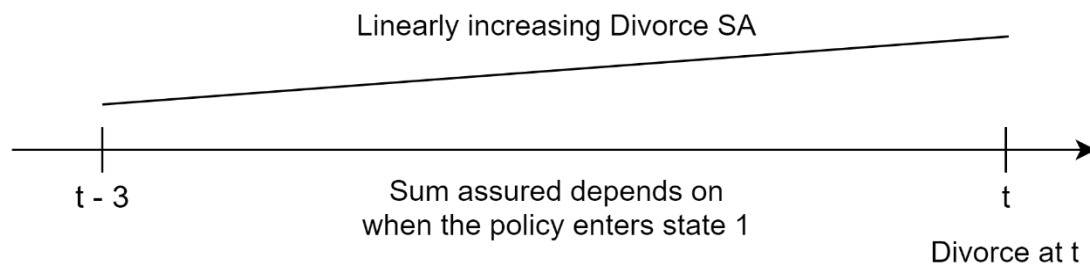
Figure 8. Diagram illustrating the linearly increasing divorce sum assured

For mortality benefit and its corresponding expense, its benefit outgo is calculated according to the Population Decrement Table. The mortality decrement rates in the Population Decrement Table are the same as that of Policy Decrement Table.

For premium and commission that is paid by all in-force policies in state 0, its in-force cash flow is calculated using the State 0 Decrement Table.

For maintenance expense that is paid by all in-force policies in both states 0 and 1, its expense outgo is determined by the Policy Decrement Table.

7.6.   Reserves

Even though our decrement model used a semi-Markov process, our reserving model used a Markov process to approximate the reserve require in state 1 for simplicity.

First of all, the total reserve is calculated using the Policy Decrement Table, which reflects the expected amount of reserve require at the end each month for all policies in both states 0 and 1.

Then, state 0 reserve is calculated using the State 0 Decrement Table, which reflects the required reserve when the policies stay in state 0.

Last but not least, state 1 in-force reserve is calculated by the difference between the total in-force reserve and state 0 in-force reserve. The number is then converted to state 1 reserve per policies using the State 1 Decrement Table.

Note that we could not identify the duration of which the policyholders have stayed in state 1 from the current model. Instead of calculating the reserve based on semi-Markov process, we calculated state 1 reserve based on an average term. In other words, state 1 reserve is the average of the amount of required reserve for all policies that are in state 1 in a particular month.

8.   Assumptions

8.1.   Pricing Objectives

Profit Margin	At least 10%
Internal Rate of Return (IRR)	At least 15%

Hurdle rate is set to 10% with reference to our other products.

8.2.   Reserve Methodology

Liabilities are valued using a gross premium valuation (GPV) approach, which includes an additional risk margin. PAD (Provision for Adverse Deviation) approach is used to determine the risk margin for insurance and economic risks.

PAD is determined with referenced to Hong Kong Risk Based Capital (HKRBC) guideline. The PADs that are used for each risk are summarized as follows.

Risk	PAD
Mortality of Payer	+15%
Mortality of Beneficiary	-25%
Divorce	+30%
Lapse	-40%
Expense	• +10% for all years • +1% additive in expense inflation
Interest Rate	-25%

8.3.   Demographic Assumptions

8.3.1. Mortality Assumption

Hong Kong Assured Lives Mortality Table (HKA18) was directly used, with 169% adjustment made on smokers' mortality. The report released by Actuarial Society of Hong Kong (ASHK) in September 2020 provides a realistic overview of assured lives experience in Hong Kong during the period 2010 to 2017.[15] This set of mortality is selected over the one published by the Census and Statistics Department, because it better reflects the mortality pattern for the

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[15]Actuarial Society of Hong Kong, "Report on Hong Kong Assured Lives Mortality 2018," Hong Kong: Actuarial Society of Hong Kong, 2018,https://www.actuaries.org.hk/storage/download/20200830%20ASHK%20Mortality%20Studies%20HKA18%20(Final)%20(Clean)_Updated.pdf.

assured lives with reference to the actual experiences provided by 17 major insurance companies in Hong Kong in the report.

For reserving, +15% PAD is used on payer's mortality for simplicity since the policy is not sensitive to mortality variation. -25% PAD is used on beneficiary's mortality as it produces a marginally higher reserve at latter years (as compared to +15% PAD).

8.3.2. Divorce Assumption

Since there is inadequate amount of available data regarding divorce rates in Hong Kong, data from Singapore is also used when constructing divorce assumptions.

The number of divorce cases and married population are based on 2016 Population By-census and data from Census and Statistic Department.[16][17] We could calculate the divorce rate per 1000 married male or female residents according to the 2016 Hong Kong statistics.

Moreover, divorce trend is also considered. Population divorce rates increases by about 3.9% annually.[18] However, due to lack of data related to divorce trends by age groups in Hong Kong, trend factors for each age group cannot be calculated. Therefore, a 10% pricing margin is used in lieu. The financial impact of divorce trend can be found in Section 10.2.2.

Since Census and Statistics Department of Hong Kong does not provide divorce rates by age group, data provided by Singaporean census is used to find the differential between each age group.[19][20] Data from Singapore should be representative because of the similar cultural, social and demographic characterises between Singapore and Hong Kong.

Divorce rates for each age group and for each sex are calculated using Singapore differentials and Hong Kong population divorce rates. With consideration of the married population distribution of Hong Kong, divorce rates of each age group are consolidated with the population divorce rate.

Due to high correlation between the ages of couples, averaging method is used to merge rates for male and female into a joint grouped rate table.

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[16]Census and Statistics Department, "Marriage and Divorce Trends in Hong Kong, 1991 to 2016," Hong Kong: Census and Statistics Department, 2018, https://www.censtatd.gov.hk/hkstat/sub/sp160.jsp?productCode=FA100055.
[17]"Main Tables | 2016 Population By-Census," Census and Statistics Department, https://www.bycensus2016.gov.hk/en/bc-mt.html.
[18]"Census and Statistics Department, "Marriage and Divorce Trends in Hong Kong, 1991 to 2016," Hong Kong: Census and Statistics Department, 2018, https://www.censtatd.gov.hk/hkstat/sub/sp160.jsp?productCode=FA100055.
[19]"M830202 – Divorce Rates, Annual," Department of Statistics Singapore, https://www.tablebuilder.singstat.gov.sg/publicfacing/createDataTable.action?refId=14172.
[20]"M810641 - Singapore Residents Aged 20 Years & Over By Sex, Age Group And Marital Status, Annual," Department of Statistics Singapore, https://www.tablebuilder.singstat.gov.sg/publicfacing/createDataTable.action?refId=12084.

With the grouped rate table, bicubic interpolation and extrapolation are then used to generate the divorce rate table for each aged 18-65. Due to the uncertain nature of extrapolation, to be conservative, all rates are floored by 4.8058, which is the lowest rate in the grouped rate table.

See Appendix A1.2 for detailed methodology.

For divorce progress, the product assumed that all divorce will be filed within 3 years (i.e., within the 3-year Grace Period). Due to lack of data available in Hong Kong, we assumed that the time between having the intention to divorce and completion of filing for divorce is uniformly distributed from 0 to 3. Sensitivity test for this assumption will be discussed in Section 10.2.2.

For reserving, additional +30% PAD on top of pricing assumption is used. This is to ensure reserves are sufficient to cover liabilities when divorce experience is greatly different from our estimations.

8.3.3. Lapse Assumption

The product is lapse-support. Due to the lack of reliable data, the most conservative estimation is used for pricing. Lapse rate is set to 0%, which means that policyholders will not surrender the product. However, the total in-force portfolio may be overestimated when projecting profitability.

For reserving, -40% PAD is used. Since pricing lapse assumption is already zero, this does not have any effect.

8.4. Expense Assumptions

Initial Expense	8% of premium
Maintenance Expense	5% of premium
Settlement Expense	$2 per $1000 sum assured

Policy expenses include initial expense, maintenance expense, and settlement expense. Initial expense includes underwriting expense and acquisition expense, which are costs associated with underwriting of the payer mentioned in Section 3.3. Maintenance expense is expenditure related to the actual maintenance of policies, which are charged as percentage of premium. Settlement expense is used to settle benefit payment to the beneficiary, or return of premium to the payer.

For reserving, +10% PAD for all years and +1% additive in expense inflation is used as required by HKRBC.

8.5.   Economic Assumptions

Rate of Return	5.4648%
Expected Inflation Rate	3%
Corporate Tax Rate	16.5%

For reserving, -25% PAD on earn rate is used for simplicity, which produces an earn rate of 4.0986%.

Note that risk of each asset class may be different, and the proportion of asset classes should affect the reserving PAD. This should be implemented in future development iterations.

8.5.1. Rate of Return

The expected rate of return of the asset portfolio is 5.4648%. The target asset mix is summarized as follows.

Asset Type	Expected Return	Total Asset Mix
Treasury Bond	0.749%	20%
Corporate Bond	4.18%	50%
Equity	9.7%	30%
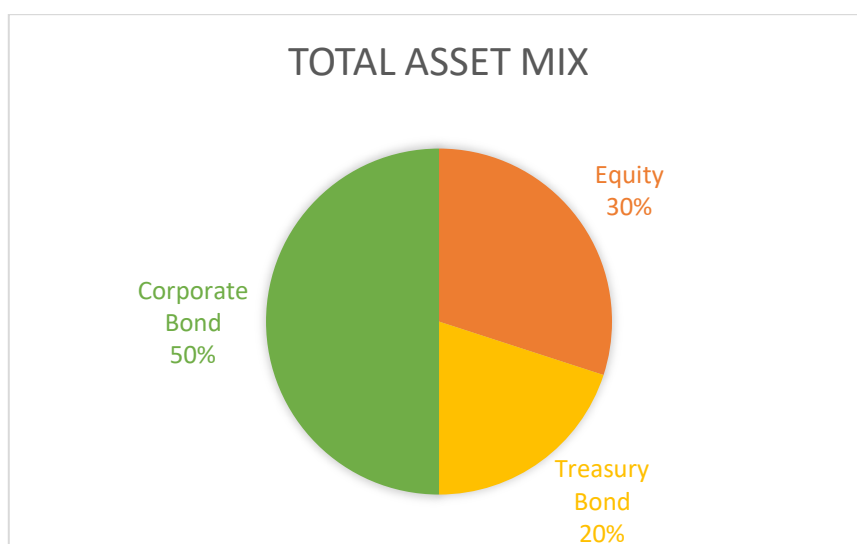
Figure 9. Total asset mix pie chart

8.5.1.1. Bond

70% of the investment component will be bond. Since *Marriversary* is a relatively long-term product (ranging from 15 to 25 years of maturity), the company requires long-term bonds to match liabilities during the later phase of the product. Therefore, 20% of the investment strategy is composed by the 10-Year US Treasury Bond with a yield of 0.749% for liquidity and short-term stability.[21] The remaining 50% of the bond will be made up of several corporate bonds to match long-term liability. The expected return is based on the yield of the S&P US high-yield corporate bond matured in 10 years, which is 4.18%.[22]

8.5.1.2. Equity

30% of the investment component will be equity. Equity is used to increase our financial risk exposure for higher investment returns. The rate of return of equity is set based on the annual rate of return of Manulife Mandatory Provision Fund (MPF) International Equity Fund, which is 9.7%.[23] We chose Manulife as the reference because Manulife is the largest MPF scheme sponsor and the most profitable firm in terms of providing MPF in Hong Kong.[24]

8.5.2. Expected Inflation

The expected inflation rate is set as 3% according to Hong Kong average inflation rate of the last 10 years by the World Bank.[25] The inflation as consumer prices in the past 10 years (from 2010 to 2019) is summarized as follows.

