Pricing for the Financial Risk of Uncollateralized Deductible Policies

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Biographical Information

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ABSTRACT

A substantial number of National (i.e. Fortune 500) accounts have insurance programs with large retentions (i.e. deductibles) which can range from $100,000 to $1,000,000 per occurrence. This high retention business obviously limits the insurance risk to the insurance company. However, if the insured with a deductible program goes into default, and is unable to pay its' insurance liabilities, it becomes the insurance company's responsibility. In this case a financial liability has been created for the insurance company.

Typically, insurance companies will request some form of collateral in order to limit this financial risk. However, in many cases, insureds are unwilling, or unable, to provide collateral for the entire liability. To the extent that an insured with a deductible program does not provide sufficient collateral, there is a cost that must be built into the program design to account for this financial risk. In some instances (i.e. for low rated accounts, with "insufficient" collateral), this cost can be substantial, and can in-fact, exceed even the calculated excess premium for an account.

The purpose of this paper will be to develop a methodology to estimate the "cost" associated with this financial risk, based on the following variables:

- Ultimate Deductible Loss Liability
- Financial rating
- Original Collateral Collected

The methodology will also consider the payout of losses, which is dependent on the line of business and the applicable deductible.

INTRODUCTION

A substantial number of National (i.e. Fortune 500) accounts have insurance programs with large retentions (i.e. deductibles). Typical large deductible programs can range from $100,000 to $1,000,000 per occurrence. The benefits of large deductible programs are many (examples include an insured's incentive to exercise loss control and cash flow advantages), and this product has grown substantially since its introduction to Workers' Compensation in the early 1990's. Although the current market has been referred to as "soft", thus leading to a favorable guaranteed cost market, a trend towards higher insurance prices (i.e. a "hard" market) would lead to an even greater need for deductible programs.

This high retention business obviously limits the insurance risk to the insurance company. However, if the insured with a deductible program goes into default, and is unable to pay its' insurance liabilities, it becomes the insurance company's responsibility. In this case a financial liability has been created for the insurance company.

Typically, insurance companies will request some form of collateral (examples include a letter of credit, cash collateral, surety bond) in order to limit this financial risk. However, in many cases, insureds with deductible programs are unwilling, or unable, to provide collateral for the entire liability. Reasons would include, but not be limited to, a low financial rating (and thus high cost of obtaining a letter of credit) and/or a desire of the insured to keep its line of credit open for future investment in its operations. To the extent that an insured with a deductible program does not provide sufficient collateral, there is a cost that must be built into the program design to account for this financial risk. In some instances (i.e. for low rated accounts, with "insufficient" collateral), this cost can be substantial, and can in-fact, exceed even the calculated excess premium for an account (typically one of the more substantial charges).

The purpose of this paper will be to develop a methodology to estimate the "cost" associated with this financial risk, which the author will refer to as the Financial Risk Cost (FRC).

FACTORS AND ASSUMPTIONS

In order to estimate the Financial Risk Cost (FRC), we will need to consider the following factors:

- Ultimate Deductible Loss Liability
- Financial rating (and the estimated cumulative default rate associated with each rating)
- Original Collateral Collected (as a % of the Ultimate Deductible Loss Liability)
- Line of Business (which for the purposes of this paper the author will limit to Workers' Compensation and Commercial Auto Liability)
- Deductible Limit

The author considered each factor listed above as follows:

- Ultimate Deductible Loss Liability

The first factor in estimating the FRC is what is the insured's estimated ultimate liability. This estimate is typically based on the historical experience of the account, adjusted for loss development, loss trend, exposure changes, etc. The methodology for estimating this liability is outside the scope of this paper, however, so the author will assume that the Ultimate Deductible Loss Liability has already been calculated.[1]

- Financial rating

The second factor in estimating the FRC is how likely an insured is to go into default (and thus be unable to pay its' remaining liabilities). In order to estimate this "frequency" of default, the author created a table of Estimated Cumulative Default Rates. As one would expect, this cumulative "frequency" of default increases as the financial rating decreases. One would also expect, all other

[1] Although there is no single methodology for estimating the "Ultimate Deductible Loss Liability", various procedures for forecasting losses for future policy periods can be found in a variety of ratemaking and loss rating articles, many of which are in CAS publications.

variables being equal, that the lower the financial rating, the higher the FRC.

- Original Collateral Collected (as a % of the ultimate liability)

The third factor in estimating the FRC is the amount of financial exposure that the insurance company has taken on from the insured. This amount of financial exposure (one can think of as "severity"), is primarily dependent on the ultimate deductible loss liability of the insured and the amount of collateral that the insurance company has accepted from the insured. Although the author believes that the financial exposure should consider other factors (that will be described in the examples that follow), a simplistic way of thinking of financial exposure would be the following:

Financial Exposure = Ultimate Deductible Loss Liability – Original Collateral Collected

- Line of Business and Deductible Limit

Over time, losses will be paid by the insurance company and subsequently reimbursed by the insured. For the purposes of the calculation, the author assumes that the original collateral held will not be returned to the insured (nor applied to policies that are written in the future) until this amount is sufficient to fund any remaining liability (i.e. the financial exposure = $0). Thus as this reimbursement occurs, the financial exposure will decrease. In order to determine the point in time when the financial exposure is effectively $0, it is necessary to estimate the future payout of the Ultimate Deductible Loss Liability. Thus the line of business and deductible limit become factors in estimating the financial risk charge.

The calculation also makes certain assumptions to incorporate the variance of the ultimate liability and the potential recovery of unreimbursed losses by the insured to the insurance company.

A final important assumption is that although the financial risk of a policy can extend for years after policy expiration, the cost associated with this financial risk needs to be charged over the policy term.

FINANICAL RISK COST – A SIMPLE EXAMPLE

We will begin with a simple example. Although the numbers are not realistic, per se, they do provide a relatively straightforward example to understanding the assumptions that are imbedded in the calculation. For this calculation assume the following (please refer to Exhibit 1):

- Ultimate Deductible Loss Liability = $7,200,000
- Original Collateral Collected = $3,600,000 (Collateral Ratio = 50%)
- Incremental Payout % = 1/24 = 4.167% per month (constant monthly payout for two years)
- Probability of Default = 1.0% each month
- Losses are reimbursed by the insured to the insurance company at the end of the month.

