A PRICING MODEL FOR NEW VEHICLE EXTENDED WARRANTIES

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ABSTRACT

In this paper, we use a pure premium approach to price a new vehicle extended warranty.

Coverage provided by a new vehicle extended warranty begins where the manufacturer's factory warranty ends. New vehicle extended warranty coverage is triggered and limited by both time and mileage. Since factory coverage is constantly being enhanced, extended warranty coverage rarely remains the same long enough for comparable statistics to develop.

Our model segregates historical claims into several major types eg. power train, non-power train, rental car and towing. The pure premium for each claim type is defined as the component pure premium.

The model utilizes claim data by type to determine the monthly component pure premiums at each stage of the warranty's life.

Exposure of an extended warranty is measured by the number of months or miles exposed to a particular claim type. By matching the proper component pure premiums with their corresponding exposure units, we can build the total pure premium of the proposed extended warranty.

Using a net discount rate of 2.5% or 3.5% p.a., the model can estimate the present value of the prospective cost of a proposed extended warranty. Both inflation and interest rate are implicitly included.

INTRODUCTION

A new vehicle extended warranty (hereinafter called an extended warranty) is usually defined by two limits, time and mileage. An extended warranty will expire when either one of the limits is reached. For example, a 5 years/60,000 miles warranty means the warranty will expire either in 5 years, or when the odometer reading reaches 60,000 miles, whichever comes first. The extended warranty for new vehicles usually does not come into effect until the coverage under the manufacturer's warranty has expired. Recently, most manufacturers offered 3 years/36,000 miles of full (bumper to bumper) coverage.

The absence of any loss statistics in the initial stage of an extended warranty makes the projection of future claim cost difficult. In this paper, we develop a model which builds the total pure premium of an extended warranty from its basic components, namely pure premium by coverage, for every contract month exposed, or every thousand miles exposed, depending on the age of the contract.

METHODOLOGY AND ASSUMPTIONS

First, the exposures (in contract months) have to be determined. Let E(j,k) be the number of exposures for a specific contract type, age month j and effective month k. For a given effective month and contract type, we can project the amount of exposure E(j,k) for each month subsequent to its effective month. We assume no lapse in our projection. For example, say there are 1,000 contracts in a 6 years/60,000 miles program with effective month in July, 1989. Then, using the above method, we would project the following exposures:

calendar month	age in month,j	exposure E(j,k)
.	.	.
.	.	.
November 1991	29	1000
December 1991	30	1000
.	.	.
.	.	.
June 1995	72	1000
July 1995	73	0

The above projection assumes that all contracts are effective on the first day of each month. For the balance of the paper, we assume there is only one type of contract.

From the data, we can estimate the monthly pure premiums by age for each contract as follows:

LET N(j,k) be the claim count in month j of the contract term for contracts with effective dates in month k.

E(.,k) be the certificate count for contracts with effective dates in month k.

A(j,k) be the ultimate claim amount in month j of the contract term for contracts with effective dates in month k.

P(j) be the average pure premium in month j of the contract term.

P(j) = frequency X average claim size.

$$= \frac{\sum_k N(j,k)}{\sum_k E(.,k)} x \frac{\sum_k A(j,k)}{\sum_k N(j,k)} \qquad \ldots\ldots\ldots (1)$$

$$= \frac{\sum_k A(j,k)}{\sum_k E(.,k)}$$

This is usually calculated using the last 12 or 24 calendar months of data available for each age (month j). For contracts sold recently, the data has not reached the latter part of the contract term (when claims are more likely to be made), so the pure premiums have to be estimated from the more mature contracts with similar features.

The powerful feature of the model lies in the analysis of the monthly pure premium by coverage, hereinafter called the component pure premium. An extended warranty usually provides power train protection, non-power train component protection (eg.

brakes, air conditioning, electrical systems, etc.), towing, and even rental car coverage. It is rare that the terms of any extended warranty stay the same for very long, since the manufacturer's warranty changes yearly, and that dictates what the extended warranty can offer.