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[21]"U.S. 10 Year Treasury (US10Y:U.S.)," CNBC, accessed October 18, 2020, https://www.cnbc.com/quotes/?symbol=US10Y.

[22]"S&P500 High Yield Corporate Bond Index," S&P Dow Jones Indices, accessed October 18, 2020, https://www.spglobal.com/spdji/en/indices/fixed-income/sp-500-high-yield-corporate-bond-index/#overview.

[23]"Manulife Global Select (MPF) Scheme," Manulife, accessed October 18, 2020, https://fundprice.manulife.com.hk/wps/portal/pwsdfphome/dfp/detail/!ut/p/a1/04_Sj9CPykssy0xPLMn Mz0vMAfGjzOJNAkxcDT0NjDwtvH3MDQIDg1wCvU2NDQwsjYEKIvEoCDUjpD9cPwqvEg8TAgpAVo AVGOAAjgb6BbkRBpmejooAvbd3Kg!!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/pw/Z7_4P4E1I02I8KL70QQ RDQK530054/act/id=0/p=javax.servlet.include.path_info=QCPpagesQCPcommonQCPothersGroupN avigation.xhtml/466272711267/=/#Z7_4P4E1I02I8KL70QQRDQK530054.

[24]"Manual Global Select (MPF) Scheme – Member Guide," Manulife, accessed October 18, 2020, https://www.manulife.com.hk/content/dam/insurance/hk/en/documents/services/forms/manulife-mpf-member-guide.pdf.

[25]"Inflation, consumer prices (annual %) – Hong Kong SAR, China," The World Bank Data, accessed October 18, 2020, https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2019&locations=HK&start=2010&view=ch art.

Year	Inflation Rate as Consumer Prices
2010	2.314%
2011	5.277%
2012	4.064%
2013	4.324%
2014	4.439%
2015	2.995%
2016	2.411%
2017	1.481%
2018	2.408%
2019	2.865%
Average of 10 years	3.26%

8.5.3. Corporate Tax Rate

The corporate tax rate is set as 16.5% according to the regulation set by the HKSAR Government. [26] Tax is deemed to be about 2-3% of premium effectively.

8.6   Business Mix for Profitability Projection

Below sections explain the assumptions of our product mix for the profitability projection.

8.6.1. Sex

Sex distribution is estimated by considering the Chinese culture and the economic situation in Hong Kong. In a traditional Chinese family, men are assumed to play dominant roles as breadwinners to support families' livings and women are assumed to play supplementary roles as housewives to take care of families' chores. Therefore, we predict that among couples who are interested in *Marriversary*, most of them would have male partners to be the payers.

Payer	Beneficiary	Sales Volume
Male	Female	80%
Female	Male	20%

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[26]"Tax Rates of Profits Tax," Government of Hong Kong Special Administrative Region, accessed October 18, 2020, https://www.gov.hk/en/residents/taxes/taxfiling/taxrates/profitsrates.htm.

8.6.2. Issue Age Mix

Issue age is set by referring to the age combinations at first marriage in Hong Kong as we assume most sales will go to newly-weds.[27]

		Age of Male					
		18	22	27	32	37	42
Age of Female	18	0.2%	0.7%	0.3%	0.1%	-	-
	22	0.2%	5.6%	6.4%	2.2%	0.6%	0.3%
	27	-	1.9%	21.5%	14.5%	3.5%	1.3%
	32	-	0.2%	3.7%	16.6%	6.3%	2.3%
	37	-	-	0.4%	1.8%	3.4%	2.4%
	42	-	-	0.1%	0.3%	0.5%	2.5%

8.6.3. Smoker Status

Smoker status is set based on the proportional of smoking insurance policyholders in Hong Kong.[28]

	Non-smoker	**Smoker**
Male	81%	19%
Female	94%	6%

8.6.4. Maturity Year

Shorter maturity policies tend to have higher annual premium and lower maturity yield, while longer maturity policies tend to have lower annual premium and higher maturity yield.

Maturity Year	Sales Volume
15	15%
20	35%
25	50%

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[27]Census and Statistics Department, Table 5.12 of "Demographic Trends in Hong Kong 1986-2016," Hong Kong: Census and Statistics Department, 2017, https://www.statistics.gov.hk/pub/B1120017042017XXXXB0100.pdf.

[28]Actuarial Society of Hong Kong, "Report on Hong Kong Assured Lives Mortality 2018," Hong Kong: Actuarial Society of Hong Kong, 2018, https://www.actuaries.org.hk/storage/download/20200830%20ASHK%20Mortality%20Studies%20HKA18%20(Final)%20(Clean)_Updated.pdf.

8.6.5. Payment Mode

Monthly premium rates are 3.5% higher than annual premium rates. However, for short-maturity policies, monthly payment mode can split the high annual premium into multiple smaller terms.

Maturity Year	Annual	Monthly
15	30%	70%
20	50%	50%
25	70%	30%

8.7. Monitoring Experience

Mortality, divorce rates, and investment returns experience will be monitored closely.

For mortality, experience studies are required to be performed at least every 3 years. Current mortality assumption assumes lives are independent between the payer and the beneficiary and not correlated with divorce rates. These mortalities will be monitored closely for possible deviation.

For divorce rates, experience studies are also required to be performed at least every 3 years. Note that only minor amount of divorce experience will emerge in the next 3 years. For the next study in 2023, assumptions should be reconciled with 2021 census statistics. For future studies, more weight can be put on in-house divorce experience. Moreover, current assumption is static and independent from marriage length. It assumes no skewness factor in divorce progress. These divorce rates will be monitored closely for trends and possible deviation.

The interest rate movements are monitored by the investment team on a regular basis.

Re-pricing or re-vamp action will take place when deemed necessary.

9.   Financial Analysis

9.1.   Aggregate Portfolio Profitability

9.1.1. Profitability Metrics

A total of 2,500 model points is generated according to the business mix and the expected market sales.

Profit margin is around 10% for all maturity years, satisfying our pricing objectives. The NBV per AP is higher for longer maturity products. NB strain is very low, which mean *Marriversary* will not require a large initial investment to be issued.

IRR of the product is very high and break-even period is very short because a large amount of profit would emerge in the end of the first year. This is caused by the 3-year Elimination Period for divorce benefit. This effect is smaller for longer maturity products as profit is smoothed across the whole in-force period.

	15-mature	20-mature	25-mature	Total
Profit Margin	10.08%	10.10%	10.05%	10.08%
IRR	17022.5%	178.5%	35.6%	82.1%
NBV per AP	66.41%	77.23%	81.02%	76.25%
NB Strain	17.62%	21.31%	27.32%	22.82%
Break-even Year	0.08	0.17	5.42	2.42

9.1.2. Premium Split

The PV breakdown of various components of different maturity years are summarized as follows.

Component	15-mature	20-mature	25-mature	Total
Divorce Benefit	12%	18%	24%	20%
Death Benefit	1%	2%	2%	2%
ROP Benefit	0%	1%	1%	1%
Maturity Benefit	57%	49%	41%	47%
Expense	8%	8%	8%	8%
Tax	2%	2%	3%	3%
Commission	8%	7%	7%	7%
Overhead	11%	12%	14%	13%
Premium	100%	100%	100%	100%

Lost ratio is around 70%. Two-third of benefits are for maturity payment, which is consistent with the product objective, to encourage stable marriage while providing protection.
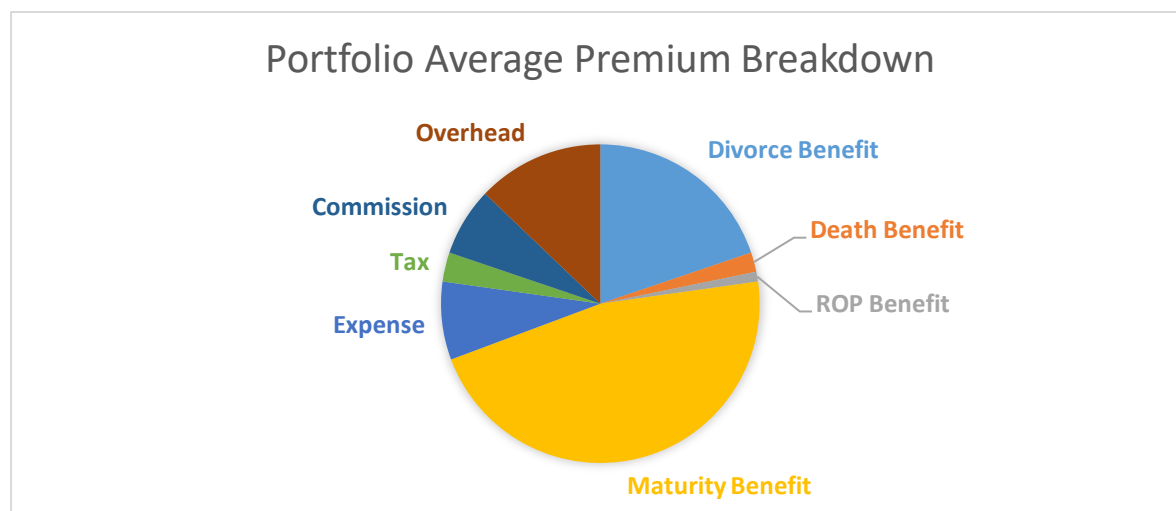
Figure 10. Portfolio average premium breakdown pie chart

9.1.3. Earnings Emergence

The emergence of earnings for different maturity years (as % annualized premium at issue) are summarized as follows.

