



# Case Study

**Spring 2022** 

Group & Health Finance & Valuation, Canada Exam

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# Case Study – Group & Health Finance & Valuation Exam

#### Introduction

In this case study, you are the President at the Skyfall Actuarial Consulting firm (Skyfall or Firm). The case study will outline the characteristics of the Firm and provide details regarding the various current clients and prospective clients of Skyfall.

All numbers found in this case study are for illustrative purposes only and are not representative of true costs or actual relationships. Any similarities with actual company results are coincidental. Plan design and plan limitations for a given plan year may not be in compliance with current year guidance, regulations, or laws.

# Firm Description

Skyfall is a medium-sized consulting firm that was founded in London, Texas and provides actuarial services to life and health insurance companies, state and federal regulatory agencies, and employers. The Firm's staff consists of over 50 actuaries that are located in the United States. The firm employs several actuarial students, who assist in daily tasks and client management. Skyfall is committed to the development and training of future actuaries, and this can be seen in the level of training and types of projects that actuarial students assist with.

Additionally, Skyfall has a location in London, Ontario, which provides actuarial services to clients, employers and insurance carriers in Canada. The Canadian office consists of over 25 actuaries that are located throughout Canada.

The Firm's areas of expertise include:

- Individual and Small Group Major Medical Plans
- Large Group Major Medical Plans
- Medicare Advantage and Part D Plans
- Medicaid Plans
- Retiree Health Benefit Plans
- Group Disability Plans
- Individual and Small Group Dental Plans
- Large Group Dental Plans
- Group Life
- Group Long-Term Care.

The corporate goal is to provide affordable and quality actuarial services to its clients to ensure that they have the tools to be successful in their business endeavors. Skyfall aims to build long-lasting client relationships and strives to provide excellent services for its clients. Due to its size, the Firm caters to individual client's unique needs and aims to exceed the client's expectations.

# Skyfall's Clients

# **Quantum Health Insurance Company (Quantum)**

Quantum Health Insurance Company provides individual and small group coverage to its policyholders. Since its inception, Quantum has provided health care services to individuals and small groups and actively seeks to improve the overall health of its members. Skyfall's services include the development and pricing of its products, regulatory compliance guidance, and valuation services.

#### **Individual and Small Group Major Medical Plans**

Quantum is actively selling individual and small group health insurance products in most states in the US. Quantum offers various benefit plan design structures; some of which are compliant with the Affordable Care Act (ACA). The products are sold through brokers and agents.

Quantum offers several types of major medical plans, such as HMOs, PPOs, and High Deductible Health Plans (HDHP), and some are still available for new business, while others are not. The closed block (no longer actively sold) is called Quantum Legacy III. The products that are actively being sold are the HMO and PPO products that are ACA-compliant.

Skyfall has been the opining actuary for Quantum and has been calculating the reserves for all blocks of business. The following exhibits are various tables used in the last reserve calculation exercise. The Company provided the paid claims data incurred between July Year 3 and December Year 4 with paid data through December Year 4. These exhibits are various steps in the reserve calculation process.

								Exhi	bit 1 - Month	ly Claims Ex	perience									
								(	Quantum Leg											
										Paid Mont										
$\vdash$		Jul-Year 3	Aug-Year 3	Sep-Year 3			Dec-Year 3					May-Year 4	Jun-Year 4		Aug-Year 4	Sep-Year 4	Oct-Year 4	Nov-Year 4	Dec-Year 4	
	Jul-Year 3	31,000	725,000	590,000	217,000	152,000	38,000	23,000	20,000	24,000	11,000	10,000	2,000	0	0	0	0	0	0	1,843,000
	Aug-Year 3	0	54,000	652,000	749,000	246,000	80,000	17,000	16,000	12,000	19,000	14,000	7,000	5,000	0	0	0	0	0	1,871,000
	Sep-Year 3	0	0	56,000	763,000	965,000	338,000	74,000	33,000	34,000	14,000	9,000	3,000	4,000	5,000	0	0	0	0	2,298,000
	Oct-Year 3	0	0	0	44,000	755,000	920,000	287,000	31,000	61,000	44,000	12,000	3,000	2,000	8,000	18,000	0	0	0	2,185,000
	Nov-Year 3	0	0	0	0	43,000	844,000	1,035,000	214,000	160,000	67,000	14,000	19,000	9,000	19,000	8,000	4,000	0	0	2,436,000
	Dec-Year 3	0	0	0	0	0	47,000	725,000	668,000	216,000	75,000	16,000	11,000	1,000	5,000	5,000	11,000	2,000	0	1,782,000
되	Jan-Year 4	0	0	0	0	0	0	31,000	625,000	591,000	258,000	290,000	23,000	8,000	7,000	39,000	6,000	1,000	9,000	1,888,000
Month	Feb-Year 4	0	0	0	0	0	0	0	19,000	483,000	398,000	97,000	42,000	15,000	16,000	46,000	9,000	1,000	5,000	1,131,000
Σ	Mar-Year 4	0	0	0	0	0	0	0	0	19,000	810,000	521,000	156,000	50,000	15,000	16,000	33,000	2,000	7,000	1,629,000
rec	Apr-Year 4	0	0	0	0	0	0	0	0	0	34,000	367,000	383,000	226,000	137,000	29,000	50,000	13,000	13,000	1,252,000
cn	May-Year 4	0	0	0	0	0	0	0	0	0	0	23,000	432,000	432,000	405,000	133,000	32,000	17,000	15,000	1,489,000
ᆌ	Jun-Year 4	0	0	0	0	0	0	0	0	0	0	0	29,000	306,000	306,000	338,000	138,000	188,000	16,000	1,321,000
	Jul-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	43,000	349,000	375,000	283,000	76,000	40,000	1,166,000
	Aug-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	42,000	451,000	453,000	200,000	84,000	1,230,000
	Sep-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73,000	527,000	568,000	232,000	1,400,000
	Oct-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37,000	383,000	560,000	980,000
	Nov-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66,000	803,000	869,000
	Dec-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	499,000	499,000
	Total	31,000	779,000	1,298,000	1,773,000	2,161,000	2,267,000	2,192,000	1,626,000	1,600,000	1,730,000	1,373,000	1,110,000	1,101,000	1,314,000	1,531,000	1,583,000	1,517,000	2,283,000	27,269,000

	Exhibit 1 (con't) - Monthly Claims Experience																			
								HN	AO - Individu	al (ACA-Con	pliant)									
										Paid Mont	1									
		Jul-Year 3	Aug-Year 3	Sep-Year 3				Jan-Year 4	Feb-Year 4			May-Year 4	Jun-Year 4	Jul-Year 4	Aug-Year 4	Sep-Year 4	Oct-Year 4	Nov-Year 4	Dec-Year 4	Total
	Jul-Year 3	14,000	321,000	299,000	102,000	49,000	19,000	9,000	9,000	6,000	5,000	14,000	1,000	0	0	0	0	0	0	848,000
	Aug-Year 3	0	32,000	427,000	364,000	177,000	50,000	15,000	12,000	7,000	15,000	13,000	3,000	1,000	0	0	0	0	0	1,116,000
	Sep-Year 3	0	0	21,000	276,000	389,000	128,000	30,000	14,000	9,000	6,000	4,000	4,000	1,000	5,000	0	0	0	0	887,000
	Oct-Year 3	0	0	0	13,000	240,000	301,000	94,000	9,000	23,000	16,000	6,000	1,000	1,000	3,000	4,000	0	0	0	711,000
	Nov-Year 3	0	0	0	0	14,000	312,000	354,000	67,000	74,000	27,000	6,000	7,000	4,000	11,000	5,000	2,000	0	0	883,000
	Dec-Year 3	0	0	0	0	0	17,000	331,000	312,000	100,000	17,000	7,000	5,000	3,000	1,000	4,000	7,000	1,000	0	805,000
됍	Jan-Year 4	0	0	0	0	0	0	14,000	304,000	295,000	125,000	162,000	11,000	3,000	4,000	21,000	4,000	1,000	5,000	949,000
fonth	Feb-Year 4	0	0	0	0	0	0	0	13,000	297,000	277,000	67,000	15,000	7,000	3,000	9,000	10,000	1,000	4,000	703,000
2	Mar-Year 4	0	0	0	0	0	0	0	0	11,000	450,000	292,000	84,000	25,000	7,000	6,000	14,000	8,000	3,000	900,000
ITE	Apr-Year 4	0	0	0	0	0	0	0	0	0	18,000	220,000	244,000	151,000	113,000	16,000	33,000	16,000	10,000	821,000
non	May-Year 4	0	0	0	0	0	0	0	0	0	0	13,000	241,000	250,000	254,000	72,000	12,000	11,000	10,000	863,000
1	Jun-Year 4	0	0	0	0	0	0	0	0	0	0	0	19,000	183,000	213,000	237,000	103,000	140,000	8,000	903,000
	Jul-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	28,000	246,000	280,000	208,000	58,000	28,000	848,000
	Aug-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	27,000	317,000	346,000	151,000	49,000	890,000
	Sep-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41,000	324,000	352,000	153,000	870,000
	Oct-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18,000	205,000	339,000	562,000
	Nov-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70,000	882,000	952,000
	Dec-Year 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	470,000	470,000
	Total	14,000	353,000	747,000	755,000	869,000	827,000	847,000	740,000	822,000	956,000	804,000	635,000	657,000	887,000	1,012,000	1,081,000	1,014,000	1,961,000	14,981,000