The calculation first begins with the Remaining Liability, which is essentially the Ultimate Deductible Loss Liability less Paid Losses at future points in time (t).[2] As the losses are paid by the insurance company and reimbursed by the insured, the Remaining Liability decreases.

One Month Paid Loss (t) = Incremental Payout % (t) * Ultimate Deductible Loss Liability

Remaining Liability (t+1) = Remaining Liability (t) – One Month Paid Loss (t)

A Variance Load (estimated at 10%) was included to consider any adverse development from the Remaining Liability estimate that may occur. In fact, there is anecdotal evidence to suggest that when a company does get into financial difficulty, a higher frequency of claim activity occurs (possible reasons for this occurring might include less focus on loss control, workers who realize their salary may be in jeopardy, and proclaim an "injury" to supplement their income through Workers' Compensation, etc.).

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[2] Although one might argue that the Ultimate Loss Liability isn't truly earned until the end of the policy (i.e. if the insured goes bankrupt the day after the policy is issued, the insurance company could cancel the policy and no longer be accountable for any future liability), there are instances where the insurance company will be "on the hook" for the entire policy period, even if the company is unable to make payments during the policy period. The author thus took a conservative approach to this liability.

Variance Load (t) = 10% * Remaining Liability (t)

The Total Exposure is the sum of the Remaining Liability and the Variance Load.

Total Exposure (t) = Remaining Liability (t) + Variance Load (t)

The Collateral Held is the lesser of the Original Collateral Collected and the Total Exposure. This assumes that to the extent the Total Exposure is less than the Original Collateral Collected, collateral will be returned to the client (or more likely be applied to future policy periods).

Collateral Held (t) = Min [Original Collateral Collected, Total Exposure (t)]

Net Exposure is Total Exposure less Collateral Held.

Net Exposure (t) = Total Exposure (t) – Collateral Held (t)

The Expected Default is the Net Exposure multiplied by the Probability of Default. This calculation is essentially a Frequency/Severity calculation, with Frequency equal to the Probability of Default and Severity equal to the Net Exposure.

Expected Default (t) = Net Exposure (t) * Probability of Default (t)

With any bankruptcy there is the possibility of recovery of at least a portion of the lost funds. To account for this, the author assumed that the Expected Recovery (net of any administrative costs) would be 20% of the Expected Default and would be collected 3 years after the insured goes into default. To present value the dollars to the month of default, the author used a 5.0% annual interest rate.

Expected Recovery (t) = 20% * Expected Default (t) / (1.05 ^ 3)

Net Default is Expected Default less Expected Recovery.

Net Default (t) = Expected Default (t) – Expected Recovery (t)

The Financial Risk Cost (FRC) is then calculated by taking the present value of the stream of Net Default calculations assuming a 5.0% annual interest rate.

FRC = PV of Net Default (t=1, 2, ...) at 5.0%

FINANCIAL RISK COST – A REALISTIC EXAMPLE

Assuming the reader has become comfortable with the simple example, we shall begin with a more realistic example, factoring in the payout of an actual line of business and actual default probabilities.

We will thus modify our assumptions as follows:

- Ultimate Deductible Loss Liability = $7,200,000
- Original Collateral Collected = $3,600,000 (Collateral Ratio = 50%)
- Line of Business is Workers' Compensation
- Deductible Limit = $250,000
- Probability of Default will be based on a table of default probabilities that are dependent on the financial rating and the year since assignment of the rating. In this example, we will assume that the account has a "B" Financial Rating.
- Losses are reimbursed by the insured to the insurance company at the end of the month.

The assumed 20 year Payout Curve for Workers' Compensation at the $250,000 deductible limit can be found in Exhibit 2.

The Estimated Cumulative Default Rates can be found in Exhibit 3. Note that although fictitious data is used in this table, the reader is encouraged to refer to Cumulative Default Rates provided by rating agencies such as Moody's or Standard and Poor's for accurate information. Because the default rates are cumulative, the author estimated the monthly incremental "Probability of Default" as follows:

Probability of Default (monthly incremental) =

(Cumulative Default Rate[current] – Cumulative Default Rate[prior]) / 12

The calculation of this example can be found in Exhibit 4. The calculated financial risk cost is $244,707 (approximately 3.4% of the Ultimate Deductible Loss Liability).

FINANCIAL RISK COST – A SECOND EXAMPLE

In this example, the author modifies the payout to be based on Workers' Compensation at the $100,000 deductible limit.[3] The assumed 20-year Payout Curve for Workers' Compensation at the $100,000 deductible limit can be found in Exhibit 5. All other assumptions are consistent with the previous example.

The calculation of this example can be found in Exhibit 6. Given that the estimated payout is "faster" at the $100,000 deductible limit vs. the $250,000 deductible limit, the resulting financial risk cost is, as expected, lower for the $100,000 deductible limit vs. the $250,000 deductible limit. The calculated financial risk cost is $217,082 (approximately 3.0% of the Ultimate Deductible Loss Liability).

FINANCIAL RISK COST – A THIRD EXAMPLE

In this example, the author modifies the payout to be based on Commercial Auto Liability at the $250,000 deductible limit. The assumed 20-year Payout Curve for Commercial Auto Liability at the $250,000 deductible limit can be found in Exhibit 7. All other assumptions are consistent with the previous example.

The calculation of this example can be found in Exhibit 8. The calculated financial risk cost is $256,007 (approximately 3.6% of the Ultimate Deductible Loss Liability). Note that this is surprisingly higher than the estimated financial risk charge for Workers' Compensation at the same deductible limit.

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[3] The author recognizes that the ultimate deductible loss liability would be lower at the $100,000 deductible limit than the ultimate deductible loss liability at the $250,000 deductible limit. For the purposes of illustrating the impact of the deductible limit (and corresponding payout), the author chose to leave the ultimate deductible loss liability constant.

The author will attempt to provide an explanation in the section below.