It is imperative that the underlying component pure premiums be known so that the pricing model can react to changes in the manufacturer's warranty. Therefore, equation (1) can be rewritten as

$$P(j) = \sum_i P_i(j) = \sum_i \left(\sum_k A_i(j,k) / \sum_k E(.,k)\right) \qquad \ldots\ldots. (2)$$

WHERE $P_i(j)$ is the component pure premium of a specific coverage i (eg. power train, non-power train components, etc.) in month j of the contract term,

$A_i(j,k)$ is the ultimate claim amount of a specific coverage i, in month j of the contract term, for contracts with effective dates in month k,

$P(j)$ is the pure premium of a full coverage extended warranty in month j of the contract term,

THEN $$P(j) = \sum_{i=1}^{n} P_i(j)$$

It follows that the total pure premium of a full coverage extended warranty is given by:

$$P=\sum_{j=1}^{m} P(j)=\sum_{j=1}^{m}\sum_{i=1}^{n} P_i(j) \qquad \ldots\ldots..(3)$$

WHERE m is the length of the contract term expressed in number of months

n is the number of coverages

Data

In order to utilize this model, historical claims and sales information must be available in sufficient detail. Sales information should be available by effective month (ie., the starting point of the manufacturer's coverage). Claims amount information (related to the sales) should be available by coverage, age, effective month (ie. the starting point of the manufacturer's coverage) and odometer reading. If frequency and severity are to be analyzed separately, claim count information must also be available.

Loss Development

Among warranty insurers (and self-insurers), there are two ways of accounting for losses. One approach is to record claims only when payments are made and estimate the unpaid claims on a bulk basis. Another approach is to record a case estimate when a repair is authorized. Case estimates are usually accurate, but occasional adjustments are necessary when the actual invoices are processed.

When the second approach is used, it is usually safe to treat the recorded losses as the ultimate amount. *With the first approach, the reported payments have to be* developed to an ultimate basis by lag factors as shown below:

Lag Factors, L_e (Percentage of Ultimate Claim amount) by Report Month

	Report Month			
	0	1	2	3
Age in months j	L_0	L_1	L_2	L_3
1 to 12	.75	.90	.95	.99
13 to 24	.65	.85	.90	.98
25 to 36	.60	.80	.90	.98
37 to 48	.60	.80	.90	.98
49 to 60	.60	.80	.90	.98

Lag factors, like those displayed above, can be determined by comparing cumulative loss statistics at various reporting levels. Based on historical data, we estimate $L_e(j)$ as follows:

$$L_e(j) = \frac{\text{cumulative reported losses to report level e, for contracts at age j months}}{\text{ultimate losses for contracts at age j months}}$$

If we are using the last twelve calendar months of data, (1,...12) to estimate the $P_i(j)$'s, then the $A_i(j,k)$'s in equation (2) can be developed to an ultimate basis as follows:

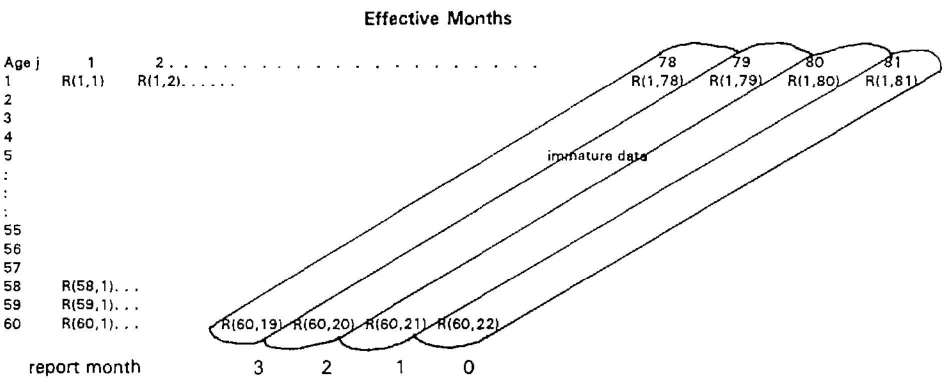
$$A_i(j,k) = R_i(j,k)/L_e$$

WHERE R_i (j,k) are the payments (up to the valuation date) for claims in month j of the contract term, for contracts with effective dates in month k.

$$L_e(j) = \begin{cases} \text{lag factor applicable for claim amounts up to report level e} \\ \text{1, for report level} \geq 4 \end{cases}$$

e = valuation month - k

Alternatively, all R_i (j,k) and N_i (j,k) not at the ultimate level have to be excluded in the equation. (The last few diagonals of the data triangles have to be excluded.) See the following schematic diagram:



Trending

Frequency of an extended warranty tends to increase with the age of the contract. However, for a given age, there is usually no trend. Severity also varies with the age of the contract, mainly caused by different mix of claims (eg. power train versus other types). However, inflation also plays a role. Short term severity trends (less than one year) can be estimated with some accuracy, since the mechanic's hourly rate usually changes once a year and price increases on parts can be obtained from the manufacturers in advance.