Exhibit 2 - Monthly Claims Experience											
	PPO	- Individual (ACA-Cor	npliant)								
		Paid Claims		Paid							
		Through Dec Year 4	Enrollment	PMPM							
	Jul-Year 3	409,000	1,980	206.57							
	Aug-Year 3	491,000	1,980	247.98							
	Sep-Year 3	382,000	1,860	205.38							
	Oct-Year 3	294,000	1,620	181.48							
	Nov-Year 3	362,000	1,620	223.46							
	Dec-Year 3	347,000	1,620	214.20							
th	Jan-Year 4	403,000	1,620	248.77							
Incurred Month	Feb-Year 4	289,000	2,040	141.67							
M	Mar-Year 4	371,000	2,100	176.67							
rrec	Apr-Year 4	357,000	2,040	175.00							
ıcn	May-Year 4	370,000	2,040	181.37							
Ir	Jun-Year 4	400,000	2,100	190.48							
	Jul-Year 4	371,000	2,100	176.67							
	Aug-Year 4	395,000	2,100	188.10							
	Sep-Year 4	376,000	2,280	164.91							
	Oct-Year 4	246,000	2,280	107.89							
	Nov-Year 4	203,000	2,400	84.58							
	Dec-Year 4	102,000	2,640	38.64							
	Total	6,168,000									

Ex	Exhibit 3 - Enrollment - Individual											
		HMO (ACA -	PPO (ACA -									
Month	Quantum Legacy III	Compliant)	Compliant)									
Jul-Year 3	11,100	4,000	1,980									
Aug-Year 3	11,700	3,800	1,980									
Sep-Year 3	11,400	3,750	1,860									
Oct-Year 3	11,400	3,750	1,620									
Nov-Year 3	11,400	3,750	1,620									
Dec-Year 3	11,400	4,050	1,620									
Jan-Year 4	11,800	4,100	1,620									
Feb-Year 4	11,800	4,050	2,040									
Mar-Year 4	12,000	4,100	2,100									
Apr-Year 4	12,000	4,150	2,040									
May-Year 4	12,700	4,200	2,040									
Jun-Year 4	12,700	4,150	2,100									
Jul-Year 4	11,700	4,450	2,100									
Aug-Year 4	11,900	4,450	2,100									
Sep-Year 4	12,100	4,600	2,280									
Oct-Year 4	12,300	4,850	2,280									
Nov-Year 4	12,300	4,850	2,400									
Dec-Year 4	12,500	4,600	2,640									

	Exhibit 4 - Percent of Ultimate Losses by Lag Month												
	Quantum Legacy III - Small Group												
	Lag Month												
		1	2	3	4	5	6	7	8	9	10	11	12
	Jul-Year 3	0.016	0.465	0.694	0.804	0.910	0.924	0.934	0.944	0.963	0.969	0.999	1.000
	Aug-Year 3	0.036	0.356	0.835	0.922	0.953	0.964	0.969	0.977	0.977	0.993	0.998	1.000
	Sep-Year 3	0.026	0.447	0.783	0.879	0.916	0.933	0.966	0.973	0.979	0.989	0.992	1.000
onth	Oct-Year 3	0.029	0.445	0.790	0.959	0.946	0.957	0.971	0.980	0.982	0.986	0.993	1.000
Mo	Nov-Year 3	0.029	0.397	0.856	0.904	0.948	0.962	0.966	0.975	0.980	0.985	0.994	1.000
ed I	Dec-Year 3	0.041	0.451	0.739	0.880	0.957	0.967	0.971	0.974	0.980	0.989	0.999	1.000
	Jan-Year 4	0.027	0.416	0.711	0.836	0.947	0.964	0.970	0.979	0.990	0.994	0.994	1.000
Inc	Feb-Year 4	0.017	0.422	0.758	0.809	0.865	0.880	0.911	0.988	0.998	0.999	1.000	
	Mar-Year 4	0.006	0.483	0.739	0.876	0.905	0.920	0.946	0.973	0.997	1.000		
	Apr-Year 4	0.040	0.411	0.592	0.755	0.923	0.948	0.980	0.998	1.000			
	May-Year 4	0.030	0.413	0.705	0.865	0.970	0.987	0.993	1.000				

	Exhibit 4 (con't) - Percent of Ultimate Losses by Lag Month												
	HMO - Small Group (ACA-Compliant)												
	Lag Month												
		1	2	3	4	5	6	7	8	9	10	11	12
	Jul-Year 3	0.017	0.375	0.740	0.862	0.931	0.961	0.973	0.984	0.991	0.998	0.999	1.000
	Aug-Year 3	0.025	0.385	0.727	0.889	0.948	0.959	0.971	0.978	0.995	0.997	0.999	1.000
	Sep-Year 3	0.023	0.306	0.760	0.932	0.966	0.980	0.986	0.992	0.995	0.995	0.999	1.000
nth	Oct-Year 3	0.019	0.329	0.780	0.891	0.927	0.963	0.986	0.991	0.992	0.993	0.995	1.000
Mo	Nov-Year 3	0.013	0.350	0.763	0.841	0.928	0.967	0.973	0.984	0.987	0.993	0.995	1.000
ed J	Dec-Year 3	0.020	0.426	0.836	0.946	0.973	0.986	0.994	0.993	0.994	0.994	0.999	1.000
Juli N	Jan-Year 4	0.012	0.316	0.628	0.768	0.950	0.960	0.964	0.966	0.991	0.994	0.995	1.000
Inc	Feb-Year 4	0.017	0.445	0.797	0.908	0.937	0.950	0.954	0.978	0.991	0.992	1.000	
	Mar-Year 4	0.015	0.517	0.858	0.938	0.967	0.976	0.979	0.995	0.996	1.000		
	Apr-Year 4	0.022	0.275	0.630	0.818	0.896	0.920	0.968	0.985	1.000			
	May-Year 4	0.013	0.266	0.558	0.870	0.956	0.971	0.988	1.000				