OBSERVATIONS

Assuming the author has constructed a reasonable model for estimating financial risk, the next step would be to examine various scenarios and compare the results. The author first varied the following:

- Financial rating
- Original Collateral Collected

And constructed Table 1:

Table 1
Comparison of Financial Risk Costs
Variation on Rating and Collateral Ratio (= Original Collateral Collected / Ultimate Deductible Loss Liability)

	Collateral Ratio			
Rating	25%	50%	75%	100%
AAA	1,572	410	150	16
AA	3,884	1,584	602	65
A	9,401	4,244	1,526	162
BBB	33,945	16,907	6,961	763
BB	150,734	66,403	23,815	2,533
B	478,718	**244,707**	97,162	10,570
CCC	1,338,036	794,241	360,494	40,268

Ultimate Deductible Loss Liability = 7,200,000
Payout Curve based on Workers' Compensation at $250,000 Deductible Limit

As one would expect, the financial risk cost increases as the Financial Rating and/or Collateral Ratio decreases.

The author next examined the impact of varying the deductible limit and constructed Table 2:

Table 2
Comparsion of Financial Risk Costs
Variation on Deductible Limit for Workers' Compensation

Deductible Limit	Finanicial Risk Charge	Relativity
100,000	**217,082**	0.887
250,000	**244,707**	1.000
500,000	255,820	1.045
1,000,000	257,406	1.052

Ultimate Deductible Loss Liability = 7,200,000
Financial Rating = 'B'
Original Collateral Collected = 3,600,000

As one would expect, the financial risk cost increases as the Deductible Limit increases. The author will leave it to the reader to examine the relativities at other Financial Ratings and Collateral Ratios.

The author also examined the differences in financial risk cost when one varies the line of business. Table 3 compares the financial risk costs between Workers' Compensation and Commercial Auto Liability.

Table 3
Comparison of Financial Risk Costs
Variation by Line of Business at $250,000 Deductible Limit

	Collateral Ratio			
Line	25%	50%	75%	100%
Workers' Comp	478,718	**244,707**	97,162	10,570
Auto Liability	478,142	**256,007**	100,137	13,455
Relativity	0.999	1.046	1.031	1.273

Ultimate Deductible Loss Liability = 7,200,000
Financial Rating = 'B'

At first glance, the results appear to be surprising. One normally thinks of Commercial Auto Liability as a quick payout line of business (at least relative to Workers' Compensation). In fact, when one compares Exhibit 2 (WC payout at $250,000 deductible limit) with Exhibit 7 (AL payout at $250,000 deductible limit), one notes that while the payout for WC ends at 20 years, the payout for Commercial Auto Liability ends at around 10 years. However, the financial risk cost calculation is not concerned with the payout of the ultimate deductible loss liability, per se, but with the payout of the *uncollateralized* liability. Thus at the 50% collateral ratio, for example, the payout at 28 months and beyond for Workers' Compensation (refer to Exhibit 4) is irrelevant, because it is estimated at that point in time that the policy will be fully collateralized. For Commercial Auto Liability (refer to Exhibit 8), it is estimated that it will be at the 29th month before the policy is considered fully collateralized.

CONCLUSION

With any type of deductible policy, insurance risk (up to the applicable deductible) is transferred from the insurance company to the insured. The benefits of this type of arrangement are noteworthy, both from the standpoint of the insured and the insurance company. However, in these types of arrangements, a financial risk has now been created for the insurance company. To the extent that this financial risk is uncollateralized, the author believes that the cost of this financial risk must be considered in the pricing.

It is the hope of the author that the above analysis provides a methodology for estimating this financial risk cost, or at the very least, identifies the factors that should be considered in estimating this charge.

EXHIBIT 1

Financial Risk Cost Calculation
Simple Example

Ultimate Deductible Loss Liability = 7,200,000
Original Collateral Collected = 3,600,000

Month	Remaining Liability	Incremental Payout %	One Month Paid Loss	10% Variance Load	Total Exposure	Collateral Held	Net Exposure	Probability of Default	Expected Default	Expected Recovery	Net Default	Financial Risk Charge
1	7,200,000	4.167%	300,000	720,000	7,920,000	3,600,000	4,320,000	1.0%	43,200	7,464	35,736	246,809
2	6,900,000	4.167%	300,000	690,000	7,590,000	3,600,000	3,990,000	1.0%	39,900	6,893	33,007	
3	6,600,000	4.167%	300,000	660,000	7,260,000	3,600,000	3,660,000	1.0%	36,600	6,323	30,277	
4	6,300,000	4.167%	300,000	630,000	6,930,000	3,600,000	3,330,000	1.0%	33,300	5,753	27,547	
5	6,000,000	4.167%	300,000	600,000	6,600,000	3,600,000	3,000,000	1.0%	30,000	5,183	24,817	
6	5,700,000	4.167%	300,000	570,000	6,270,000	3,600,000	2,670,000	1.0%	26,700	4,613	22,087	
7	5,400,000	4.167%	300,000	540,000	5,940,000	3,600,000	2,340,000	1.0%	23,400	4,043	19,357	
8	5,100,000	4.167%	300,000	510,000	5,610,000	3,600,000	2,010,000	1.0%	20,100	3,473	16,627	
9	4,800,000	4.167%	300,000	480,000	5,280,000	3,600,000	1,680,000	1.0%	16,800	2,902	13,898	
10	4,500,000	4.167%	300,000	450,000	4,950,000	3,600,000	1,350,000	1.0%	13,500	2,332	11,168	
11	4,200,000	4.167%	300,000	420,000	4,620,000	3,600,000	1,020,000	1.0%	10,200	1,762	8,438	
12	3,900,000	4.167%	300,000	390,000	4,290,000	3,600,000	690,000	1.0%	6,900	1,192	5,708	
13	3,600,000	4.167%	300,000	360,000	3,960,000	3,600,000	360,000	1.0%	3,600	622	2,978	
14	3,300,000	4.167%	300,000	330,000	3,630,000	3,600,000	30,000	1.0%	300	52	248	
15	3,000,000	4.167%	300,000	300,000	3,300,000	3,300,000	0	1.0%	0	0	0	
16	2,700,000	4.167%	300,000	270,000	2,970,000	2,970,000	0	1.0%	0	0	0	
17	2,400,000	4.167%	300,000	240,000	2,640,000	2,640,000	0	1.0%	0	0	0	
18	2,100,000	4.167%	300,000	210,000	2,310,000	2,310,000	0	1.0%	0	0	0	
19	1,800,000	4.167%	300,000	180,000	1,980,000	1,980,000	0	1.0%	0	0	0	
20	1,500,000	4.167%	300,000	150,000	1,650,000	1,650,000	0	1.0%	0	0	0	
21	1,200,000	4.167%	300,000	120,000	1,320,000	1,320,000	0	1.0%	0	0	0	
22	900,000	4.167%	300,000	90,000	990,000	990,000	0	1.0%	0	0	0	
23	600,000	4.167%	300,000	60,000	660,000	660,000	0	1.0%	0	0	0	
24	300,000	4.167%	300,000	30,000	330,000	330,000	0	1.0%	0	0	0	