Year	15-mature	20-mature	25-mature	Total
0	-17%	-20%	-27%	-22%
1	34%	22%	11%	21%
2	1%	1%	1%	1%
3	2%	2%	2%	2%
4	4%	5%	6%	5%
5	6%	7%	9%	8%
6	8%	10%	12%	10%
7	9%	12%	14%	12%
8	10%	12%	14%	12%
9	10%	12%	14%	13%
10	11%	13%	14%	13%
11	11%	13%	15%	13%
12	12%	13%	15%	13%
13	12%	14%	15%	14%
14	12%	14%	15%	14%

15	12%	15%	15%	14%
16	-	15%	16%	12%
17	-	16%	16%	13%
18	-	16%	17%	13%
19	-	17%	18%	13%
20	-	17%	18%	14%
21	-	-	19%	7%
22	-	-	19%	7%
23	-	-	19%	7%
24	-	-	20%	7%
25	-	-	20%	8%

The large amount of profit emerges in year 1 due to the 3-year divorce benefit Elimination Period. Profit also emerges in later year as insurance liability has a lower volatility.

9.2. Micro View of Model Case

A model case is illustrated as follows.

Payer	Sex	Male
	Age	30
	Smoking Status at Entry	Non-smoker
Beneficiary	Sex	Female
	Age	30
	Smoking Status at Entry	Non-smoker
Payment Mode		Annual
Sum Assured		HKD 1,000,000

	15-mature	20-mature	25-mature
Annual Premium	73,760	49,770	39,600

9.2.1. Reserve Pattern

Reserves increase step-wised when premiums are due. Then, reserves increase continuously after all premiums are paid. Similar to other endowment products, reserves increase as policies ages.

Insurance liabilities make up most of the reserve. Interest risk charge is relatively small and stable until it decreases continuously after all premiums are paid.

The reserve pattern for an in-force (non-grace-period) policy with different maturity year is summarized as follows.
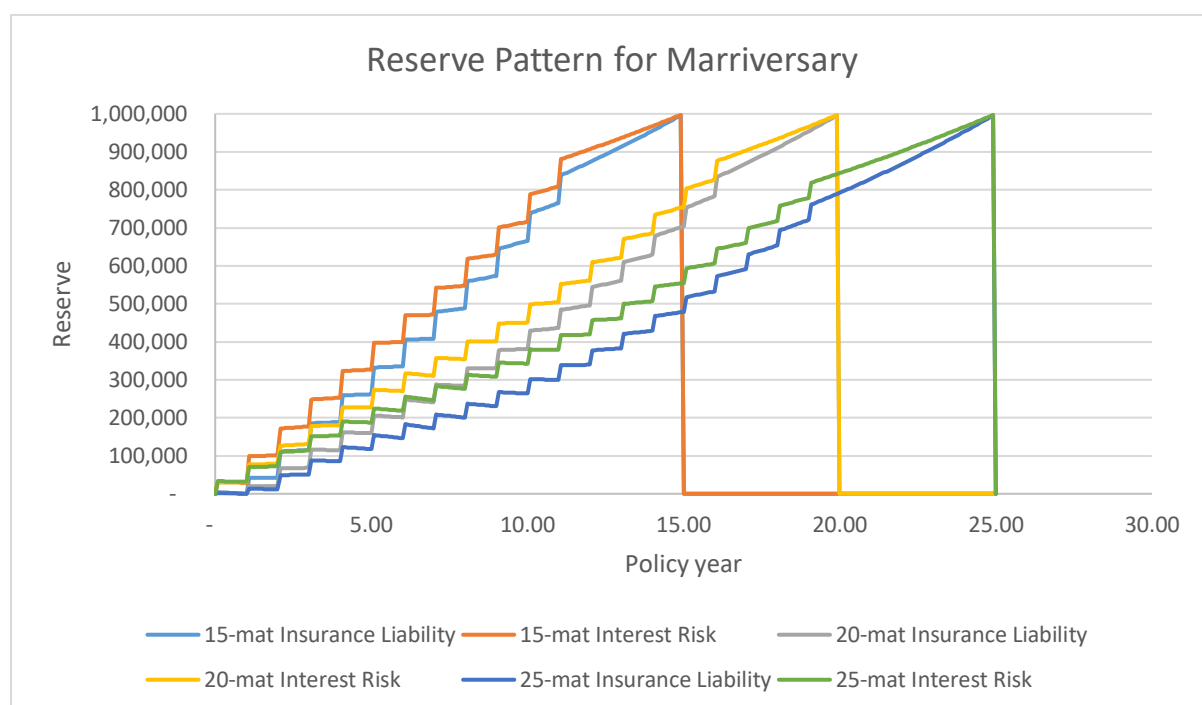
Figure 11. Reserve pattern for *Marriversary*

9.2.2. Net Asset at Risk (NAAR)

Death benefit NAAR decreases as policy ages. For divorce benefit, NAAR increases after the 3-year Elimination Period and reaches its maximum in year 7, when the divorce SA first reaches its full amount. Return of premium NAAR is very low, which is lower than 10% of sum assured, and it will only add a trivial amount of risk to the product.

Due to the endowment nature of the product, the divorce NAAR is lower than pure protection products. Such policy design attempts to reduce risk when introducing a new type of risk which is never insured before.

The approximated NAAR for different maturity years are summarized as follows.
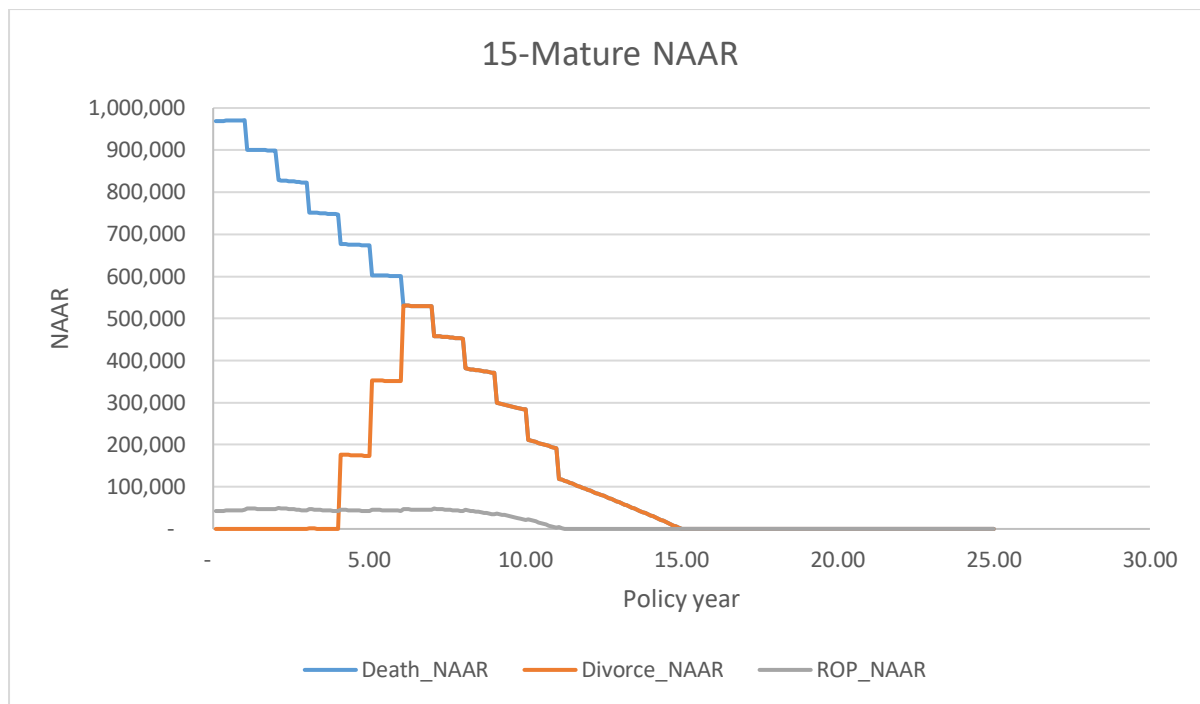
Figure 11. NAAR approximation of 15-year-maturity *Marriversary*
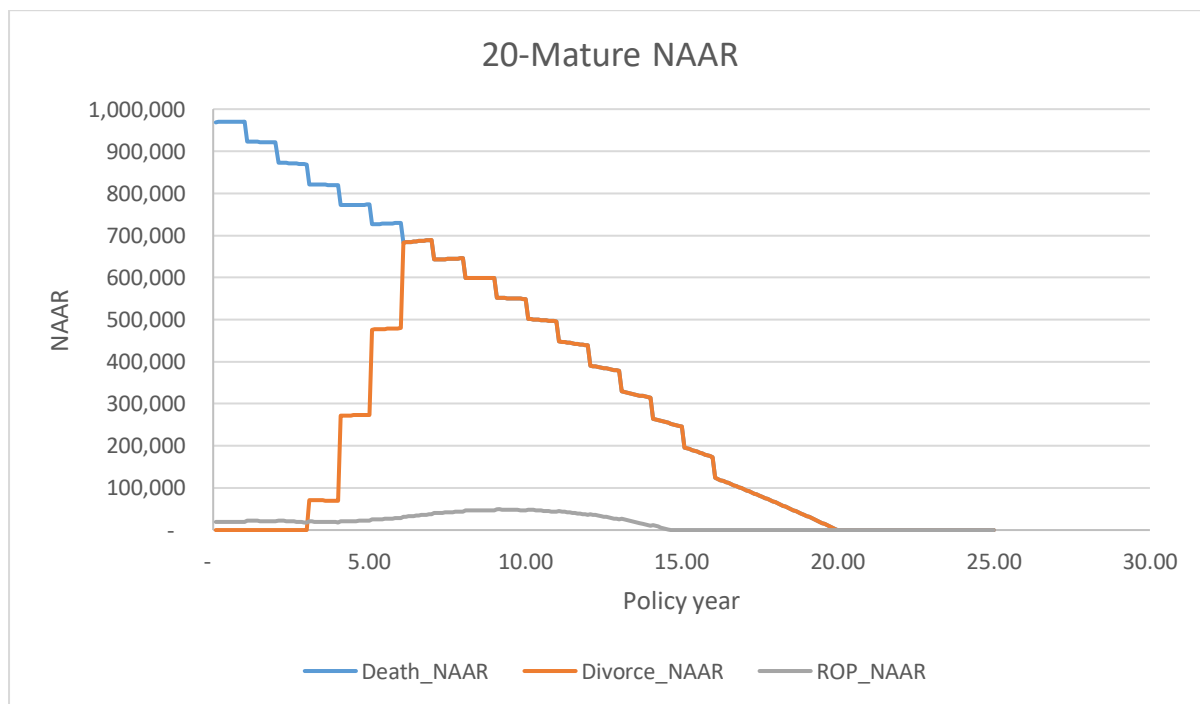
Figure 12. NAAR approximation of 20-year-maturity *Marriversary*
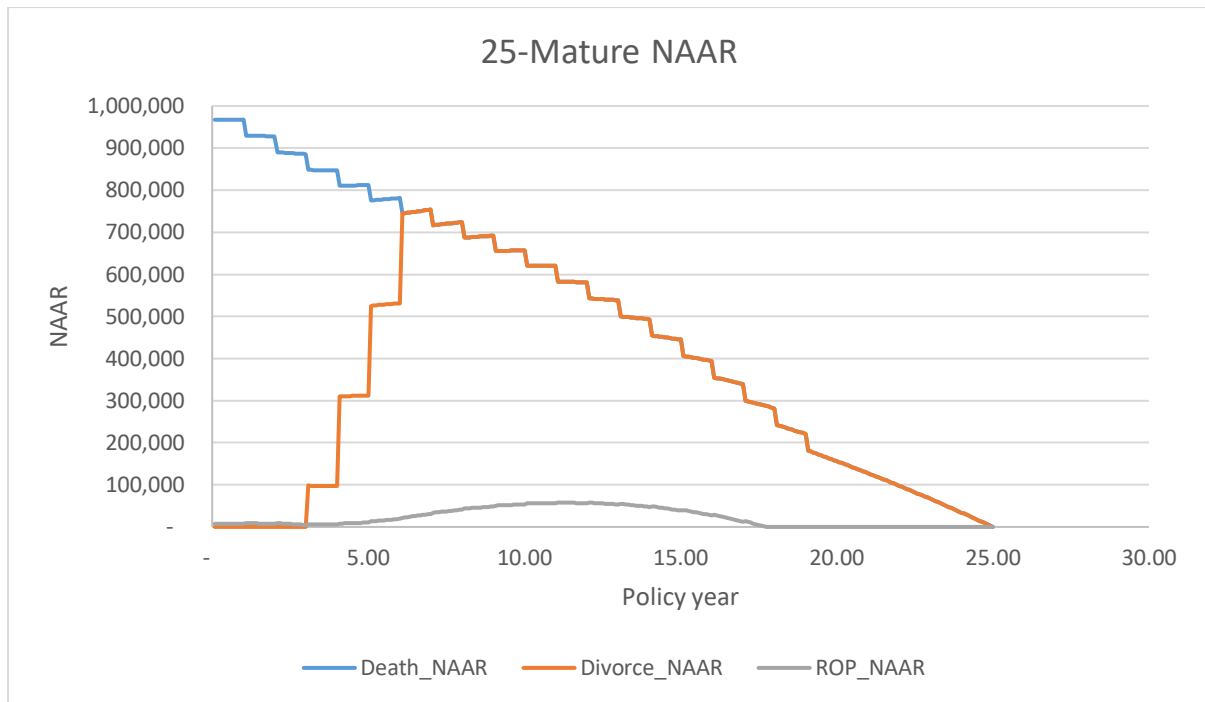
Figure 13. NAAR approximation of 25-year-maturity *Marriversary*