	Exhibit 5 - Age-to-Age Factors											
	PPO - Small Group (ACA-Compliant)											
Incurred						Lag N	<b>l</b> onth					
Month	1	2	3	4	5	6	7	8	9	10	11	12
Jul-Year 3	12.039	1.655	1.299	1.090	1.114	1.013	1.004	1.027	1.014	1.116	1.003	-
Aug-Year 3	12.231	2.112	1.199	1.200	1.015	1.013	1.020	1.002	1.026	1.037	1.057	-
Sep-Year 3	23.283	1.894	1.191	1.190	1.020	1.021	1.014	1.011	1.028	1.044	1.037	_
Oct-Year 3	5.845	1.593	1.171	1.183	1.025	1.031	1.013	1.001	1.014	1.070	1.078	-
Nov-Year 3	11.674	2.469	1.806	1.033	1.086	1.004	1.050	1.001	1.109	1.026	1.071	_
Dec-Year 3	12.605	1.516	1.163	1.117	1.093	1.022	1.002	1.004	1.032	1.056	1.005	_
Jan-Year 4	14.917	1.581	1.121	1.240	1.022	1.004	1.031	1.025	1.026	1.019	1.048	_
Feb-Year 4	17.920	1.936	1.173	1.115	1.014	1.022	1.124	1.029	1.024	1.031	-	_
Mar-Year 4	42.812	1.940	1.152	1.011	1.017	1.004	1.005	1.009	1.005	-	-	_
Apr-Year 4	7.140	2.985	1.104	1.174	1.021	1.031	1.009	1.008	-	-	-	-
May-Year 4	5.167	1.936	1.301	1.106	1.258	1.046	1.009	-	-	-	-	-

# Society of Actuaries – Case Study, Group & Health Finance & Valuation Canada Exam

# \*\*Quantum Email 1\*\*

From: Dominic Greene < DGreene@quantum.com>

To: You <JB007@Skyfall.com>

Sent: April 20, Year 5

Subject: Year 4 YE Financial Statements

We have finished our financial statements. I have enclosed several of the key pages. Let me know if you have any questions.

Dominic

Enclosures:

Exhibit 6 - Financial Statements			
Income Statement			
(In thousands) For	r the Years End	ling I	December 31,
Revenue	Year 4		Year 3
Premiums	85,128		94,429
Individual HMO	22,637		18,257
Individual PPO	6,407		5,377
Individual Grandfathered	18,780		32,298
Total Individual	47,823		55,932
Small Group HMO	14,860		11,750
Small Group PPO	7,699		6,013
Small Group Grandfathered	14,747		20,734
Total Small Group	37,305		38,497
Administrative fees Income	32		22
Miscellaneous income	1,703		1,889
Total operating revenue	86,863		96,340
Net investment income	1,340		1,079
Total Revenues	\$ 88,203	\$	97,419
Expenses			
Benefit expense	71,916		76,845
Individual HMO	19,500		14,372
Individual PPO	5,574		4,799
Individual Grandfathered	15,860		25,950
Total Individual	40,934		45,120
Small Group HMO	11,363		9,354
Small Group PPO	6,164		4,820
Small Group Grandfathered	13,455		17,551
Total Small Group	30,983		31,725
Commissions	1,541		757
General insurance expenses	9,534		10,293
Insurance taxes, licenses, and fees, excluding federal income tax	1,703		1,889
Write-in	752		576
Total expenses	\$ 85,446	\$	90,359
Income before income tax expense	2,757		7,059
Income tax expense	937		2,400
Net Income	\$ 1,820	\$	4,659

Exhibit 6 (continued) - Financial Statements											
Bal	ance Sheet										
(In thousands)											
Assets	December 31, Year 4	December 31, Year 3									
Current Assets	·	·									
Cash and cash equivalents	11,931	11,308									
Bonds	2,535	2,695									
Real Estate	2,835	2,748									
Investment income due and accrued	201	159									
Premium Receivables	13	11									
Other receivables	995	995									
Other	1,712	1,712									
Electronic data processing equipment	859	859									
Total current assets	21,081	20,487									
Long-term investments	17,505	17,831									
Net property, plant, and equipment	906	880									
Goodwill	151	163									
Other intangible assets	395	396									
Other noncurrent assets	253	245									
Total Assets	\$ 40,291	\$ 40,002									
Liabilities and Shareholder's Equity											
Liabilities											
Current Liabilities:											
Policy liabilities:											
Accident and health contracts	9,535	9,478									
Reserves for future policy benefits	59	59									
Other policyholder liabilities	201	202									
Total policy liabilities	9,795	9,739									
Unearned Income	82	81									
Accounts payable and accrued expenses	3,129	3,299									
Current portion of long-term debt	67	84									
Other current liabilities	1,594	1,594									
Total current liabilities	14,667	14,797									
Drafts outstanding	533	632									
Payable for securities	655	938									
Remittances	3,102	2,987									
Other noncurrent liabilities	815	787									
Total Liabilities	19,772	20,141									
Shareholder's Equity											
Common capital stock	6,500	6,500									
Retained earnings	13,597	12,951									
Unassigned funds (surplus)	422	410									
Total Shareholder's Equity	20,519	19,861									
Total Liabilities and Owner's Equity	\$ 40,291	\$ 40,002									
	,										

# **Living Daylights Life and Health Insurance Company (Living Daylights)**

Living Daylights Life and Health Insurance Company is a client who provides group coverage to its Canadian policyholders. Since its inception, Living Daylights has been providing services within Canada and actively seeks to provide a variety of plans to meet their policyholders needs while pooling the risk across an increasing number of members.

Skyfall Canada services include the pricing and development of its products, regulatory compliance guidance, and valuation services as the Appointed Actuary.

#### **Supplemental Medical Plans**

Living Daylights provides supplemental health benefits not covered by provincial medical plans to various companies within Canada. The summary of key benefit provisions provided by each of the plans is outlined in Exhibit 1 below:

	Exhibit 1 - Benefits											
	Basic	Enhanced 1	Enhanced 2	Enhanced 3								
Prescription Drug	70%	70%	75%	90%								
Coverage	(\$1,000 annual OOP max)*	(\$1,000 annual OOP max)*	(\$1,000 annual OOP max)*	(\$1,000 annual OOP max)*								
Hospital Room												
Semi-Private	Not covered	100% (\$150/day max)	100% (\$150/day max)	100% (\$150/day max)								
Private	Not covered	Not covered	100% (\$200/day max)	100% (\$200/day max)								
Paramedical	80%	90%	90%	100%								
Coverage	(\$200 per calendar year per	(\$500 per calendar year per	(\$500 per calendar year per	(\$1,000 per calendar year								
	practitioner max)	practitioner max)	practitioner max)	per practitioner max)								
Emergency Out of	60 travel days	180 travel days	180 travel days	180 travel days								
Country Coverage	(\$1,000,000 annual max)	(\$1,000,000 annual max)	(\$1,000,000 annual max)	(\$1,000,000 annual max)								
Vision	Not covered	100%	100%	100%								
Coverage		(\$300 per 24 months max)	(\$300 per 24 months max)	(\$300 per 24 months max)								
Dental Coverage												
Preventive & Basic	80%	80%	100%	100%								
Major	Not covered	50%	50%	50%								
Orthodontic	Not covered	Not covered	50%	50%								
			(\$2,000 lifetime max)	(\$3,500 lifetime max)								

<sup>\*</sup> OOP max = Out-of-pocket maximum

Living Daylights has faced many challenges throughout the years but most challenging is the increased cost of prescription drugs and rising dental costs. There are currently no incentives in place for choosing generic over brand name drugs and there is currently no maximum annual or lifetime caps set for dental coverage, except for orthodontic coverage.

Exhibit 2 - Annual Trend Data										
	Year 1	-Year 2	Year 2	-Year 3	Year 3 -Year 4					
Category	Utilization	Cost	Utilization	Cost	Utilization	Cost				
Prescription Drug	5.0%	2.0%	4.1%	3.9%	1.2%	2.4%				
Dental & Ortho	7.3%	3.0%	5.1%	1.5%	4.4%	1.5%				
Vision	3.2%	1.9%	2.9%	1.2%	3.0%	1.5%				
Emergency OOC Coverage	3.1%	4.7%	2.7%	1.1%	1.6%	1.8%				
Other Medical	6.7%	3.5%	6.3%	-0.6%	3.5%	2.1%				

The Financial Statements for Living Daylights are seen in Exhibit 3.