Formulas:
Remaining Liability = Remaining Liability (prior) - One Month Paid Loss
One Month Paid Loss = Incremental Payout * Ultimate Loss Liaiblity
Variance Load = 10% * Remaining Liability
Total Exposure = Remaining Liability + Variance Load
Collateral Held = Min (Original Collateral Collected, Total Exposure)
Net Exposure = Total Exposure - Collateral Held
Expected Default = Net Exposure * Probability of Default
Expected Recovery = Expected Default * 20% / (1.05 ^ 3)
Net Default = Expected Default - Expected Recovery
Financial Risk Charge = NPV of Net Default Column at 5.0% annual interest rate

EXHIBIT 2

Financial Risk Cost Calculation
Assumed 20 year payout for Workers' Compensation at a $250,000 deductible limit

Month	Payout	Month	Payout	Month	Payout	Month	Payout	Month	Payout	Month	Payout
1	1.71%	43	71.17%	85	88.65%	127	93.87%	169	96.74%	211	98.75%
2	3.41%	44	71.92%	86	88.81%	128	93.93%	170	96.77%	212	98.78%
3	5.12%	45	72.67%	87	88.97%	129	93.98%	171	96.81%	213	98.81%
4	6.46%	46	73.36%	88	89.15%	130	94.07%	172	96.87%	214	98.88%
5	7.79%	47	74.05%	89	89.34%	131	94.16%	173	96.93%	215	98.94%
6	9.13%	48	74.74%	90	89.53%	132	94.25%	174	96.99%	216	99.01%
7	11.29%	49	75.25%	91	89.71%	133	94.31%	175	97.06%	217	99.04%
8	13.45%	50	75.76%	92	89.90%	134	94.37%	176	97.12%	218	99.08%
9	15.61%	51	76.28%	93	90.09%	135	94.43%	177	97.18%	219	99.11%
10	18.48%	52	76.81%	94	90.25%	136	94.52%	178	97.21%	220	99.17%
11	21.35%	53	77.35%	95	90.42%	137	94.61%	179	97.24%	221	99.24%
12	24.22%	54	77.88%	96	90.58%	138	94.70%	180	97.28%	222	99.30%
13	27.08%	55	78.40%	97	90.72%	139	94.76%	181	97.34%	223	99.34%
14	29.94%	56	78.91%	98	90.85%	140	94.82%	182	97.40%	224	99.37%
15	32.80%	57	79.43%	99	90.99%	141	94.88%	183	97.47%	225	99.40%
16	35.17%	58	79.96%	100	91.10%	142	94.97%	184	97.50%	226	99.44%
17	37.55%	59	80.50%	101	91.21%	143	95.06%	185	97.53%	227	99.47%
18	39.92%	60	81.04%	102	91.32%	144	95.15%	186	97.56%	228	99.50%
19	41.83%	61	81.39%	103	91.44%	145	95.21%	187	97.62%	229	99.57%
20	43.73%	62	81.75%	104	91.55%	146	95.27%	188	97.69%	230	99.63%
21	45.64%	63	82.10%	105	91.66%	147	95.33%	189	97.75%	231	99.70%
22	47.40%	64	82.47%	106	91.80%	148	95.39%	190	97.82%	232	99.73%
23	49.16%	65	82.83%	107	91.94%	149	95.45%	191	97.88%	233	99.77%
24	50.92%	66	83.19%	108	92.08%	150	95.51%	192	97.94%	234	99.80%
25	52.29%	67	83.57%	109	92.17%	151	95.57%	193	97.98%	235	99.83%
26	53.66%	68	83.94%	110	92.25%	152	95.63%	194	98.01%	236	99.87%
27	55.04%	69	84.32%	111	92.34%	153	95.69%	195	98.04%	237	99.90%
28	56.34%	70	84.68%	112	92.45%	154	95.75%	196	98.07%	238	99.93%
29	57.65%	71	85.04%	113	92.56%	155	95.82%	197	98.10%	239	99.97%
30	58.96%	72	85.40%	114	92.68%	156	95.88%	198	98.14%	240	100.00%
31	60.09%	73	85.64%	115	92.79%	157	95.94%	199	98.20%		
32	61.22%	74	85.89%	116	92.91%	158	96.00%	200	98.26%		
33	62.34%	75	86.13%	117	93.02%	159	96.06%	201	98.33%		
34	63.38%	76	86.41%	118	93.14%	160	96.15%	202	98.36%		
35	64.41%	77	86.68%	119	93.25%	161	96.25%	203	98.39%		
36	65.45%	78	86.96%	120	93.37%	162	96.34%	204	98.43%		
37	66.27%	79	87.21%	121	93.43%	163	96.40%	205	98.49%		
38	67.10%	80	87.47%	122	93.49%	164	96.46%	206	98.55%		
39	67.93%	81	87.72%	123	93.55%	165	96.53%	207	98.62%		
40	68.76%	82	87.98%	124	93.63%	166	96.59%	208	98.65%		
41	69.59%	83	88.24%	125	93.72%	167	96.65%	209	98.68%		
42	70.42%	84	88.50%	126	93.81%	168	96.71%	210	98.72%		

EXHIBIT 3

Financial Risk Cost Calculation
Estimated Cumulative Default Rates

Cumulative Default Rates by Rating Category (%)

Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
AAA	0.01	0.02	0.08	0.13	0.20	0.33	0.47	0.70	0.80	0.91
AA	0.04	0.08	0.15	0.24	0.36	3.51	0.68	0.82	0.90	1.00
A	0.10	0.23	0.34	0.50	0.69	0.88	1.09	1.35	1.61	1.89
BBB	0.47	0.79	1.09	1.67	2.20	2.75	3.19	3.59	3.91	4.22
BB	1.56	3.59	5.83	7.97	9.85	11.77	12.89	14.08	15.12	15.94
B	6.51	11.96	16.57	19.88	22.27	24.06	25.65	27.09	28.28	29.35
CCC	24.80	32.43	37.94	42.23	46.54	47.98	49.10	49.57	50.42	51.38