10. Sensitivity Testing & Risk Analysis

10.1. Sensitivity Test

Various sensitivity tests have been performed and are summarized in the table below. *Note that only 100 model points is used for each case.*

	Financials				Variance from Base			
	15-mature	20-mature	25-mature	Total	15-mature	20-mature	25-mature	Total
Profit Margin								
Base	**10.1%**	**10.1%**	**10.1%**	**10.1%**				
Payer Mortality * 120%	10.0%	10.0%	9.8%	10.0%	-0.1%	-0.1%	-0.2%	-0.1%
Beneficiary Mortality * 80%	10.1%	10.1%	10.1%	10.1%	0.0%	0.0%	0.0%	0.0%
Beneficiary Mortality * 120%	10.1%	10.1%	10.0%	10.1%	0.0%	0.0%	0.0%	0.0%
Divorce * 120%	9.6%	8.7%	8.0%	8.8%	-0.5%	-1.4%	-2.1%	-1.3%
Divorce * 200%	8.0%	3.6%	0.1%	3.9%	-2.1%	-6.5%	-9.9%	-6.2%
Divorce Trend: Rate + 1% per year (multiplicative)	9.9%	9.4%	9.0%	9.4%	-0.2%	-0.7%	-1.1%	-0.7%
Divorce Trend: Rate + 3.9% per year (multiplicative)	9.1%	7.1%	5.2%	7.2%	-1.0%	-3.0%	-4.8%	-2.9%
Divorce Progress (all 1st month)	14.0%	15.3%	15.9%	15.1%	3.9%	5.2%	5.8%	5.0%
Divorce Progress (all 3 years)	5.8%	4.2%	3.5%	4.5%	-4.3%	-5.9%	-6.5%	-5.6%
Earn Rate -50bps	7.9%	7.5%	7.1%	7.5%	-2.2%	-2.6%	-2.9%	-2.6%
Earn Rate -100bps	5.7%	4.9%	4.2%	4.9%	-4.4%	-5.2%	-5.8%	-5.1%
Expense * 120%	9.0%	9.0%	9.0%	9.0%	-1.1%	-1.1%	-1.1%	-1.1%
Lapse + 0.1% for all years (additive)	10.8%	11.1%	11.6%	11.1%	0.7%	1.0%	1.6%	1.1%
NBV per AP								
Base	**67.1%**	**76.4%**	**80.9%**	**74.7%**				
Payer Mortality * 120%	66.5%	75.5%	79.1%	73.6%	-0.6%	-1.0%	-1.7%	-1.1%
Beneficiary Mortality * 80%	67.2%	76.5%	81.0%	74.8%	0.1%	0.1%	0.1%	0.1%
Beneficiary Mortality * 120%	67.1%	76.4%	80.7%	74.6%	-0.1%	-0.1%	-0.1%	-0.1%
Divorce * 120%	63.0%	64.5%	62.5%	63.5%	-4.1%	-12.0%	-18.4%	-11.2%
Divorce * 200%	48.7%	24.0%	0.8%	25.7%	-18.5%	-52.4%	-80.0%	-49.0%
Divorce Trend: Rate + 1% per year (multiplicative)	65.4%	70.9%	71.6%	69.3%	-1.7%	-5.6%	-9.2%	-5.3%
Divorce Trend: Rate + 3.9% per year (multiplicative)	59.8%	52.4%	40.8%	51.7%	-7.3%	-24.0%	-40.1%	-23.0%
Divorce Progress (all 1st month)	92.3%	114.8%	126.4%	110.8%	25.2%	38.3%	45.6%	36.1%
Divorce Progress (all 3 years)	38.8%	32.4%	28.7%	33.4%	-28.4%	-44.1%	-52.2%	-41.3%
Earn Rate -50bps	52.5%	56.9%	57.4%	55.7%	-14.6%	-19.5%	-23.4%	-19.0%
Earn Rate -100bps	37.8%	37.3%	33.9%	36.6%	-29.3%	-39.1%	-47.0%	-38.1%
Expense * 120%	59.9%	68.3%	72.1%	66.7%	-7.2%	-8.1%	-8.8%	-8.0%
Lapse + 0.1% for all years (additive)	71.6%	83.8%	93.5%	82.5%	4.5%	7.3%	12.7%	7.8%

10.2. Insurance Risk

10.2.1. Mortality Risk

Although *Marriversary* offers death benefits, high premium and the endowment nature of the product cause the product to be insensitive to fluctuations in both payer and beneficiary mortality. Sensitivity test shows that there is less than 0.2% of fluctuation in the profit margin for 20% change in mortality. Therefore, simplified version of underwriting is used for the payer and no underwriting is needed for the beneficiary in order to reduce expense.

10.2.2. Divorce Risk

Divorce risk is a key risk exposed by *Marriversary*. The risk can be divided into two parts, which are divorce rates and divorce progress.

For divorce rates, every 20% increase in divorce rate reduces the profit margin by around 2.1% for 25-year-maturity policies. The effect is smaller for shorter-term-maturity policies.

Current rates did not take trend factors into consideration. When divorce rates increase by 3.9% per year as if past experience continues, the profit margin will decrease by 4.8% for 25-year-maturity policies. Similarly, the effect is smaller for shorter-term-maturity policies.

For divorce progress, the longer it takes for divorce to be completed, the earlier the couple will start the divorce progress and stop paying the premiums, and the lower the profit margin. In the worst case where all divorcees fully utilize the 3-year Grace Period, profit margin will decrease up to 6.5%. The effect is smaller for shorter-term-maturity policies.

Moreover, the Elimination Period and the linearly increasing SA are designed to reduce adverse selection. It is assumed that these measures can cause divorce rate or the insured policies to be similar to population divorce rates. Divorce rates will increase if the effectiveness of these measures is undermined.

10.2.3. Lapse Risk

Marriversary is lapse supported. Higher lapse rate increases the profit margin. Pricing assumptions conservatively assume zero explicit lapse rates.

However, implicit lapse may occur if the payer stops paying premium during the Elimination Period with the intention to divorce (i.e., during the first 3 years). For the 25-year-maturity model, 5% of policies will lapse fall into the aforementioned situation. Currently, we assume that divorce decision is independent, which needs to be closely monitored. The purpose of the Elimination Period is undermined if policyholders are able to delay divorce.