	Exhibit 3 - Financial Sta	tements	
Living Day lights			Income Statement
(In thousands)			For the Years Ending December 31,
Revenue		Year 4	Year 3
	Premiums	\$7,660	\$7,223
	Other revenue	1,542	1,254
	Total operating revenue	9,202	8,477
	Net investment income	351	546
	Net realized gains (losses) on investments	321	423
	Total Revenues	\$9,874	\$9,446
Expenses			
	Benefit expense	\$5,193	\$5,921
	Commissions	1,149	1,083
	General and administrative expense	735	587
	Premium Taxes	153	144
	Interest Expense	50	45
	Amortization of other intangible assets	298	287
	Total Expenses	\$7,579	\$8,068
	Income before income tax expense	2,295	1,378
	Income tax expense	1,251	1,253
Net Income		\$1,044	\$125

	l Statements (continued)	
Living Daylights		Balance Sheet
(In thousands)		
Assets	December 31, Year 4	December 31, Year 3
Current Assets		
Cash and cash equivalents	\$1,729	\$2,210
Investments available-for-sale, at fair value		
Fixed maturity securities (amortized cost)	9,564	8,456
Equity securities	1,835	1,515
Accrued investment income	159	149
Premium Receivables	3,858	3,748
Other receivables	995	897
Other current assets	1,712	1,829
Assets held for sale	859	901
Total Current Assets	\$20,711	\$19,703
Long-term investments	\$2,102	\$2,055
Net property, plant, and equipment	1,811	1,729
Goodwill	1,423	2,012
Other intangible assets	5,005	3,025
Other noncurrent assets	458	299
Total Assets	\$31,510	\$28,825
Liabilities Current Liabilities		
Policy Liabilities:	<b>#1.222</b>	<b>41.25</b>
Claims Payable	\$1,232	\$1,35
Reserves for future policy benefits	2,082	2,180
Total Policy Liabilities	\$3,314	\$3,534
Unearned Income	811	875
Accounts payable and accrued expenses	3,299	2,975
Short-term borrowings	856	701
Other current liabilities	1,594	1,647
Total Current Liabilities	\$9,874	\$9,73.
Long-term debt, less current portion	5,468	4,868
Deferred tax liabilities, net	2,987	2,857
Other noncurrent liabilities	1,442	1,556
Total Liabilities	\$19,771	\$19,01
Shareholder's Equity		
Paid-in capital - Common Stock	\$5,416	\$3,21
Retained earnings	6,323	6,597
Total Shareholder's Equity	\$11,739	\$9,812
	\$31,510	\$28,825

# Casino Royale Health & Life Insurance Company (Royale Health)

## **Large Group Products/Administrative Services Only**

Royale Health offers coverage options for large group employers, including fully insured options and administrative services only (ASO) options. Health coverage plan options offered by Royale Health include medical and prescription plans, which are marketed primarily through agents and brokers. Royale Health has been successful in establishing its own preferred provider networks in the Midwestern states and has the second largest market share in the large group market of the Midwest Region. The medical plan portfolio includes PPO plans and qualified high deductible health plans (HDHP), which can be combined with a Health Savings Account (HSA). Royale Health also administers Health Reimbursement Arrangements (HRA) offered by employers. Royale Health's Board has expressed interest in expanding the company into new product markets. Royale Health has recently participated in preliminary discussions with a Canadian company, Pinewood Insurance Company about a potential merger.

#### \*\*Royale Health Email 1\*\*

From: Le Chiffre < lechiffre @RoyaleHealth.com>

To: You <JB007@Skyfall.com>

Sent: March 9, Year 5 Subject: Potential Merger

I have been approached by the CEO of Pinewood Insurance Company (Pinewood), located in Canada, for a possible merger. They are interested in expanding into the U.S., and we could gain from their product expertise. While we do have some overlap in product offerings, Pinewood has experience in some additional markets that we have no experience with.

As you can imagine, this potential merger is highly confidential. As we begin to explore this opportunity, I would like your help through the due diligence and, if necessary, negotiations of this possible merger. I have attached Pinewood's financial information for your review. To provide you with some background, I have also summarized below some of the information on Pinewood that I have thus far:

Pinewood is a large insurance company operating exclusively in Canada. Its corporate vision is similar to ours: to be a leader in the insurance industry, to earn a competitive return for its stockholders, to offer good value to its policyholders while operating in a financially sustainable way, and to attract and retain valuable employees.

Pinewood's primary product offerings include:

- Supplemental medical benefits.
- Group life,
- Disability insurance, and
- Ancillary products, including dental and vision.

Pinewood employs 2,000 people throughout Canada. From what I have gathered so far, Pinewood seems to have a strong reputation in their markets. However, they are interested in growing into other markets and possibly internationally.

I have attached Pinewood's financial information for your review. Please let me know what additional information you think we should seek out.

Thanks,

Le Chiffre

Exhibit 1 - Year 4 Annual Report								
Pinewood Insurance Company	Consolidated	Statement of (	Operations					
(In thousands, except per share data)		For the Years End						
Revenue	Year 4	Year 3	Year 2					
Premium Income								
Supplemental Medical	4,023	3,784	3,129					
Group Life	5,888	6,071	6,211					
Disability	2,572	3,420	5,280					
Ancillary Products	1,234	967	957					
Administrative fees Income	2,553	3,118	3,011					
Other revenue	-	-	-					
Total operating revenue	16,270	17,360	18,588					
Net investment income	3,178	5,348	5,707					
Net realized gains (losses) on investments	-	-	-					
<b>Total Revenues</b>	\$19,448	\$22,708	\$24,295					
Expenses								
Benefit expense								
Supplemental Medical	3,359	3,123	2,583					
Group Life	3,592	3,946	3,913					
Disability	1,517	2,120	3,326					
Ancillary Products	963	725	794					
Commissions	1,941	2,233	2,671					
General and administrative expense	4,084	4,315	4,859					
Premium Taxes	274	285	312					
Interest Expense	350	323	345					
Amortization of other intangible assets	265	274	260					
Total Expenses	\$16,345	\$17,344	\$19,063					
Income before income tax expense	3,103	5,364	5,232					
Income tax expense	621	1,073	1,046					
Net Income	\$2,482	\$4,291	\$4,186					
Net income per share								
Basic	\$2.66	\$4.33	\$3.73					
Diluted	\$2.70	\$4.73	\$3.84					
Average Exchange Rates*								
U.S. dollars	0.74	0.76	0.80					
Euro	0.69	0.67	0.66					
* e.g., on 12/31/Year 2, \$1 Can = \$0.80 US								

Exhibit 1 - Year 4 Annual Report (continued)							
Pinewood Insurance Company	Consolie	dated Balance Sheet					
(In thousands)							
Assets	December 31, Year 4	December 31, Year 3					
Current Assets	,	,					
Cash and cash equivalents	\$9,880	\$8,770					
Premium Receivables	8	8					
Investments available-for-sale, at fair value							
Fixed maturity securities (amortized cost)	1,169	1,097					
Equity securities	256	242					
Other invested assets, current	693	722					
Other receivables	827	745					
Income taxes receivable	53	54					
Net due from subsidiaries	867	1,197					
Securities lending collateral	583	854					
Deferred tax assets, net	250	248					
Other current assets	1	1					
Total Current Assets	\$14,587	\$13,938					
I and tame investments							
Long-term investments	\$534	\$22.4					
Fixed maturity securities		\$234					
Equity securities	\$6	\$7					
Other invested assets, long-term	\$456	\$495					
Property and equipment, net	4	3					
Deferred tax assets, net, non-current	234	227					
Investment in subsidiaries	5,544	3,456					
Other noncurrent assets	114	37					
Total Assets	\$21,479	\$18,397					
Liabilities and Shareholder's Equity	December 31, Year 4	December 31, Year 3					
Liabilities							
Actuarial and Policy Liabilities	\$8,230	\$7,564					
Amounts on deposit	678	876					
Deferred Gains	4	5					
Long-term debt	345	456					
Other Liabilities	795	856					
Total Liabilities	\$10,052	\$9,757					
Shareholder's Equity							
Preferred stock	0	0					
Common stock	5	5					
Additional paid-in capital	326	109					
Retained earnings	1,865	1,777					
Accumulated Income	9,231	6,749					
Total Shareholder's Equity	\$11,427	\$8,640					
Total Liabilities and Owner's Equity	\$21,479	\$18,397					
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#### Society of Actuaries - Case Study, Group & Health Finance & Valuation Canada Exam

#### \*\*Royale Health Email 2\*\*

From: Le Chiffre <lechiffre@RoyaleHealth.com>

To: You <JB007@Skyfall.com>

Sent: March 17, Year 5

Subject: Royale Health Financial Information

Hi-I have attached our latest financial information for this past year. Also of note, Royale Health had 444,902,956 common/preferred shares outstanding at YE Year 4. Our current tax rate is 21.0%.