EXHIBIT 4

Financial Risk Cost Calculation
Real Example - Workers' Compensation at $250,000 deductible limit with "B" Financial Rating

Ultimate Deductible Loss Liability = 7,200,000
Original Collateral Collected = 3,600,000

Month	Remaining Liability	Incremental Payout %	One Month Paid Loss	10% Variance Load	Total Exposure	Collateral Held	Net Exposure	Probability of Default	Expected Default	Expected Recovery	Net Default	Financial Risk Charge
1	7,200,000	1.71%	122,882	720,000	7,920,000	3,600,000	4,320,000	0.54%	23,436	4,049	19,387	**244,707**
2	7,077,118	1.71%	122,882	707,712	7,784,830	3,600,000	4,184,830	0.54%	22,703	3,922	18,780	
3	6,954,237	1.71%	122,882	695,424	7,649,661	3,600,000	4,049,661	0.54%	21,969	3,796	18,174	
4	6,831,355	1.34%	96,276	683,136	7,514,491	3,600,000	3,914,491	0.54%	21,236	3,669	17,567	
5	6,735,079	1.34%	96,276	673,508	7,408,587	3,600,000	3,808,587	0.54%	20,662	3,570	17,092	
6	6,638,802	1.34%	96,276	663,880	7,302,683	3,600,000	3,702,683	0.54%	20,087	3,470	16,617	
7	6,542,526	2.16%	155,432	654,253	7,196,778	3,600,000	3,596,778	0.54%	19,513	3,371	16,141	
8	6,387,094	2.16%	155,432	638,709	7,025,803	3,600,000	3,425,803	0.54%	18,585	3,211	15,374	
9	6,231,661	2.16%	155,432	623,166	6,854,827	3,600,000	3,254,827	0.54%	17,657	3,051	14,607	
10	6,076,229	2.87%	206,664	607,623	6,683,852	3,600,000	3,083,852	0.54%	16,730	2,890	13,840	
11	5,869,565	2.87%	206,664	586,956	6,456,521	3,600,000	2,856,521	0.54%	15,497	2,677	12,819	
12	5,662,901	2.87%	206,664	566,290	6,229,191	3,600,000	2,629,191	0.54%	14,263	2,464	11,799	
13	5,456,236	2.86%	205,889	545,624	6,001,860	3,600,000	2,401,860	0.45%	10,908	1,885	9,024	
14	5,250,348	2.86%	205,889	525,035	5,775,382	3,600,000	2,175,382	0.45%	9,880	1,707	8,173	
15	5,044,459	2.86%	205,889	504,446	5,548,905	3,600,000	1,948,905	0.45%	8,851	1,529	7,322	
16	4,838,570	2.37%	170,941	483,857	5,322,427	3,600,000	1,722,427	0.45%	7,823	1,352	6,471	
17	4,667,630	2.37%	170,941	466,763	5,134,392	3,600,000	1,534,392	0.45%	6,969	1,204	5,765	
18	4,496,689	2.37%	170,941	449,669	4,946,358	3,600,000	1,346,358	0.45%	6,115	1,056	5,058	
19	4,325,749	1.91%	137,306	432,575	4,758,323	3,600,000	1,158,323	0.45%	5,261	909	4,352	
20	4,188,442	1.91%	137,306	418,844	4,607,286	3,600,000	1,007,286	0.45%	4,575	790	3,784	
21	4,051,136	1.91%	137,306	405,114	4,456,249	3,600,000	856,249	0.45%	3,889	672	3,217	
22	3,913,829	1.76%	126,606	391,383	4,305,212	3,600,000	705,212	0.45%	3,203	553	2,649	
23	3,787,224	1.76%	126,606	378,722	4,165,946	3,600,000	565,946	0.45%	2,570	444	2,126	
24	3,660,618	1.76%	126,606	366,062	4,026,680	3,600,000	426,680	0.45%	1,938	335	1,603	
25	3,534,012	1.37%	98,863	353,401	3,887,413	3,600,000	287,413	0.38%	1,104	191	913	
26	3,435,150	1.37%	98,863	343,515	3,778,665	3,600,000	178,665	0.38%	686	119	568	
27	3,336,287	1.37%	98,863	333,629	3,669,916	3,600,000	69,916	0.38%	269	46	222	
28	3,237,424	1.31%	94,236	323,742	3,561,167	3,561,167	0	0.38%	0	0	0	
29	3,143,189	1.31%	94,236	314,319	3,457,507	3,457,507	0	0.38%	0	0	0	
30	3,048,953	1.31%	94,236	304,895	3,353,848	3,353,848	0	0.38%	0	0	0	
31	2,954,717	1.13%	81,165	295,472	3,250,189	3,250,189	0	0.38%	0	0	0	
32	2,873,552	1.13%	81,165	287,355	3,160,907	3,160,907	0	0.38%	0	0	0	
33	2,792,387	1.13%	81,165	279,239	3,071,626	3,071,626	0	0.38%	0	0	0	
34	2,711,222	1.03%	74,421	271,122	2,982,344	2,982,344	0	0.38%	0	0	0	

Note:
For Definition of Formulas - see Exhibit 1
Incremental Payout %'s calculated from differences in Cumulative Payout %'s from Exhibit 2
Probability of Default calculated by taking 1/12th of differences in Cumulative Default Rates from Exhibit 3

EXHIBIT 5

Financial Risk Cost Calculation
Assumed 20 year payout for Workers' Compensation at a $100,000 deductible limit