10.3. Financial Risk

10.3.1. Interest Rate Risk

Marriversary is an endowment product. The present value of maturity payment is higher as it subjects to fluctuations of interest rates. From sensitivity test, 50 bps reduction in earn rates reduces the profit margin up to 2.9%. The effect is smaller for shorter-term-maturity policies.

To mitigate this risk, we intend to match asset and liability as closely as possible. We will also monitor the interest rate movements and re-vamp when necessary.

10.3.2. Equity Risk

Equity accounts for 30% of our investment portfolio. Equity assets provide higher returns at a cost of higher volatility. Equity price is highly correlated to unknown future market conditions. We will diversify our equity portfolio to mitigate this risk.

10.3.3. Currency Risk

The policy is denominated in Hong Kong dollars (HKD), while our investment portfolio includes USD-denominated assets. Mismatch in currency expose us to fluctuation in currency exchange rate. To mitigate this risk, currency swaps are strategically placed.

10.3.4. Liquidity Risk

The investment portfolio will include bonds and equities. Assets and liability cash flow may mismatch since divorce can occur continuously. To mitigate this risk, 20% of assets would be invested in highly liquid money market bonds.

10.3.5. Expense Risk

From sensitivity test, 20% increase in expense causes the profit margin to decrease by 1.1% for all policies. Impact is not significant as compared to others risks.

10.4. Operational Risk

10.4.1. Underwriting Risk

Marriversary is not sensitive to mortality risk. Underwriting for mortality risk will not significantly affect the profit margin.

However, we assume marriage is genuine. It is assumed that Hong Kong law enforcement is able to effectively prevent fake marriages. Divorce rate may be subject to huge adverse selection if the previous assumption is invalid.

10.4.2. Compliance Risk

Policies and their corresponding financial models will be reviewed and vetted by corresponding teams to ensure compliance on local laws and statutory requirements.

10.5. Strategic Risk

10.5.1. Business Performance Risk

Marriversary is the first marriage product in Hong Kong and possibly globally. There is a substantial amount of uncertainty on how the market will react. Market demand may be lower than expected and sales may underperform strategic expectations.

10.5.2. Competitor Risk

Although *Marriversary* is the first to market, insurance policies are not protected by any intellectual rights. if the product is successful, it is expected that existing market leaders will leverage their advantages and deploy similar or more competitive products. Our market share will be challenged, and profit margin may need to be reduced to increase competitiveness.

10.6. Customer Experience Risk

10.6.1. Legal Risk

We assume that divorce courts will uphold pre-martial and post-martial agreement on the distribution of assets related to *Marriversary*. It is expected that *Affinity Insurance* will provide expert witness testimony to divorce courts when needed. If court fails to recognize the agreement, *Marriversary* losses its major selling point and customer may be disappointed on the benefit distribution.

11.   Possible Policy Variation

11.1. Participation

Due to the endowment nature of the product and the uncertainties in divorce rates, participating features can be used to transfer some of the risk to customers in order to provide a higher target customer yield rate.

Unguaranteed dividends can be paid throughout the policy. The dividends will be smoothed but can be varied to offset actuarial and investment gain or loss. The unguaranteed nature of the dividends allows more aggressive pricing assumptions and investment portfolio, which increases the customer yield rate. It can also act as a margin if the loses are greatly exceeded our assumptions or investment greatly underperformed.

As a result, the risk appetite of our investment portfolio is much greater. More equity-like assets can be held to increase expected returns. Our target asset allocations are as follows:

Asset Class	Target Asset Mix (%)
Bonds and other fixed income instruments	50% – 70%
Equity-like assets	30% – 50%

For example, if equity assets increase from 30% to 50%, our expected earn rate would increase from 5.46% to 6.85%, and customer annual yield of those held to maturity would increase from 1.50% to 2.53%.[29] A higher yield rate can consolidate the saving element of the product and increase competitiveness.

Moreover, guarantees on minimum value of dividends can be offered for marketing needs.

11.2. Guaranteed Cash Payments

Guaranteed cash payments could be offered to allow more flexibility on benefit payments. It also strengthens the saving component of the product. Hence, *Marriversary* of longer maturity would be more marketable.

11.3. Variations in payment-term and maturity options

High flexibility means there will be more options in payment terms and maturity. Instead of providing long-term premium payment, payment term could be shortened (e.g., 5-year / 10-

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[29]The increases in expected earn rate and customer annual yield are for 25-year-maturity policy purchased by non-smoking couple, both aged 30

year / 15-year payment terms) to allow early deposit, resulting in a larger saving yield rate in return. It also better fits the pattern of income if the insured prefer earlier retirement.

Besides, accelerated options of policy maturity (e.g., mature in 10th or 20th policy years) is also suitable for early retirement planning and it increases liquidity in the volatile economic environment, where the insured usually faces a lower risk of divorce during later policy years.

11.4 Guaranteed Issue

Since *Marriversary* has low sensitivity to mortality risk, it is possible to offer a guaranteed issue option with an Elimination Period imposed for the death benefit in early policy years to reduce anti-selection. Such option is more customer-friendly and it reduces the processing time of new business acquisition.

Alternatively, such option can be available to customers who fail the simplified underwriting process for our normal policy.

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Appendix

Appendix 1: Details of Pricing Assumptions

A1.1 Mortality Table (Rate per 1000)

Age	Payer Mortality				Beneficiary Mortality			
	MN P_MN	MS P_MS	FN P_FN	FS P_FS	MN B_MN	MS B_MS	FN B_FN	FS B_FS
18	0.2580	0.4360	0.1360	0.2298	0.2580	0.4360	0.1360	0.2298
19	0.2830	0.4781	0.1460	0.2467	0.2830	0.4781	0.1460	0.2467
20	0.3030	0.5118	0.1560	0.2636	0.3030	0.5118	0.1560	0.2636
21	0.3190	0.5388	0.1640	0.2771	0.3190	0.5388	0.1640	0.2771
22	0.3300	0.5574	0.1700	0.2872	0.3300	0.5574	0.1700	0.2872
23	0.3370	0.5692	0.1760	0.2974	0.3370	0.5692	0.1760	0.2974
24	0.3410	0.5760	0.1810	0.3058	0.3410	0.5760	0.1810	0.3058
25	0.3430	0.5793	0.1860	0.3142	0.3430	0.5793	0.1860	0.3142
26	0.3450	0.5827	0.1920	0.3244	0.3450	0.5827	0.1920	0.3244
27	0.3470	0.5861	0.1990	0.3362	0.3470	0.5861	0.1990	0.3362
28	0.3520	0.5945	0.2080	0.3514	0.3520	0.5945	0.2080	0.3514
29	0.3600	0.6080	0.2190	0.3700	0.3600	0.6080	0.2190	0.3700
30	0.3720	0.6283	0.2320	0.3919	0.3720	0.6283	0.2320	0.3919
31	0.3900	0.6587	0.2490	0.4206	0.3900	0.6587	0.2490	0.4206
32	0.4130	0.6975	0.2690	0.4544	0.4130	0.6975	0.2690	0.4544
33	0.4420	0.7465	0.2920	0.4933	0.4420	0.7465	0.2920	0.4933
34	0.4740	0.8005	0.3190	0.5388	0.4740	0.8005	0.3190	0.5388
35	0.5110	0.8629	0.3490	0.5895	0.5110	0.8629	0.3490	0.5895
36	0.5520	0.9321	0.3830	0.6469	0.5520	0.9321	0.3830	0.6469
37	0.5950	1.0046	0.4200	0.7093	0.5950	1.0046	0.4200	0.7093
38	0.6420	1.0839	0.4600	0.7768	0.6420	1.0839	0.4600	0.7768
39	0.6910	1.1665	0.5040	0.8511	0.6910	1.1665	0.5040	0.8511
40	0.7420	1.2525	0.5510	0.9304	0.7420	1.2525	0.5510	0.9304
41	0.7960	1.3436	0.6030	1.0181	0.7960	1.3436	0.6030	1.0181
42	0.8550	1.4430	0.6580	1.1109	0.8550	1.4430	0.6580	1.1109
43	0.9210	1.5542	0.7180	1.2121	0.9210	1.5542	0.7180	1.2121
44	0.9950	1.6789	0.7830	1.3217	0.9950	1.6789	0.7830	1.3217
45	1.0800	1.8221	0.8540	1.4414	1.0800	1.8221	0.8540	1.4414
46	1.1770	1.9855	0.9310	1.5711	1.1770	1.9855	0.9310	1.5711
47	1.2890	2.1741	1.0140	1.7110	1.2890	2.1741	1.0140	1.7110
48	1.4160	2.3878	1.1050	1.8643	1.4160	2.3878	1.1050	1.8643
49	1.5610	2.6318	1.2020	2.0276	1.5610	2.6318	1.2020	2.0276
50	1.7260	2.9093	1.3070	2.2044	1.7260	2.9093	1.3070	2.2044
51	1.9110	3.2202	1.4200	2.3945	1.9110	3.2202	1.4200	2.3945
52	2.1200	3.5713	1.5400	2.5964	2.1200	3.5713	1.5400	2.5964
53	2.3540	3.9641	1.6680	2.8116	2.3540	3.9641	1.6680	2.8116
54	2.6130	4.3985	1.8040	3.0402	2.6130	4.3985	1.8040	3.0402
55	2.9010	4.8811	1.9470	3.2804	2.9010	4.8811	1.9470	3.2804
56	3.2180	5.4119	2.0980	3.5340	3.2180	5.4119	2.0980	3.5340
57	3.5660	5.9939	2.2560	3.7992	3.5660	5.9939	2.2560	3.7992
58	3.9470	6.6304	2.4220	4.0776	3.9470	6.6304	2.4220	4.0776
59	4.3640	7.3263	2.5960	4.3694	4.3640	7.3263	2.5960	4.3694
60	4.8230	8.0912	2.7850	4.6861	4.8230	8.0912	2.7850	4.6861
61	5.3330	8.9398	2.9950	5.0378	5.3330	8.9398	2.9950	5.0378
62	5.9010	9.8835	3.2320	5.4346	5.9010	9.8835	3.2320	5.4346
63	6.5340	10.9333	3.5040	5.8896	6.5340	10.9333	3.5040	5.8896
64	7.2420	12.1052	3.8160	6.4111	7.2420	12.1052	3.8160	6.4111