Please let me know if you need anything else or need help finding anything.

Thanks,

Le Chiffre

Exhibit 2 - Financial Statements							
Royale Life Insurance Company	Income	<b>Income Statement</b>					
(In thousands)	For the Years End	ing December 31,					
Revenue	Year 4	Year 3					
Premiums	\$66,599	\$57,686					
Administrative fees Income	5,050	4,152					
Other revenue	45	79					
Total operating revenue	71,694	61,917					
Net investment income	749	755					
Net realized gains (losses) on investments	321	423					
<b>Total Revenues</b>	\$72,764	\$63,095					
Expenses							
Benefit expense	\$57,230	\$49,252					
Commissions	1,541	1,591					
General and administrative expense	9,246	8,143					
Premium Taxes	1,332	1,154					
Interest Expense	752	598					
Amortization of other intangible assets	298	287					
<b>Total Expenses</b>	\$70,399	\$61,025					
Income before income tax expense	2,365	2,070					
Income tax expense	1,251	1,253					
Net Income \$1,114 \$							

Danala I ifa Ingunanaa Cammana	ial Statements (continued)	Dalamas Chas
Royale Life Insurance Company (In thousands)		<b>Balance Shee</b>
Assets	December 31, Year 4	December 31, Year
Current Assets	,	,
Cash and cash equivalents	\$1,729	\$2,21
Investments available-for-sale, at fair value	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, ,
Fixed maturity securities (amortized cost)	16,950	15,913
Equity securities	1,835	1,515
Accrued investment income	159	149
Premium Receivables	3,858	3,748
Other receivables	995	897
Other current assets	1,712	1,829
Assets held for sale	859	901
Total Current Assets	\$28,097	\$27,162
_		
Long-term investments	\$2,102	\$2,05
Net property, plant, and equipment	1,811	1,729
Goodwill	15,971	15,942
Other intangible assets	7,931	7,955
Other noncurrent assets	458	299
Total Assets	\$56,370	\$55,14
Liabilities and Shareholder's Equity	December 31, Year 4	December 31, Year 3
Liabilities	,	,
Current Liabilities		
Policy Liabilities:		
Medical claims payable	\$6.058	\$6,09
Reserves for future policy benefits	59	55
Other policyholder liabilities	2,023	2,125
Total Policy Liabilities	\$8,140	\$8,273
Unearned Income	811	875
Accounts payable and accrued expenses	3,299	2,975
		212
Short-term horrowings	389	489
Short-term borrowings	389 467	
Current portion of long-term debt	467	
Current portion of long-term debt Other current liabilities	467 1,594	1,647
Current portion of long-term debt Other current liabilities  Total Current Liabilities	467 1,594 \$14,700	1,647 \$14,473
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion	467 1,594 \$14,700 11,253	1,647 \$ <i>14,473</i> 12,121
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion Reserves for future policy benefits, noncurrent	467 1,594 \$14,700 11,253 655	1,647 \$14,473 12,121 661
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion Reserves for future policy benefits, noncurrent Deferred tax liabilities, net	467 1,594 \$14,700 11,253 655 2,987	1,647 \$14,473 12,121 661 2,857
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion	467 1,594 \$14,700 11,253 655 2,987 787	1,647 \$14,473 12,121 661 2,857 895
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion Reserves for future policy benefits, noncurrent Deferred tax liabilities, net Other noncurrent liabilities  Total Liabilities	467 1,594 \$14,700 11,253 655 2,987	1,647 \$14,47, 12,121 661 2,857 895
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion Reserves for future policy benefits, noncurrent Deferred tax liabilities, net Other noncurrent liabilities  Total Liabilities  Shareholder's Equity	467 1,594 \$14,700 11,253 655 2,987 787	1,647 \$14,473 12,121 661 2,857 895
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion Reserves for future policy benefits, noncurrent Deferred tax liabilities, net Other noncurrent liabilities  Total Liabilities  Shareholder's Equity Paid-in capital - Common Stock	467 1,594 \$14,700 11,253 655 2,987 787	1,647 \$14,473 12,121 661 2,857 895 \$31,00°
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion Reserves for future policy benefits, noncurrent Deferred tax liabilities, net Other noncurrent liabilities  Total Liabilities  Shareholder's Equity Paid-in capital - Common Stock	467 1,594 \$14,700 11,253 655 2,987 787 \$30,382	1,647 \$14,473 12,121 661 2,857 895 \$31,00°
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion Reserves for future policy benefits, noncurrent Deferred tax liabilities, net Other noncurrent liabilities  Total Liabilities  Shareholder's Equity Paid-in capital - Common Stock Retained earnings Accumulate other comprehensive income	\$14,700 11,253 655 2,987 787 \$30,382 \$12,094 13,513 381	1,647 \$14,473 12,121 661 2,857 895 \$31,00° \$11,97 11,950
Current portion of long-term debt Other current liabilities  Total Current Liabilities Long-term debt, less current portion Reserves for future policy benefits, noncurrent Deferred tax liabilities, net Other noncurrent liabilities  Total Liabilities  Shareholder's Equity Paid-in capital - Common Stock Retained earnings	467 1,594 \$14,700 11,253 655 2,987 787 \$30,382 \$12,094 13,513	1,647 \$14,473 12,121 661 2,857 895 \$31,00 \$11,97

# The Thunderball Corporation (Thunderball)

The Thunderball Corporation is a large insurance company operating in the United States and Canada. The corporate vision is to be a comprehensive provider of long term insurance products. Thunderball seeks to offer competitive products earning reasonable return for stockholders while growing at a financially sustainable rate. Thunderball offers Group Long-Term Disability, Group Life, and Group and Individual Long-Term Care.

### **Long-Term Disability**

Thunderball has experienced steady growth in Long-Term Disability sales. The following tables show the reserve factors for various ages and durations. Tables 1 & 2 are the newest tables created by the internal team, and Tables 3 & 4 are the tables that have been used for many years.