Month	Payout	Month	Payout	Month	Payout	Month	Payout	Month	Payout	Month	Payout
1	1.77%	43	82.20%	85	94.70%	127	97.53%	169	98.62%	211	99.50%
2	3.55%	44	82.91%	86	94.79%	128	97.59%	170	98.62%	212	99.50%
3	5.32%	45	83.61%	87	94.88%	129	97.66%	171	98.62%	213	99.50%
4	6.92%	46	84.23%	88	95.00%	130	97.69%	172	98.65%	214	99.54%
5	8.52%	47	84.85%	89	95.12%	131	97.72%	173	98.68%	215	99.57%
6	10.12%	48	85.47%	90	95.24%	132	97.75%	174	98.72%	216	99.60%
7	12.72%	49	85.87%	91	95.33%	133	97.78%	175	98.75%	217	99.63%
8	15.31%	50	86.26%	92	95.42%	134	97.82%	176	98.78%	218	99.67%
9	17.91%	51	86.66%	93	95.51%	135	97.85%	177	98.81%	219	99.70%
10	21.37%	52	87.06%	94	95.60%	136	97.88%	178	98.85%	220	99.70%
11	24.83%	53	87.47%	95	95.69%	137	97.91%	179	98.88%	221	99.70%
12	28.30%	54	87.87%	96	95.79%	138	97.94%	180	98.91%	222	99.70%
13	31.73%	55	88.29%	97	95.85%	139	97.94%	181	98.91%	223	99.73%
14	35.17%	56	88.71%	98	95.91%	140	97.94%	182	98.91%	224	99.77%
15	38.61%	57	89.13%	99	95.97%	141	97.94%	183	98.91%	225	99.80%
16	41.47%	58	89.53%	100	96.06%	142	97.98%	184	98.91%	226	99.80%
17	44.33%	59	89.93%	101	96.15%	143	98.01%	185	98.91%	227	99.80%
18	47.19%	60	90.33%	102	96.25%	144	98.04%	186	98.91%	228	99.80%
19	49.46%	61	90.55%	103	96.31%	145	98.07%	187	98.94%	229	99.83%
20	51.73%	62	90.77%	104	96.37%	146	98.10%	188	98.98%	230	99.87%
21	54.00%	63	90.99%	105	96.43%	147	98.14%	189	99.01%	231	99.90%
22	56.09%	64	91.24%	106	96.49%	148	98.14%	190	99.01%	232	99.90%
23	58.18%	65	91.49%	107	96.56%	149	98.14%	191	99.01%	233	99.90%
24	60.28%	66	91.74%	108	96.62%	150	98.14%	192	99.01%	234	99.90%
25	61.90%	67	91.97%	109	96.65%	151	98.17%	193	99.04%	235	99.93%
26	63.52%	68	92.20%	110	96.68%	152	98.20%	194	99.08%	236	99.97%
27	65.15%	69	92.42%	111	96.71%	153	98.23%	195	99.11%	237	100.00%
28	66.61%	70	92.65%	112	96.77%	154	98.26%	196	99.14%	238	100.00%
29	68.08%	71	92.88%	113	96.84%	155	98.30%	197	99.17%	239	100.00%
30	69.54%	72	93.11%	114	96.90%	156	98.33%	198	99.21%	240	100.00%
31	70.78%	73	93.23%	115	96.96%	157	98.36%	199	99.24%		
32	72.02%	74	93.34%	116	97.02%	158	98.39%	200	99.27%		
33	73.26%	75	93.46%	117	97.09%	159	98.43%	201	99.30%		
34	74.34%	76	93.60%	118	97.12%	160	98.43%	202	99.30%		
35	75.43%	77	93.75%	119	97.15%	161	98.43%	203	99.30%		
36	76.51%	78	93.90%	120	97.18%	162	98.43%	204	99.30%		
37	77.38%	79	94.01%	121	97.24%	163	98.46%	205	99.34%		
38	78.25%	80	94.13%	122	97.31%	164	98.49%	206	99.37%		
39	79.11%	81	94.25%	123	97.37%	165	98.52%	207	99.40%		
40	79.91%	82	94.37%	124	97.40%	166	98.55%	208	99.44%		
41	80.70%	83	94.49%	125	97.43%	167	98.59%	209	99.47%		
42	81.50%	84	94.61%	126	97.47%	168	98.62%	210	99.50%		

EXHIBIT 6

Financial Risk Cost Calculation
Real Example - Workers' Compensation at $100,000 deductible limit with "B" Financial Rating

Ultimate Deductible Loss Liability = 7,200,000
Original Collateral Collected = 3,600,000