65	8.0310	13.4081	4.1770	7.0139	8.0310	13.4081	4.1770	7.0139
66	8.9100	14.8560	4.5920	7.7060	8.9100	14.8560	4.5920	7.7060
67	9.8870	16.4608	5.0680	8.4989	9.8870	16.4608	5.0680	8.4989
68	10.9710	18.2358	5.6140	9.4070	10.9710	18.2358	5.6140	9.4070
69	12.1960	20.2354	6.2530	10.4682	12.1960	20.2354	6.2530	10.4682
70	13.6120	22.5388	7.0220	11.7430	13.6120	22.5388	7.0220	11.7430
71	15.2680	25.2214	7.9540	13.2844	15.2680	25.2214	7.9540	13.2844
72	17.2130	28.3563	9.0840	15.1480	17.2130	28.3563	9.0840	15.1480
73	19.4980	32.0172	10.4500	17.3930	19.4980	32.0172	10.4500	17.3930
74	22.1720	36.2710	12.0840	20.0668	22.1720	36.2710	12.0840	20.0668
75	25.2830	41.1785	14.0230	23.2233	25.2830	41.1785	14.0230	23.2233
76	28.8830	46.8023	16.3010	26.9089	28.8830	46.8023	16.3010	26.9089
77	33.0190	53.1904	18.9540	31.1703	33.0190	53.1904	18.9540	31.1703
78	37.6990	60.3225	21.9860	35.9982	37.6990	60.3225	21.9860	35.9982
79	42.8690	68.0783	25.3600	41.3156	42.8690	68.0783	25.3600	41.3156
80	48.4660	76.3314	29.0330	47.0386	48.4660	76.3314	29.0330	47.0386
81	54.4300	84.9652	32.9610	53.0838	54.4300	84.9652	32.9610	53.0838
82	60.6990	93.8655	37.1030	59.3755	60.6990	93.8655	37.1030	59.3755
83	67.2130	102.9278	41.4150	65.8356	67.2130	102.9278	41.4150	65.8356
84	73.9100	112.0514	45.8550	72.3930	73.9100	112.0514	45.8550	72.3930
85	80.7290	121.1446	50.3810	78.9801	80.7290	121.1446	50.3810	78.9801
86	96.6270	143.5168	60.3040	93.8646	96.6270	143.5168	60.3040	93.8646
87	108.5580	157.1330	68.4440	104.8130	108.5580	157.1330	68.4440	104.8130
88	121.8600	173.5829	77.6350	117.4514	121.8600	173.5829	77.6350	117.4514
89	136.6630	190.8697	88.0020	131.2556	136.6630	190.8697	88.0020	131.2556
90	153.1020	209.3563	99.6760	146.3421	153.1020	209.3563	99.6760	146.3421
91	171.3160	228.9104	112.8010	162.7360	171.3160	228.9104	112.8010	162.7360
92	191.4400	249.4734	127.5280	180.4491	191.4400	249.4734	127.5280	180.4491
93	213.6100	270.9408	144.0180	199.4708	213.6100	270.9408	144.0180	199.4708
94	237.9480	293.1781	162.4330	219.7547	237.9480	293.1781	162.4330	219.7547
95	264.5640	316.0294	182.9420	241.2300	264.5640	316.0294	182.9420	241.2300
96	293.5440	339.3106	205.7070	263.7825	293.5440	339.3106	205.7070	263.7825
97	324.9420	362.8189	230.8840	287.2676	324.9420	362.8189	230.8840	287.2676
98	358.7700	386.3365	258.6100	311.5003	358.7700	386.3365	258.6100	311.5003
99	394.9860	409.6366	288.9970	336.2666	394.9860	409.6366	288.9970	336.2666

A1.2 Divorce Rate Assumption Detailed Methodology

Both data from Hong Kong and Singapore census are used to create the divorce rate table. The population is divided into 7 age groups, which are 20-24, 25-29, 30-34, 35-39, 40-44, 45-49 and 50 or above. The "50 or above" group (denoted with i=0) is considered as the base group due to its largest exposure.

Hong Kong population divorce rate is calculated using the following formulas.

$$Male\ Divorce\ Rate = R^M = \frac{Number\ of\ divorce\ decree\ granted}{Male\ married\ population}$$

$$Female\ Divorce\ Rate = R^F = \frac{Number\ of\ divorce\ decree\ granted}{Female\ married\ population}$$

The proportion of married population in each age group is calculated as follows.

$$E_i^M = \frac{Male\ Married\ population\ in\ age\ group\ i}{Male\ Married\ population\ aged\ 20\ or\ above}$$

$$E_i^F = \frac{Female\ Married\ population\ in\ age\ group\ i}{Female\ Married\ population\ aged\ 20\ or\ above}$$

The most recent 5-year Singapore divorce data is used to calculate the differential, using the following formulas.

$$Male\ differrential\ for\ age\ group\ i = D_i^M$$
$$= Average\ of\ recent\ 5\ year\left(\frac{Male\ divorce\ rate\ for\ age\ group\ i}{Male\ divorce\ rate\ for\ base\ group}\right)$$

$$Female\ differrential\ for\ age\ group\ i = D_i^F$$
$$= Average\ of\ recent\ 5\ year\left(\frac{Female\ divorce\ rate\ for\ age\ group\ i}{Female\ divorce\ rate\ for\ base\ group}\right)$$

Note that for the base group (i=0), the differential is one

$$D_0^M = D_0^F = 1$$

The divorce rate for the base group in Hong Kong (R_0^M and R_0^F) is calculated using the differential such that it satisfies the population divorce rate.

$$\sum_{i=0}^{6} \left(R_0^M \times D_i^M \times E_i^M \right) = R^M$$

$$\sum_{i=0}^{6} \left(R_0^F \times D_i^F \times E_i^F \right) = R^F$$

The divorce rate for each age group can be then obtained by the following.

$$Male\ Divorce\ Rate\ for\ age\ group\ i = R_i^M = R_0^M * D_i^M$$

$$Female\ Divorce\ Rate\ for\ age\ group\ i = R_i^F = R_0^F * D_i^F$$

Due to high correlation between the age of couple, assuming independent risk yields a strange result. Therefore, average is used to merge two risk categories into a risk table.

$$Divorce\ Rate\ for\ male\ in\ age\ group\ i\ and\ female\ in\ age\ group\ j = \frac{R_i^M + R_j^F}{2}$$

Bicubic interpolation and extrapolation is then performed to generate the divorce rate table for each aged 18-65. All rates are floored by the lowest rate in the grouped rate table, which is the group with both male and female aged 50 or above.

A1.3 Divorce Rate Assumptions (Rate per 1000)