3,000 Ind	exed Gross I	Monthly B	enefit to Age 6		it 1 - Claim per \$1 Bene						
			24 Month Ow		-						
mee wo	Duration	on r criou,	2 i Montin 6 w	n occupatio	Duration	570 Discou	in ruic		Duration		
Age	(Months)	Male	Female	Age	(Months)	Male	Female	Age	(Months)	Male	Female
27	4	24.70	27.90	35	4	34.22	37.74	43	4	40.68	42.4
27	9	42.20	46.40	35	9	53.96	58.00	43	9	59.66	61.7
27	18	60.60	64.90	35	18	71.40	77.06	43	18	74.16	78.5
27	27	70.10	74.50	35	27	79.62	86.02	43	27	80.02	85.2
27	48	100.60	105.20	35	48	103.08	111.04	43	48	94.04	100.7
27	60	106.10	110.20	35	60	106.26	114.04	43	60	94.24	100.7
28	4	25.89	29.13	36	4	35.41	38.97	44	4	41.36	42.8
28	9	43.67	47.85	36	9	55.43	59.45	44	9	60.12	61.8
28	18								18		
	27	61.95	66.42	36 36	18 27	72.75	78.58	44	27	74.17 79.69	78.2
28 28	48	71.29	75.94	36	48	80.81	87.46	44	48		84.6
		100.91	105.93			103.39	111.77	44		92.43	98.7
28	60	106.12	110.68	36	60	106.28	114.52	44	60	92.23	98.4
29	4	27.08	30.36	37	4	36.60	40.20	45	4	42.04	43.2
29	9	45.14	49.30	37	9	56.90	60.90	45	9	60.58	62.0
29	18	63.30	67.94	37	18	74.10	80.10	45	18	74.18	78.0
29	27	72.48	77.38	37	27	82.00	88.90	45	27	79.36	84.0
29	48	101.22	106.66	37	48	103.70	112.50	45	48	90.82	96.8
29	60	106.14	111.16	37	60	106.30	115.00	45	60	90.22	96.0
30	4	28.27	31.59	38	4	37.28	40.58	46	4	42.72	43.6
30	9	46.61	50.75	38	9	57.36	61.04	46	9	61.04	62.1
30	18	64.65	69.46	38	18	74.11	79.84	46	18	74.19	77.7
30	27	73.67	78.82	38	27	81.67	88.29	46	27	79.03	83.4
30	48	101.53	107.39	38	48	102.09	110.54	46	48	89.21	94.8
30	60	106.16	111.64	38	60	104.29	112.63	46	60	88.21	93.6
31	4	29.46	32.82	39	4	37.96	40.96	47	4	43.40	44.0
31	9	48.08	52.20	39	9	57.82	61.18	47	9	61.50	62.3
31	18	66.00	70.98	39	18	74.12	79.58	47	18	74.20	77.5
31	27	74.86	80.26	39	27	81.34	87.68	47	27	78.70	82.8
31	48	101.84	108.12	39	48	100.48	108.58	47	48	87.60	92.9
31	60	106.18	112.12	39	60	102.28	110.26	47	60	86.20	91.3
32	4	30.65	34.05	40	4	38.64	41.34	48	4	42.58	42.9
32	9	49.55	53.65	40	9	58.28	61.32	48	9	59.79	60.3
32	18	67.35	72.50	40	18	74.13	79.32	48	18	71.50	74.4
32	27	76.05	81.70	40	27	81.01	87.07	48	27	75.32	79.0
32	48	102.15	108.85	40	48	98.87	106.62	48	48	82.39	87.2
32	60	106.20	112.60	40	60	100.27	107.89	48	60	80.29	84.9
33	4	31.84	35.28	41	4	39.32	41.72	49	4	41.76	41.9
33	9	51.02	55.10	41	9	58.74	61.46	49	9	58.08	58.4
33	18	68.70	74.02	41	18	74.14	79.06	49	18	68.80	71.4
33	27	77.24	83.14	41	27	80.68	86.46	49	27	71.94	75.2
33	48	102.46	109.58	41	48	97.26	104.66	49	48	77.18	81.5
33	60	106.22	113.08	41	60	98.26	105.52	49	60	74.38	78.5
34	4	33.03	36.51	42	4	40.00	42.10	50	4	40.94	40.8
34	9	52.49	56.55	42	9	59.20	61.60	50	9	56.37	56.4
34	18	70.05	75.54	42	18	74.15	78.80	50	18	66.10	68.4
34	27	78.43	84.58	42	27	80.35	85.85	50	27	68.56	71.4
34	48	102.77	110.31	42	48	95.65	102.70	50	48	71.97	75.8
34	60	106.24	113.56	42	60	96.25	103.15	50	60	68.47	72.1

					it 2 - Claim						
\$3,000 Ind	exed Gross I	Monthly B	enefit to Age 6	55, Reserves	per \$1 Ben	efit, No Di	agnosis,				
Six Month	Elimination 1	Period, 24	Month Own (	Occupation I	Period, 5.0%	Discount	Rate				
	Duration				Duration				Duration		
Age	(Months)	Male	Female	Age	(Months)	Male	Female	Age	(Months)	Male	Female
27	7	40.80	45.30	35	7	52.24	56.50	43	7	57.74	60.02
27	9	45.80	50.20	35	9	57.40	61.80	43	9	62.46	65.00
27	18	62.30	66.80	35	18	72.94	78.72	43	18	75.30	79.84
27	27	74.60	79.20	35	27	83.40	90.16	43	27	82.54	88.10
27	48	100.60	105.20	35	48	103.08	111.04	43	48	94.04	100.74
27	60	106.10	110.20	35	60	106.26	114.04	43	60	94.24	100.78
28	7	42.23	46.70	36	7	53.67	57.90	44		58.18	60.14
28	9	47.25	51.65	36	9	58.85	63.25	44		62.82	65.05
28	18	63.63	68.29	36	18	74.27	80.21	44		75.25	79.53
28	27	75.70	80.57	36	27	84.50	91.53	44		82.03	87.30
28	48	100.91	105.93	36	48	103.39	111.77	44		92.43	98.78
28	60	106.12	110.68	36	60	106.28	114.52	44		92.43	98.41
29	7	43.66	48.10	37	7	55.10	59.30	45		58.62	60.26
29	9	48.70	53.10	37	9	60.30	64.70	45		63.18	65.10
29	18	64.96	69.78	37	18	75.60	81.70	45	18	75.20	79.22
29	27			37							
		76.80	81.94		27	85.60	92.90	45		81.52	86.50
29	48	101.22	106.66	37	48	103.70	112.50	45		90.82	96.82
29	60	106.14	111.16	37	60	106.30	115.00	45	60	90.22	96.04
30	7	45.09	49.50	38	7	55.54	59.42	46		59.06	60.38
30	9	50.15	54.55	38	9	60.66	64.75	46		63.54	65.15
30	18	66.29	71.27	38	18	75.55	81.39	46		75.15	78.91
30	27	77.90	83.31	38	27	85.09	92.10	46		81.01	85.70
30	48	101.53	107.39	38	48	102.09	110.54	46		89.21	94.86
30	60	106.16	111.64	38	60	104.29	112.63	46		88.21	93.67
31	7	46.52	50.90	39	7	55.98	59.54	47		59.50	60.50
31	9	51.60	56.00	39	9	61.02	64.80	47	9	63.90	65.20
31	18	67.62	72.76	39	18	75.50	81.08	47	18	75.10	78.60
31	27	79.00	84.68	39	27	84.58	91.30	47		80.50	84.90
31	48	101.84	108.12	39	48	100.48	108.58	47		87.60	92.90
31	60	106.18	112.12	39	60	102.28	110.26	47		86.20	91.30
32	7	47.95	52.30	40	7	56.42	59.66	48	7	57.91	58.67
32	9	53.05	57.45	40	9	61.38	64.85	48	9	62.05	63.10
32	18	68.95	74.25	40	18	75.45	80.77	48	18	72.35	75.50
32	27	80.10	86.05	40	27	84.07	90.50	48	27	76.85	80.85
32	48	102.15	108.85	40	48	98.87	106.62	48	48	82.39	87.22
32	60	106.20	112.60	40	60	100.27	107.89	48	60	80.29	84.91
33	7	49.38	53.70	41	7	56.86	59.78	49	7	56.32	56.84
33	9	54.50	58.90	41	9	61.74	64.90	49	9	60.20	61.00
33	18	70.28	75.74	41	18	75.40	80.46	49	18	69.60	72.40
33	27	81.20	87.42	41	27	83.56	89.70	49	27	73.20	76.80
33	48	102.46	109.58	41	48	97.26	104.66	49		77.18	81.54
33	60	106.22	113.08	41	60	98.26	105.52	49		74.38	78.52
34	7	50.81	55.10	42	7	57.30	59.90	50		54.73	55.01
34	9	55.95	60.35	42	9	62.10	64.95	50		58.35	58.90
34	18	71.61	77.23	42	18	75.35	80.15	50		66.85	69.30
34	27	82.30	88.79	42	27	83.05	88.90	50		69.55	72.75
34	48	102.77	110.31	42	48	95.65	102.70	50		71.97	75.86
34	60	106.24	113.56	42		96.25	103.15	50		68.47	72.13