Month	Remaining Liability	Incremental Payout %	One Month Paid Loss	10% Variance Load	Total Exposure	Collateral Held	Net Exposure	Probability of Default	Expected Default	Expected Recovery	Net Default	Financial Risk Charge
1	7,200,000	1.77%	127,728	720,000	7,920,000	3,600,000	4,320,000	0.54%	23,436	4,049	19,387	217,082
2	7,072,272	1.77%	127,728	707,227	7,779,500	3,600,000	4,179,500	0.54%	22,674	3,917	18,756	
3	6,944,545	1.77%	127,728	694,454	7,638,999	3,600,000	4,038,999	0.54%	21,912	3,786	18,126	
4	6,816,817	1.60%	115,187	681,682	7,498,499	3,600,000	3,898,499	0.54%	21,149	3,654	17,495	
5	6,701,630	1.60%	115,187	670,163	7,371,793	3,600,000	3,771,793	0.54%	20,462	3,535	16,927	
6	6,586,443	1.60%	115,187	658,644	7,245,087	3,600,000	3,645,087	0.54%	19,775	3,416	16,358	
7	6,471,255	2.60%	186,884	647,126	7,118,381	3,600,000	3,518,381	0.54%	19,087	3,298	15,790	
8	6,284,371	2.60%	186,884	628,437	6,912,808	3,600,000	3,312,808	0.54%	17,972	3,105	14,867	
9	6,097,486	2.60%	186,884	609,749	6,707,235	3,600,000	3,107,235	0.54%	16,857	2,912	13,944	
10	5,910,602	3.46%	249,318	591,060	6,501,662	3,600,000	2,901,662	0.54%	15,742	2,720	13,022	
11	5,661,284	3.46%	249,318	566,128	6,227,412	3,600,000	2,627,412	0.54%	14,254	2,463	11,791	
12	5,411,966	3.46%	249,318	541,197	5,953,163	3,600,000	2,353,163	0.54%	12,766	2,206	10,560	
13	5,162,649	3.44%	247,524	516,265	5,678,913	3,600,000	2,078,913	0.45%	9,442	1,631	7,811	
14	4,915,125	3.44%	247,524	491,512	5,406,637	3,600,000	1,806,637	0.45%	8,205	1,418	6,788	
15	4,667,601	3.44%	247,524	466,760	5,134,361	3,600,000	1,534,361	0.45%	6,969	1,204	5,765	
16	4,420,077	2.86%	205,969	442,008	4,862,085	3,600,000	1,262,085	0.45%	5,732	990	4,742	
17	4,214,108	2.86%	205,969	421,411	4,635,519	3,600,000	1,035,519	0.45%	4,703	813	3,890	
18	4,008,140	2.86%	205,969	400,814	4,408,954	3,600,000	808,954	0.45%	3,674	635	3,039	
19	3,802,171	2.27%	163,287	380,217	4,182,388	3,600,000	582,388	0.45%	2,645	457	2,188	
20	3,638,884	2.27%	163,287	363,888	4,002,773	3,600,000	402,773	0.45%	1,829	316	1,513	
21	3,475,598	2.27%	163,287	347,560	3,823,157	3,600,000	223,157	0.45%	1,014	175	838	
22	3,312,311	2.09%	150,758	331,231	3,643,542	3,600,000	43,542	0.45%	198	34	164	
23	3,161,553	2.09%	150,758	316,155	3,477,708	3,477,708	0	0.45%	0	0	0	
24	3,010,794	2.09%	150,758	301,079	3,311,874	3,311,874	0	0.45%	0	0	0	
25	2,860,036	1.62%	116,863	286,004	3,146,040	3,146,040	0	0.38%	0	0	0	
26	2,743,173	1.62%	116,863	274,317	3,017,490	3,017,490	0	0.38%	0	0	0	
27	2,626,310	1.62%	116,863	262,631	2,888,941	2,888,941	0	0.38%	0	0	0	
28	2,509,446	1.46%	105,467	250,945	2,760,391	2,760,391	0	0.38%	0	0	0	
29	2,403,979	1.46%	105,467	240,398	2,644,377	2,644,377	0	0.38%	0	0	0	
30	2,298,513	1.46%	105,467	229,851	2,528,364	2,528,364	0	0.38%	0	0	0	
31	2,193,046	1.24%	89,257	219,305	2,412,350	2,412,350	0	0.38%	0	0	0	
32	2,103,789	1.24%	89,257	210,379	2,314,168	2,314,168	0	0.38%	0	0	0	
33	2,014,532	1.24%	89,257	201,453	2,215,985	2,215,985	0	0.38%	0	0	0	
34	1,925,275	1.08%	78,025	192,527	2,117,802	2,117,802	0	0.38%	0	0	0	

Note:
For Definition of Formulas - see Exhibit 1
Incremental Payout %'s calculated from differences in Cumulative Payout %'s from Exhibit 5
Probability of Default calculated by taking 1/12th of differences in Cumulative Default Rates from Exhibit 3

EXHIBIT 7

Financial Risk Cost Calculation
Assumed 20 year payout for Commercial Auto Liability at a $250,000 deductible limit

Month	Payout	Month	Payout	Month	Payout	Month	Payout	Month	Payout	Month	Payout
1	0.97%	43	78.83%	85	98.55%	127	100.00%	169	100.00%	211	100.00%
2	1.95%	44	79.83%	86	98.68%	128	100.00%	170	100.00%	212	100.00%
3	2.92%	45	80.84%	87	98.81%	129	100.00%	171	100.00%	213	100.00%
4	4.71%	46	81.83%	88	98.85%	130	100.00%	172	100.00%	214	100.00%
5	6.49%	47	82.83%	89	98.88%	131	100.00%	173	100.00%	215	100.00%
6	8.28%	48	83.82%	90	98.91%	132	100.00%	174	100.00%	216	100.00%
7	10.62%	49	84.84%	91	98.98%	133	100.00%	175	100.00%	217	100.00%
8	12.96%	50	85.86%	92	99.04%	134	100.00%	176	100.00%	218	100.00%
9	15.30%	51	86.88%	93	99.11%	135	100.00%	177	100.00%	219	100.00%
10	18.56%	52	87.50%	94	99.14%	136	100.00%	178	100.00%	220	100.00%
11	21.83%	53	88.11%	95	99.17%	137	100.00%	179	100.00%	221	100.00%
12	25.09%	54	88.73%	96	99.21%	138	100.00%	180	100.00%	222	100.00%
13	27.36%	55	89.35%	97	99.27%	139	100.00%	181	100.00%	223	100.00%
14	29.63%	56	89.96%	98	99.34%	140	100.00%	182	100.00%	224	100.00%
15	31.90%	57	90.58%	99	99.40%	141	100.00%	183	100.00%	225	100.00%
16	33.67%	58	91.22%	100	99.44%	142	100.00%	184	100.00%	226	100.00%
17	35.43%	59	91.86%	101	99.47%	143	100.00%	185	100.00%	227	100.00%
18	37.20%	60	92.51%	102	99.50%	144	100.00%	186	100.00%	228	100.00%
19	38.97%	61	93.12%	103	99.50%	145	100.00%	187	100.00%	229	100.00%
20	40.73%	62	93.73%	104	99.50%	146	100.00%	188	100.00%	230	100.00%
21	42.50%	63	94.34%	105	99.50%	147	100.00%	189	100.00%	231	100.00%
22	44.27%	64	94.61%	106	99.54%	148	100.00%	190	100.00%	232	100.00%
23	46.03%	65	94.88%	107	99.57%	149	100.00%	191	100.00%	233	100.00%
24	47.80%	66	95.15%	108	99.60%	150	100.00%	192	100.00%	234	100.00%
25	49.57%	67	95.39%	109	99.63%	151	100.00%	193	100.00%	235	100.00%
26	51.34%	68	95.63%	110	99.67%	152	100.00%	194	100.00%	236	100.00%
27	53.11%	69	95.88%	111	99.70%	153	100.00%	195	100.00%	237	100.00%
28	54.91%	70	96.16%	112	99.70%	154	100.00%	196	100.00%	238	100.00%
29	56.71%	71	96.43%	113	99.70%	155	100.00%	197	100.00%	239	100.00%
30	58.51%	72	96.71%	114	99.70%	156	100.00%	198	100.00%	240	100.00%
31	60.32%	73	96.96%	115	99.73%	157	100.00%	199	100.00%		
32	62.13%	74	97.21%	116	99.77%	158	100.00%	200	100.00%		
33	63.94%	75	97.47%	117	99.80%	159	100.00%	201	100.00%		
34	65.74%	76	97.59%	118	99.83%	160	100.00%	202	100.00%		
35	67.54%	77	97.72%	119	99.87%	161	100.00%	203	100.00%		
36	69.35%	78	97.85%	120	99.90%	162	100.00%	204	100.00%		
37	71.16%	79	97.94%	121	99.93%	163	100.00%	205	100.00%		
38	72.98%	80	98.04%	122	99.97%	164	100.00%	206	100.00%		
39	74.79%	81	98.14%	123	100.00%	165	100.00%	207	100.00%		
40	75.80%	82	98.23%	124	100.00%	166	100.00%	208	100.00%		
41	76.81%	83	98.33%	125	100.00%	167	100.00%	209	100.00%		
42	77.82%	84	98.43%	126	100.00%	168	100.00%	210	100.00%		