Male Age	Female Age 18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
18	68.5927	65.1744	61.7562	58.3380	54.9198	51.7349	49.0398	46.8691	45.2576	44.2399	43.5704	42.9815	42.4743	42.0504	41.7110	41.4197	41.1378	40.8631	40.5934	40.3265	40.0606	39.7943	39.5260	39.2540
19	65.9471	62.5289	59.1107	55.6925	52.2743	49.0894	46.3942	44.2235	42.6120	41.5943	40.9249	40.3359	39.8288	39.4048	39.0654	38.7741	38.4922	38.2175	37.9478	37.6809	37.4150	37.1488	36.8804	36.6084
20	63.3015	59.8833	56.4651	53.0469	49.6287	46.4438	43.7486	41.5780	39.9664	38.9487	38.2793	37.6903	37.1832	36.7592	36.4198	36.1286	35.8467	35.5719	35.3022	35.0353	34.7695	34.5032	34.2349	33.9628
21	60.6559	57.2377	53.8195	50.4013	46.9831	43.7982	41.1031	38.9324	37.3209	36.3032	35.6337	35.0448	34.5376	34.1137	33.7743	33.4830	33.2011	32.9264	32.6566	32.3897	32.1239	31.8576	31.5893	31.3173
22	58.0104	54.5922	51.1740	47.7557	44.3375	41.1526	38.4575	36.2868	34.6753	33.6576	32.9882	32.3992	31.8921	31.4681	31.1287	30.8374	30.5555	30.2808	30.0111	29.7442	29.4783	29.2121	28.9437	28.6717
23	55.5512	52.1329	48.7147	45.2965	41.8783	38.6934	35.9983	33.8276	32.2161	31.1984	30.5289	29.9400	29.4328	29.0089	28.6695	28.3782	28.0963	27.8216	27.5519	27.2850	27.0191	26.7528	26.4845	26.2125
24	53.4435	50.0252	46.6070	43.1888	39.7706	36.5857	33.8906	31.7199	30.1084	29.0907	28.4212	27.8323	27.3251	26.9012	26.5618	26.2705	25.9886	25.7139	25.4441	25.1772	24.9114	24.6451	24.3768	24.1048
25	51.6554	48.2372	44.8190	41.4008	37.9826	34.7977	32.1026	29.9319	28.3204	27.3027	26.6332	26.0443	25.5371	25.1132	24.7738	24.4825	24.2006	23.9259	23.6561	23.3892	23.1234	22.8571	22.5888	22.3168
26	50.1553	46.7371	43.3189	39.9007	36.4825	33.2976	30.6025	28.4318	26.8202	25.8025	25.1331	24.5441	24.0370	23.6130	23.2736	22.9824	22.7005	22.4257	22.1560	21.8891	21.6233	21.3570	21.0887	20.8166
27	48.9113	45.4931	42.0749	38.6566	35.2384	32.0535	29.3584	27.1877	25.5762	24.5585	23.8891	23.3001	22.7930	22.3690	22.0296	21.7383	21.4564	21.1817	20.9120	20.6451	20.3792	20.1130	19.8446	19.5726
28	47.8689	44.4507	41.0325	37.6143	34.1961	31.0112	28.3161	26.1454	24.5338	23.5161	22.8467	22.2578	21.7506	21.3267	20.9872	20.6960	20.4141	20.1393	19.8696	19.6027	19.3369	19.0706	18.8023	18.5302
29	47.0129	43.5947	40.1765	36.7583	33.3400	30.1552	27.4600	25.2893	23.6778	22.6601	21.9907	21.4017	20.8946	20.4706	20.1312	19.8399	19.5580	19.2833	19.0136	18.7467	18.4808	18.2146	17.9462	17.6742
30	46.3697	42.9515	39.5333	36.1151	32.6969	29.5120	26.8169	24.6462	23.0346	22.0169	21.3475	20.7585	20.2514	19.8274	19.4880	19.1968	18.9149	18.6401	18.3704	18.1035	17.8377	17.5714	17.3031	17.0310
31	45.9660	42.5478	39.1296	35.7114	32.2932	29.1083	26.4132	24.2425	22.6310	21.6133	20.9438	20.3549	19.8477	19.4238	19.0844	18.7931	18.5112	18.2365	17.9667	17.6998	17.4340	17.1677	16.8994	16.6274
32	45.8285	42.4103	38.9920	35.5738	32.1556	28.9707	26.2756	24.1049	22.4934	21.4757	20.8062	20.2173	19.7101	19.2862	18.9468	18.6555	18.3736	18.0989	17.8292	17.5623	17.2964	17.0301	16.7618	16.4898
33	45.8231	42.4049	38.9867	35.5685	32.1503	28.9654	26.2702	24.0996	22.4880	21.4703	20.8009	20.2119	19.7048	19.2808	18.9414	18.6502	18.3682	18.0935	17.8238	17.5569	17.2910	17.0248	16.7565	16.4844
34	45.7901	42.3719	38.9537	35.5355	32.1173	28.9324	26.2372	24.0665	22.4550	21.4373	20.7679	20.1789	19.6718	19.2478	18.9084	18.6171	18.3352	18.0605	17.7908	17.5239	17.2580	16.9918	16.7235	16.4514
35	45.7169	42.2987	38.8805	35.4623	32.0441	28.8592	26.1640	23.9934	22.3818	21.3641	20.6947	20.1057	19.5986	19.1746	18.8352	18.5440	18.2621	17.9873	17.7176	17.4507	17.1848	16.9186	16.6503	16.3782
36	45.5911	42.1729	38.7547	35.3365	31.9183	28.7334	26.0382	23.8675	22.2560	21.2383	20.5689	19.9799	19.4728	19.0488	18.7094	18.4181	18.1362	17.8615	17.5918	17.3249	17.0590	16.7928	16.5244	16.2524
37	45.4001	41.9819	38.5637	35.1455	31.7273	28.5424	25.8473	23.6766	22.0650	21.0473	20.3779	19.7890	19.2818	18.8579	18.5184	18.2272	17.9453	17.6705	17.4008	17.1339	16.8681	16.6018	16.3335	16.0614
38	45.1500	41.7318	38.3136	34.8954	31.4772	28.2923	25.5971	23.4265	21.8149	20.7972	20.1278	19.5388	19.0317	18.6077	18.2683	17.9770	17.6951	17.4204	17.1507	16.8838	16.6179	16.3517	16.0834	15.8113
39	44.8633	41.4451	38.0269	34.6087	31.1905	28.0056	25.3104	23.1397	21.5282	20.5105	19.8411	19.2521	18.7450	18.3210	17.9816	17.6903	17.4084	17.1337	16.8640	16.5971	16.3312	16.0650	15.7967	15.5246
40	44.5524	41.1342	37.7160	34.2978	30.8796	27.6947	24.9996	22.8289	21.2174	20.1997	19.5302	18.9413	18.4341	18.0102	17.6708	17.3795	17.0976	16.8229	16.5531	16.2862	16.0204	15.7541	15.4858	15.2138
41	44.2299	40.8117	37.3935	33.9753	30.5571	27.3722	24.6771	22.5064	20.8948	19.8771	19.2077	18.6187	18.1116	17.6877	17.3482	17.0570	16.7751	16.5003	16.2306	15.9637	15.6979	15.4316	15.1633	14.8912

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Male Age	Female Age 18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
42	43.9082	40.4900	37.0718	33.6535	30.2353	27.0504	24.3553	22.1846	20.5731	19.5554	18.8860	18.2970	17.7899	17.3659	17.0265	16.7352	16.4533	16.1786	15.9089	15.6420	15.3761	15.1099	14.8415	14.5695
43	43.6117	40.1935	36.7753	33.3570	29.9388	26.7539	24.0588	21.8881	20.2766	19.2589	18.5895	18.0005	17.4934	17.0694	16.7300	16.4387	16.1568	15.8821	15.6124	15.3455	15.0796	14.8134	14.5450	14.2730
44	43.3510	39.9328	36.5146	33.0964	29.6782	26.4933	23.7981	21.6275	20.0159	18.9982	18.3288	17.7398	17.2327	16.8087	16.4693	16.1781	15.8961	15.6214	15.3517	15.0848	14.8189	14.5527	14.2844	14.0123
45	43.1178	39.6996	36.2814	32.8632	29.4449	26.2600	23.5649	21.3942	19.7827	18.7650	18.0956	17.5066	16.9995	16.5755	16.2361	15.9448	15.6629	15.3882	15.1185	14.8516	14.5857	14.3195	14.0511	13.7791
46	42.9036	39.4854	36.0671	32.6489	29.2307	26.0458	23.3507	21.1800	19.5685	18.5508	17.8813	17.2924	16.7852	16.3613	16.0219	15.7306	15.4487	15.1740	14.9043	14.6374	14.3715	14.1052	13.8369	13.5649
47	42.7000	39.2817	35.8635	32.4453	29.0271	25.8422	23.1471	20.9764	19.3649	18.3472	17.6777	17.0888	16.5816	16.1577	15.8183	15.5270	15.2451	14.9704	14.7007	14.4338	14.1679	13.9016	13.6333	13.3613
48	42.3833	38.9651	35.5469	32.1287	28.7105	25.5256	22.8304	20.6597	19.0482	18.0305	17.3611	16.7721	16.2650	15.8410	15.5016	15.2103	14.9284	14.6537	14.3840	14.1171	13.8512	13.5850	13.3167	13.0446
49	41.8512	38.4330	35.0148	31.5966	28.1783	24.9935	22.2983	20.1276	18.5161	17.4984	16.8290	16.2400	15.7329	15.3089	14.9695	14.6782	14.3963	14.1216	13.8519	13.5850	13.3191	13.0529	12.7845	12.5125
50	41.1272	37.7090	34.2908	30.8726	27.4543	24.2695	21.5743	19.4036	17.7921	16.7744	16.1050	15.5160	15.0089	14.5849	14.2455	13.9542	13.6723	13.3976	13.1279	12.8610	12.5951	12.3289	12.0605	11.7885
51	40.2348	36.8166	33.3984	29.9802	26.5620	23.3771	20.6820	18.5113	16.8997	15.8820	15.2126	14.6236	14.1165	13.6926	13.3531	13.0619	12.7800	12.5052	12.2355	11.9686	11.7028	11.4365	11.1682	10.8961
52	39.1977	35.7795	32.3612	28.9430	25.5248	22.3399	19.6448	17.4741	15.8626	14.8449	14.1754	13.5865	13.0793	12.6554	12.3160	12.0247	11.7428	11.4681	11.1984	10.9315	10.6656	10.3993	10.1310	9.8590
53	38.0959	34.6777	31.2595	27.8413	24.4231	21.2382	18.5431	16.3724	14.7608	13.7432	13.0737	12.4848	11.9776	11.5537	11.2143	10.9230	10.6411	10.3664	10.0966	9.8297	9.5639	9.2976	9.0293	8.7572
54	36.9942	33.5760	30.1578	26.7396	23.3214	20.1365	17.4413	15.2707	13.6591	12.6414	11.9720	11.3830	10.8759	10.4519	10.1125	9.8213	9.5394	9.2646	8.9949	8.7280	8.4622	8.1959	7.9276	7.6555
55	35.8925	32.4743	29.0561	25.6379	22.2197	19.0348	16.3396	14.1689	12.5574	11.5397	10.8703	10.2813	9.7742	9.3502	9.0108	8.7195	8.4376	8.1629	7.8932	7.6263	7.3604	7.0942	6.8259	6.5538
56	34.7908	31.3726	27.9544	24.5361	21.1179	17.9330	15.2379	13.0672	11.4557	10.4380	9.7686	9.1796	8.6724	8.2485	7.9091	7.6178	7.3359	7.0612	6.7915	6.5246	6.2587	5.9925	5.7241	5.4521
57	33.6890	30.2708	26.8526	23.4344	20.0162	16.8313	14.1362	11.9655	10.3540	9.3363	8.6668	8.0779	7.5707	7.1468	6.8074	6.5161	6.2342	5.9595	5.6897	5.4228	5.1570	4.8907	4.8058	4.8058
58	32.5873	29.1691	25.7509	22.3327	18.9145	15.7296	13.0345	10.8638	9.2522	8.2345	7.5651	6.9761	6.4690	6.0450	5.7056	5.4144	5.1325	4.8577	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
59	31.4856	28.0674	24.6492	21.2310	17.8128	14.6279	11.9327	9.7620	8.1505	7.1328	6.4634	5.8744	5.3673	4.9433	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
60	30.3839	26.9657	23.5475	20.1293	16.7110	13.5261	10.8310	8.6603	7.0488	6.0311	5.3617	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
61	29.2822	25.8639	22.4457	19.0275	15.6093	12.4244	9.7293	7.5586	5.9471	4.9294	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
62	28.1804	24.7622	21.3440	17.9258	14.5076	11.3227	8.6276	6.4569	4.8453	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
63	27.0787	23.6605	20.2423	16.8241	13.4059	10.2210	7.5258	5.3552	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
64	25.9770	22.5588	19.1406	15.7224	12.3042	9.1193	6.4241	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
65	24.8753	21.4571	18.0388	14.6206	11.2024	8.0175	5.3224	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058