				Exhib	it 3 - Claim	Reserve F	actors				
\$3,000 Ind	exed Gross l	Monthly B	enefit to Age 6	55, Reserves	per \$1 Ben	efit, No Di	agnosis,				
Three Mon	th Elimination	on Period,	24 Month Ow	n Occupation	n Period, 5.	0% Discou	ınt Rate				
Duration Duration									Duration		
Age	(Months)	Male	Female	Age	(Months)	Male	Female	Age	(Months)	Male	Female
27	4	44.40	47.20	35	4	52.80	55.52	43	4	58.50	60.54
27	9	68.70	76.00	35	9	76.22	82.72	43	9	78.52	83.32
27	18	95.00	110.80	35	18	98.28	111.12	43		94.36	103.40
27	27	108.30	127.50	35	27	109.34	124.62	43		101.26	111.72
27	48	127.50	146.40	35	48	121.34	136.00	43		105.34	114.92
27	60	133.70	151.10	35	60	123.54	137.10	43		103.96	112.72
28	4	45.45	48.24	36	4	53.85	56.56	44		59.10	61.03
28	9	69.64	76.84	36	9	77.16	83.56	44		78.59	83.14
28	18	95.41	110.84	36	18	98.69	111.16	44	-	93.57	102.10
28	27	108.43	127.14	36	27	109.47	124.26	44		99.87	102.10
28	48	126.73	145.10	36	48	120.57	134.70	44		102.93	111.84
28	60	132.43	149.35	36	60	122.27	135.35	44		101.12	109.24
29	4	46.50	49.28	37	4	54.90	57.60	45		59.70	61.52
29	9	70.58	77.68	37	9	78.10	84.40	45		78.66	82.96
29	18		110.88	37	18			45			100.80
29	27	95.82		37		99.10 109.60	111.20	45		92.78 98.48	
		108.56	126.78		27		123.90				107.66
29	48	125.96	143.80	37	48	119.80	133.40	45		100.52	108.76
29	60	131.16	147.60	37	60	121.00	133.60	45		98.28	105.76
30	4	47.55	50.32	38	4	55.50	58.09	46		60.30	62.01
30	9	71.52	78.52	38	9	78.17	84.22	46		78.73	82.78
30	18	96.23	110.92	38	18	98.31	109.90	46		91.99	99.50
30	27	108.69	126.42	38	27	108.21	121.87	46		97.09	105.63
30	48	125.19	142.50	38	48	117.39	130.32	46		98.11	105.68
30	60	129.89	145.85	38	60	118.16	130.12	46		95.44	102.28
31	4	48.60	51.36	39	4	56.10	58.58	47	4	60.90	62.50
31	9	72.46	79.36	39	9	78.24	84.04	47		78.80	82.60
31	18	96.64	110.96	39	18	97.52	108.60	47	18	91.20	98.20
31	27	108.82	126.06	39	27	106.82	119.84	47	27	95.70	103.60
31	48	124.42	141.20	39	48	114.98	127.24	47		95.70	102.60
31	60	128.62	144.10	39	60	115.32	126.64	47		92.60	98.80
32	4	49.65	52.40	40	4	56.70	59.07	48		59.59	61.03
32	9	73.40	80.20	40	9	78.31	83.86	48		76.27	79.76
32	18	97.05	111.00	40	18	96.73	107.30	48		87.38	93.83
32	27	108.95	125.70	40	27	105.43	117.81	48		91.06	98.32
32	48	123.65	139.90	40	48	112.57	124.16	48	48	89.77	96.07
32	60	127.35	142.35	40	60	112.48	123.16	48	60	86.09	91.72
33	4	50.70	53.44	41	4	57.30	59.56	49	4	58.28	59.56
33	9	74.34	81.04	41	9	78.38	83.68	49	9	73.74	76.92
33	18	97.46	111.04	41	18	95.94	106.00	49	18	83.56	89.46
33	27	109.08	125.34	41	27	104.04	115.78	49	27	86.42	93.04
33	48	122.88	138.60	41	48	110.16	121.08	49	48	83.84	89.54
33	60	126.08	140.60	41	60	109.64	119.68	49	60	79.58	84.64
34	4	51.75	54.48	42	4	57.90	60.05	50	4	56.97	58.09
34	9	75.28	81.88	42	9	78.45	83.50	50		71.21	74.08
34	18	97.87	111.08	42	18	95.15	104.70	50		79.74	85.09
34	27	109.21	124.98	42	27	102.65	113.75	50		81.78	87.76
34	48	122.11	137.30	42	48	107.75	118.00	50		77.91	83.01
34		124.81	138.85	42	60	106.80	116.20	50		73.07	77.56

					it 4 - Claim						
\$3,000 Ind	exed Gross l	Monthly B	enefit to Age 6	55, Reserves	per \$1 Ben	efit, No Di	agnosis,				
Six Month	Elimination	Period, 24	Month Own 0	Occupation I	Period, 5.0%	Discount	Rate				
	Duration				Duration				Duration		
Age	(Months)	Male	Female	Age	(Months)	Male	Female	Age	(Months)	Male	Female
27	7	67.80	74.40	35	7	76.44	82.48	43	7	78.36	82.70
27	9	74.40	82.90	35	9	82.16	89.62	43	9	82.78	88.18
27	18	96.90	113.10	35	18	100.02	113.18	43	18	95.58	104.80
27	27	111.60	130.90	35	27	111.76	126.98	43	27	102.50	112.80
27	48	127.50	146.40	35	48	121.34	136.00	43	48	105.34	114.92
27	60	133.70	151.10	35	60	123.54	137.10	43	60	103.96	112.72
28	7	68.88	75.41	36	7	77.52	83.49	44		78.32	82.40
28	9	75.37	83.74	36	9	83.13	90.46	44		82.56	87.66
28	18	97.29	113.11	36	18	100.41	113.19	44		94.71	103.40
28	27	111.62	130.41	36	27	111.78	126.49	44		100.95	110.60
28	48	126.73	145.10	36	48	120.57	134.70	44		102.93	111.84
28	60	132.43	149.35	36	60	122.27	135.35	44		101.12	109.24
29	7	69.96	76.42	37	7	78.60	84.50	45		78.28	82.10
29	9	76.34	84.58	37	9	84.10	91.30	45		82.34	87.14
29	18	97.68	113.12	37	18	100.80	113.20	45	18	93.84	102.00
29	27	111.64	129.92	37	27	111.80	126.00	45		99.40	108.40
29	48	125.96	143.80	37	48	119.80	133.40	45		100.52	108.76
29	60	131.16	147.60	37	60	121.00	133.60	45	60	98.28	105.76
30	7	71.04	77.43	38	7	78.56	84.20	46		78.24	81.80
30	9	77.31	85.42	38	9	83.88	90.78	46		82.12	86.62
30	18	98.07	113.13	38	18	99.93	111.80	46		92.97	100.60
30	27	111.66	129.43	38	27	110.25	123.80	46		97.85	106.20
30	48	125.19	142.50	38	48	117.39	130.32	46		98.11	105.20
30	60	129.89	145.85	38	60	118.16	130.32	46		95.44	102.28
31	7	72.12	78.44	39	7	78.52	83.90	40		78.20	81.50
31	9			39	9			47	9		
		78.28	86.26			83.66	90.26			81.90	86.10
31	18 27	98.46	113.14	39 39	18	99.06	110.40	47	18	92.10	99.20
31	48	111.68	128.94	39	27	108.70	121.60	47		96.30	104.00
		124.42	141.20		48	114.98	127.24	47		95.70	102.60
31	60	128.62	144.10	39	60	115.32	126.64	47		92.60	98.80
32	7	73.20	79.45	40	7	78.48	83.60	48		75.68	78.68
32	9	79.25	87.10	40	9	83.44	89.74	48		79.06	82.91
32	18	98.85	113.15	40	18	98.19	109.00	48		88.19	94.73
32	27	111.70	128.45	40	27	107.15	119.40	48	27	91.44	98.51
32	48	123.65	139.90	40	48	112.57	124.16	48		89.77	96.07
32	60	127.35	142.35	40	60	112.48	123.16	48		86.09	91.72
33	7	74.28	80.46	41	7	78.44	83.30	49		73.16	75.86
33	9	80.22	87.94	41	9	83.22	89.22	49		76.22	79.72
33	18	99.24	113.16	41	18	97.32	107.60	49		84.28	90.26
33	27	111.72	127.96	41	27	105.60	117.20	49		86.58	93.02
33	48	122.88	138.60	41	48	110.16	121.08	49		83.84	89.54
33	60	126.08	140.60	41	60	109.64	119.68	49		79.58	84.64
34	7	75.36	81.47	42	7	78.40	83.00	50		70.64	73.04
34	9	81.19	88.78	42	9	83.00	88.70	50		73.38	76.53
34	18	99.63	113.17	42	18	96.45	106.20	50		80.37	85.79
34	27	111.74	127.47	42	27	104.05	115.00	50		81.72	87.53
34	48	122.11	137.30	42	48	107.75	118.00	50		77.91	83.01
34	60	124.81	138.85	42	60	106.80	116.20	50	60	73.07	77.56