EXHIBIT 8

Financial Risk Cost Calculation
Real Example - Commercial Auto Liability $250,000 deductible limit with "B" Financial Rating

Ultimate Deductible Loss Liability = 7,200,000
Original Collateral Collected = 3,600,000

Month	Remaining Liability	Incremental Payout %	One Month Paid Loss	10% Variance Load	Total Exposure	Collateral Held	Net Exposure	Probability of Default	Expected Default	Expected Recovery	Net Default	Financial Risk Charge
1	7,200,000	0.97%	70,102	720,000	7,920,000	3,600,000	4,320,000	0.54%	23,436	4,049	19,387	256,007
2	7,129,898	0.97%	70,102	712,990	7,842,888	3,600,000	4,242,888	0.54%	23,018	3,977	19,041	
3	7,059,797	0.97%	70,102	705,980	7,765,776	3,600,000	4,165,776	0.54%	22,599	3,904	18,695	
4	6,989,695	1.79%	128,574	698,970	7,688,665	3,600,000	4,088,665	0.54%	22,181	3,832	18,349	
5	6,861,121	1.79%	128,574	686,112	7,547,233	3,600,000	3,947,233	0.54%	21,414	3,700	17,714	
6	6,732,547	1.79%	128,574	673,255	7,405,802	3,600,000	3,805,802	0.54%	20,646	3,567	17,079	
7	6,603,974	2.34%	168,522	660,397	7,264,371	3,600,000	3,664,371	0.54%	19,879	3,434	16,445	
8	6,435,452	2.34%	168,522	643,545	7,078,997	3,600,000	3,478,997	0.54%	18,874	3,261	15,613	
9	6,266,930	2.34%	168,522	626,693	6,893,623	3,600,000	3,293,623	0.54%	17,868	3,087	14,781	
10	6,098,409	3.26%	234,910	609,841	6,708,250	3,600,000	3,108,250	0.54%	16,862	2,913	13,949	
11	5,863,498	3.26%	234,910	586,350	6,449,848	3,600,000	2,849,848	0.54%	15,460	2,671	12,789	
12	5,628,588	3.26%	234,910	562,859	6,191,447	3,600,000	2,591,447	0.54%	14,059	2,429	11,630	
13	5,393,678	2.27%	163,443	539,368	5,933,046	3,600,000	2,333,046	0.45%	10,596	1,831	8,765	
14	5,230,235	2.27%	163,443	523,024	5,753,259	3,600,000	2,153,259	0.45%	9,779	1,690	8,090	
15	5,066,792	2.27%	163,443	506,679	5,573,471	3,600,000	1,973,471	0.45%	8,963	1,548	7,414	
16	4,903,349	1.77%	127,307	490,335	5,393,684	3,600,000	1,793,684	0.45%	8,146	1,407	6,739	
17	4,776,042	1.77%	127,307	477,604	5,253,647	3,600,000	1,653,647	0.45%	7,510	1,298	6,213	
18	4,648,735	1.77%	127,307	464,874	5,113,609	3,600,000	1,513,609	0.45%	6,874	1,188	5,687	
19	4,521,429	1.77%	127,117	452,143	4,973,571	3,600,000	1,373,571	0.45%	6,238	1,078	5,161	
20	4,394,311	1.77%	127,117	439,431	4,833,742	3,600,000	1,233,742	0.45%	5,603	968	4,635	
21	4,267,194	1.77%	127,117	426,719	4,693,913	3,600,000	1,093,913	0.45%	4,968	858	4,110	
22	4,140,076	1.77%	127,253	414,008	4,554,084	3,600,000	954,084	0.45%	4,333	749	3,585	
23	4,012,823	1.77%	127,253	401,282	4,414,106	3,600,000	814,106	0.45%	3,697	639	3,059	
24	3,885,570	1.77%	127,253	388,557	4,274,127	3,600,000	674,127	0.45%	3,062	529	2,533	
25	3,758,317	1.77%	127,334	375,832	4,134,149	3,600,000	534,149	0.38%	2,052	355	1,698	
26	3,630,983	1.77%	127,334	363,098	3,994,081	3,600,000	394,081	0.38%	1,514	262	1,252	
27	3,503,649	1.77%	127,334	350,365	3,854,014	3,600,000	254,014	0.38%	976	169	807	
28	3,376,314	1.80%	129,768	337,631	3,713,946	3,600,000	113,946	0.38%	438	76	362	
29	3,246,546	1.80%	129,768	324,655	3,571,201	3,571,201	0	0.38%	0	0	0	
30	3,116,778	1.80%	129,768	311,678	3,428,456	3,428,456	0	0.38%	0	0	0	
31	2,987,010	1.81%	130,197	298,701	3,285,711	3,285,711	0	0.38%	0	0	0	
32	2,856,813	1.81%	130,197	285,681	3,142,494	3,142,494	0	0.38%	0	0	0	
33	2,726,616	1.81%	130,197	272,662	2,999,278	2,999,278	0	0.38%	0	0	0	
34	2,596,419	1.80%	129,828	259,642	2,856,061	2,856,061	0	0.38%	0	0	0	

Note:
For Definition of Formulas - see Exhibit 1
Incremental Payout %'s calculated from differences in Cumulative Payout %'s from Exhibit 7
Probability of Default calculated by taking 1/12th of differences in Cumulative Default Rates from Exhibit 3