Pricing Report – Marriversary

Male Age	Female Age 42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
18	38.9765	38.6923	38.3996	38.0965	37.7808	37.4505	37.0441	36.5073	35.8487	35.0769	34.2008	33.2752	32.3497	31.4242	30.4987	29.5732	28.6476	27.7221	26.7966	25.8711	24.9456	24.0201	23.0945	22.1690
19	36.3309	36.0467	35.7541	35.4509	35.1353	34.8050	34.3986	33.8617	33.2031	32.4314	31.5552	30.6297	29.7041	28.7786	27.8531	26.9276	26.0021	25.0766	24.1510	23.2255	22.3000	21.3745	20.4490	19.5234
20	33.6854	33.4011	33.1085	32.8054	32.4897	32.1594	31.7530	31.2161	30.5575	29.7858	28.9096	27.9841	27.0586	26.1331	25.2075	24.2820	23.3565	22.4310	21.5055	20.5799	19.6544	18.7289	17.8034	16.8779
21	31.0398	30.7556	30.4629	30.1598	29.8441	29.5138	29.1074	28.5706	27.9120	27.1402	26.2640	25.3385	24.4130	23.4875	22.5620	21.6364	20.7109	19.7854	18.8599	17.9344	17.0089	16.0833	15.1578	14.2323
22	28.3942	28.1100	27.8174	27.5142	27.1985	26.8682	26.4618	25.9250	25.2664	24.4947	23.6185	22.6930	21.7674	20.8419	19.9164	18.9909	18.0654	17.1398	16.2143	15.2888	14.3633	13.4378	12.5122	11.5867
23	25.9350	25.6508	25.3581	25.0550	24.7393	24.4090	24.0026	23.4658	22.8072	22.0354	21.1593	20.2337	19.3082	18.3827	17.4572	16.5317	15.6061	14.6806	13.7551	12.8296	11.9041	10.9786	10.0530	9.1275
24	23.8273	23.5431	23.2504	22.9473	22.6316	22.3013	21.8949	21.3581	20.6995	19.9277	19.0515	18.1260	17.2005	16.2750	15.3495	14.4240	13.4984	12.5729	11.6474	10.7219	9.7964	8.8708	7.9453	7.0198
25	22.0393	21.7551	21.4624	21.1593	20.8436	20.5133	20.1069	19.5701	18.9115	18.1397	17.2635	16.3380	15.4125	14.4870	13.5615	12.6359	11.7104	10.7849	9.8594	8.9339	8.0084	7.0828	6.1573	5.2318
26	20.5392	20.2549	19.9623	19.6592	19.3435	19.0132	18.6068	18.0700	17.4113	16.6396	15.7634	14.8379	13.9124	12.9869	12.0613	11.1358	10.2103	9.2848	8.3593	7.4337	6.5082	5.5827	4.8058	4.8058
27	19.2951	19.0109	18.7183	18.4151	18.0994	17.7691	17.3627	16.8259	16.1673	15.3955	14.5194	13.5938	12.6683	11.7428	10.8173	9.8918	8.9663	8.0407	7.1152	6.1897	5.2642	4.8058	4.8058	4.8058
28	18.2528	17.9686	17.6759	17.3728	17.0571	16.7268	16.3204	15.7836	15.1249	14.3532	13.4770	12.5515	11.6260	10.7005	9.7750	8.8494	7.9239	6.9984	6.0729	5.1474	4.8058	4.8058	4.8058	4.8058
29	17.3967	17.1125	16.8199	16.5167	16.2010	15.8708	15.4644	14.9275	14.2689	13.4972	12.6210	11.6955	10.7699	9.8444	8.9189	7.9934	7.0679	6.1423	5.2168	4.8058	4.8058	4.8058	4.8058	4.8058
30	16.7536	16.4693	16.1767	15.8736	15.5579	15.2276	14.8212	14.2844	13.6257	12.8540	11.9778	11.0523	10.1268	9.2013	8.2757	7.3502	6.4247	5.4992	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
31	16.3499	16.0657	15.7730	15.4699	15.1542	14.8239	14.4175	13.8807	13.2221	12.4503	11.5741	10.6486	9.7231	8.7976	7.8721	6.9465	6.0210	5.0955	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
32	16.2123	15.9281	15.6354	15.3323	15.0166	14.6863	14.2799	13.7431	13.0845	12.3127	11.4366	10.5110	9.5855	8.6600	7.7345	6.8090	5.8834	4.9579	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
33	16.2070	15.9227	15.6301	15.3270	15.0113	14.6810	14.2746	13.7377	13.0791	12.3074	11.4312	10.5057	9.5802	8.6547	7.7291	6.8036	5.8781	4.9526	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
34	16.1739	15.8897	15.5971	15.2939	14.9783	14.6480	14.2416	13.7047	13.0461	12.2744	11.3982	10.4727	9.5471	8.6216	7.6961	6.7706	5.8451	4.9196	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
35	16.1008	15.8165	15.5239	15.2208	14.9051	14.5748	14.1684	13.6315	12.9729	12.2012	11.3250	10.3995	9.4740	8.5485	7.6229	6.6974	5.7719	4.8464	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
36	15.9749	15.6907	15.3981	15.0949	14.7793	14.4490	14.0426	13.5057	12.8471	12.0754	11.1992	10.2737	9.3481	8.4226	7.4971	6.5716	5.6461	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
37	15.7840	15.4998	15.2071	14.9040	14.5883	14.2580	13.8516	13.3148	12.6561	11.8844	11.0082	10.0827	9.1572	8.2317	7.3062	6.3806	5.4551	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
38	15.5339	15.2496	14.9570	14.6539	14.3382	14.0079	13.6015	13.0646	12.4060	11.6343	10.7581	9.8326	8.9071	7.9815	7.0560	6.1305	5.2050	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
39	15.2472	14.9629	14.6703	14.3671	14.0515	13.7212	13.3148	12.7779	12.1193	11.3476	10.4714	9.5459	8.6204	7.6948	6.7693	5.8438	4.9183	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
40	14.9363	14.6521	14.3594	14.0563	13.7406	13.4103	13.0039	12.4671	11.8085	11.0367	10.1605	9.2350	8.3095	7.3840	6.4585	5.5330	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
41	14.6138	14.3296	14.0369	13.7338	13.4181	13.0878	12.6814	12.1446	11.4859	10.7142	9.8380	8.9125	7.9870	7.0615	6.1359	5.2104	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058

Male Age	Female Age 42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
42	14.2920	14.0078	13.7152	13.4120	13.0963	12.7660	12.3596	11.8228	11.1642	10.3924	9.5163	8.5907	7.6652	6.7397	5.8142	4.8887	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
43	13.9955	13.7113	13.4187	13.1155	12.7998	12.4695	12.0631	11.5263	10.8677	10.0960	9.2198	8.2942	7.3687	6.4432	5.5177	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
44	13.7349	13.4506	13.1580	12.8549	12.5392	12.2089	11.8025	11.2656	10.6070	9.8353	8.9591	8.0336	7.1081	6.1826	5.2570	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
45	13.5016	13.2174	12.9248	12.6216	12.3059	11.9756	11.5693	11.0324	10.3738	9.6021	8.7259	7.8004	6.8748	5.9493	5.0238	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
46	13.2874	13.0032	12.7105	12.4074	12.0917	11.7614	11.3550	10.8182	10.1596	9.3878	8.5117	7.5861	6.6606	5.7351	4.8096	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
47	13.0838	12.7996	12.5069	12.2038	11.8881	11.5578	11.1514	10.6146	9.9560	9.1842	8.3081	7.3825	6.4570	5.5315	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
48	12.7671	12.4829	12.1903	11.8871	11.5715	11.2412	10.8348	10.2979	9.6393	8.8676	7.9914	7.0659	6.1403	5.2148	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
49	12.2350	11.9508	11.6582	11.3550	11.0394	10.7091	10.3027	9.7658	9.1072	8.3355	7.4593	6.5338	5.6082	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
50	11.5110	11.2268	10.9342	10.6310	10.3153	9.9851	9.5787	9.0418	8.3832	7.6115	6.7353	5.8098	4.8842	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
51	10.6187	10.3345	10.0418	9.7387	9.4230	9.0927	8.6863	8.1495	7.4908	6.7191	5.8429	4.9174	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
52	9.5815	9.2973	9.0046	8.7015	8.3858	8.0555	7.6491	7.1123	6.4537	5.6819	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
53	8.4798	8.1956	7.9029	7.5998	7.2841	6.9538	6.5474	6.0106	5.3519	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
54	7.3781	7.0938	6.8012	6.4981	6.1824	5.8521	5.4457	4.9088	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
55	6.2763	5.9921	5.6995	5.3963	5.0807	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
56	5.1746	4.8904	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
57	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
58	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
59	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
60	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
61	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
62	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
63	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
64	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058
65	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058	4.8058

A1.4 Divorce Progress Assumptions

t	Month	Year	% completed
-	0	1	0.0000%
0.083	1	1	2.7778%
0.167	2	1	2.7778%
0.250	3	1	2.7778%
0.333	4	1	2.7778%
0.417	5	1	2.7778%
0.500	6	1	2.7778%
0.583	7	1	2.7778%
0.667	8	1	2.7778%
0.750	9	1	2.7778%
0.833	10	1	2.7778%
0.917	11	1	2.7778%
1.000	12	1	2.7778%
1.083	1	2	2.7778%
1.167	2	2	2.7778%
1.250	3	2	2.7778%
1.333	4	2	2.7778%
1.417	5	2	2.7778%
1.500	6	2	2.7778%
1.583	7	2	2.7778%
1.667	8	2	2.7778%
1.750	9	2	2.7778%
1.833	10	2	2.7778%
1.917	11	2	2.7778%
2.000	12	2	2.7778%
2.083	1	3	2.7778%
2.167	2	3	2.7778%
2.250	3	3	2.7778%
2.333	4	3	2.7778%
2.417	5	3	2.7778%
2.500	6	3	2.7778%
2.583	7	3	2.7778%
2.667	8	3	2.7778%
2.750	9	3	2.7778%
2.833	10	3	2.7778%
2.917	11	3	2.7778%
3.000	12	3	2.7778%

Appendix 2: Rate Tables

Tables are in annual premium. Cells with no rates indicate invalid parameter combinations.

Monthly premium is 3.5% higher than annual premiums.

Table name:

P_(Payer Sex)(Payer Smoking)_B_(Beneficiary Sex)(Beneficiary Smoking)_(Maturity Year)

Rate Table.xlsx

Appendix 2: Rate Tables

Appendix 3: Report Limitations

- Pricing objective is decided arbitrarily, as there is not referenced to current company conditions.
- Target surplus is not yet included in the cash flow model.
- Without reliable data regarding market demand, expected sales cannot be determined.