# **Another Day, Inc. (Another Day)**

Another Day is a company headquartered in Toronto, Ontario with employees and locations across Canada. Over the past several years, it has experienced rapid growth and now offers benefit coverage to 1,500 active employees and 350 retirees. Its benefit plan (both active and retiree) is fully insured on a non-refund basis, with Another Day fully subsidizing the premiums.

Another Day has employed Skyfall Canada to assist with the design and pricing of its active and retiree benefit plans as well as the preparation of its financial statements for the post-retirement benefit plan.

A summary of the active benefit plan and applicable premium rates is provided in Exhibit 1 below:

Exhibit 1:

DAMOR 1.		
<b>Benefit</b>	Coverage Level	Monthly Rate
D . T.6 T	2 ·	Φ0.4 <i>c</i> 2.
Basic Life Insurance	2 times annual salary up to \$500,000	\$0.463 per \$1,000
Basic AD&D	Matches Basic Life Insurance volume	\$0.030 per \$1,000
Dasic AD&D	Maches Dasic Life Hisuralice volume	φυ.υου μει φ1,000
	75% of weekly salary up to \$1,000	
Short Term Disability	Taxable plan	\$0.660 per \$10
	3 day elimination period	r
	26 week benefit period	
	•	
Long Term Disability	66.67% of monthly salary up to \$5,000	\$2.550 per \$100
	Taxable plan, 26 week elimination period	
Extended Health Care		\$85/single; \$187/family
-Drugs	90% with \$1,000 employee out-of-pocket maximum	
-Paramedical Practitioners	100%; \$500 per practitioner per year	
-Hospital	100% semi-private room	
-Vision	100%; \$200 per 12 months	
-Emergency Out-of-Country	60 day maximum, \$1,000,000 lifetime maximum	
-Other Supplies and Services	100%	
Dental		\$54/single: \$110/family:
-Basic	1000/ \$2,500 annual maximum (combined with major)	\$54/single; \$119/family
-Major	100%, \$2,500 annual maximum (combined with major) 50%, \$2,500 annual maximum (combined with basic)	
-Orthodontics	50%; \$1,500 lifetime maximum	
-Orthodolitics	50%, \$1,500 metine maximum	
Health Spending Account	\$500 per year	Paid as Incurred
. 6	Credit carryforward provision	

Note: All benefits terminate at the earlier of retirement or age 65

A summary of the retiree benefit plan and applicable premium rates is provided in Exhibit 2 below:

Exhibit 2:

Benefit	Coverage Level	Monthly Rate
Basic Life Insurance	Flat \$15,000	\$0.463 per \$1,000
Extended Health Care		\$85/single; \$187/family
- Drugs	90% with \$1,000 out-of-pocket maximum	
- Paramedical Practitioners	100%; \$500 per practitioner per year	
- Hospital	100% semi-private room	
- Vision	100%; \$200 per 12 months	
- Emergency Out-of-Country	60 day maximum, \$1,000,000 lifetime maximum	
- Other Supplies and Services	100%	

Benefits terminate upon death of the retiree with a 24 month extension for surviving spouses. Further, only active employees with a minimum of 5 years of continuous service are eligible at or after age 55.

Summaries of the employees and retirees of Another Day are provided in Exhibit 3 and Exhibit 4 below.

Exhibit 3:

	Active Data							
	Employee Information		Headcount					
Age	Years of Service	Annual Salary	Single	Family	Total			
25	4	\$50,000	175	50	225			
35	13	\$65,000	100	300	400			
45	23	\$80,000	50	375	425			
53	1	\$85,000	5	10	15			
55	30	\$100,000	50	275	325			
57	3	\$90,000	5	5	10			
65	32	\$105,000	35	40	75			
75	35	\$110,000	20	5	25			
			440	1,060	1,500			

Average Family Size: 2.3

Exhibit 4:

Retiree Data					
Retiree	Information		Headcount	t	
Age	Years Since				
(years)	Retirement	Single	Family	Total	
55	0	50	100	150	
60	4	37	33	70	
65	8	33	30	63	
70	12	30	14	44	
75	16	21	2	23	
		171	179	350	

Average Family Size: 2.0

A summary of Extended Health Care claims experience for both actives and retirees over the period Year 3 to Year 5 can be found in Exhibit 5 below:

**Exhibit 5: Extended Health Care Claims Experience** 

Active Claims Experience						
Calendar Year		Year 2		Year 3		Year 4
Total Paid Claims (Including Pooled) Total Pooled Claims	\$ \$	977,000 77,000	\$ \$	1,512,000 185,000	\$ \$	2,286,000 190,000
Number of Covered Employees - Single - Family		225 475		350 700		440 1060

Premium rates have been held unchanged over the past three years.

Administrative Expenses and Taxes: 12% of paid claims

Pooling Charge: 5.5% of paid claims

Pooling Arrangement: Large Amount Pooling of claims in excess of \$25,000 (inside and outside) per covered individual.

Retiree Claims Experience			
Calendar Year	Year 2	Year 3	Year 4
Total Paid Claims (Including Pooled)			
- Under 65	\$ 427,000	\$ 457,000	\$ 507,000
- 65 and Over	\$ 77,000	\$ 88,000	\$ 113,000
<b>Total Pooled Claims</b>			
- Under 65	\$ 12,000	\$ 43,000	\$ 35,000
- 65 and Over	\$ -	\$ -	\$ 5,000
Number of Covered Employees			
- Under 65			
- Single	71	75	87
- Family	116	123	133
- 65 and Over			
- Single	55	67	84
- Family	33	35	46

Premium rates have been held unchanged over the past three years.

Administrative Expenses and Taxes: 12% of paid claims

Pooling Charge: 5.5% of paid claims

Pooling Arrangement: Large Amount Pooling of claims in excess of \$25,000 (inside and outside) per covered individual.

#### Society of Actuaries - Case Study, Group & Health Finance & Valuation Canada Exam

# \*\*Another Day Email 1\*\*

From: You <JB007@Skyfall.com>

To: Mike Green <mgreen@AnotherDay.com>

Sent: March 17, Year 5

Subject: Ontario Employer Health Tax (EHT).

Hi – As requested, please find below the information regarding the Ontario Employer Health Tax (EHT):

Ontario Payroll (Total Remuneration)	Rate
Up to \$200,000.00	0.98%
\$200,000.01 to \$230,000.00	1.101%
\$230,000.01 to \$260,000.00	1.223%
\$260,000.01 to \$290,000.00	1.344%
\$290,000.01 to \$320,000.00	1.465%
\$320,000.01 to \$350,000.00	1.586%
\$350,000.01 to \$380,000.00	1.708%
\$380,000.01 to \$400,000.00	1.829%
Over \$400,000.00	1.95%

Please let me know if you need anything else or need help finding anything.

Thanks!