There are two components of trend, one from the experience period to the average effective date of the next rating program (t_0) and another from the average effective date to the repair date (t_j).

The first component, with a fixed trending period, can be determined from the historical average claim sizes if the volume of data is credible. Otherwise, an automotive repair index can be used to determine the first trend.

For example, the following data is available; the experience period is 1 April 1991 to 31 March 1992 and the average effective date is 1 Jan 1993.

		Average claim size	Garage rate index	Parts index	Selected
31 March 1991		$300	100	100	
30 Sept 1991		$308	104	102	
31 March 1992		$312	108	104	
31 Dec 1992			110 Est	105 Est	
Indicated trend	6 mo.	312/308	108/104	104/102	
	12 mo.	312/300	108/100	104/100	
Trend from 30/9/91 to 31/12/92		$(1.04)^{1.25}$	110/104	105/102	
	t_0	1.050	1.058	1.029	1.05

Equation (2) becomes

$$P_i(j) = \sum_k A_i(j,k) * t_0 / \sum_k E(.,k) \qquad \text{............(2a)}$$

WHERE t_0 is the trend factor from the average experience date to the average effective date of the rating program

The second trend is prospective and can cover a relatively long period. Since different makes/models can involve substantive engineering changes, it is usually not appropriate to use the past frequency trend in the second trending period. A zero trend is probably the only unbiased estimate, unless relevant quality control data about the new model is available.

Long term severity trends (over 1 year) are more related to the engineering design of new models, exchange rate (in the case of Japanese and European makes), and general wage increases. Therefore, it is difficult to estimate trends with any precision.

Since interest rate (ie. investment yield) is usually higher than the general inflation rate over a long period, the net discount rate (interest rate less annual inflation rate) should be positive, say 2.5% to 3%. The trend of pure premiums can be implicitly included by calculating claims cost at a discount rate of 2.5% or 3%. If the net discount rate is 2.5% p.a., then the present value of the selected pure premium for coverage i in month j is given by:

$$P_i(j) / [t_j]^{j/12} = P_i(j) / [(1.025)^{j/12}]$$

Credibility

Extended warranty is a high frequency and low severity coverage (a claim rarely exceeds $5,000), with the variation between loss amounts (at like ages) being quite small. As a result, loss statistics for a given age develop quickly with a great deal of stability. Although we have not developed a formal credibility procedure, we have utilized an informal one for some time with some success. Depending on the stability of frequency and severity for a given age, we either accept the indicated pure premium, or reject it. In the latter case, we use our prior selected pure premium estimate, adjusted for inflation.

Mileage Variation

Experience shows that claims increase with mileage driven. For the same type of driving, drivers who drive more per year will have their claims earlier in time. If the historical data utilized in the pure premium calculations is from a group of drivers with driving patterns similar to the population being priced, then the indicated pure premiums will correctly reflect the underlying exposure. However, if the population being priced is expected to have a much different driving pattern than the historical group, then an adjustment may be necessary. The model can readily accommodate this situation.

Up to this point, our discussion has ignored the impact of driving pattern on claim cost. In order to account for differences in driving pattern, we must limit the historical claims to certain odometer readings. If we define a "standard" driver to be someone who drives 1,000 miles per month (or any other convenient figure), then we can recast the historical claims into standard drivers experience by excluding claims whose odometer reading exceeds the term of the contract in months, times 1,000.

Suppose we have the claims experience of a 5 years/80,000 miles plan and we want to know the pure premiums of a standard driver in this plan. The true loss exposure of a standard driver is only 5 years/60,000 miles. Therefore, all claims with odometer readings exceeding 60,000 miles should be excluded in the pure premium estimation.

(Exhibit 1 shows an example of such an adjustment.)

Equation (2a) becomes

$$\hat{P}_i(j) = \sum_k \hat{A}_i(j,k) * t_0 / \sum_k E(.,k) \qquad \ldots\ldots (2b)$$

Where $\hat{A}_i$ (j,k) is the ultimate claim amount in contract month j, effective month k and odometer reading not exceeding m times 1,000 miles, m being the term of the contract in months.

$\hat{P}_i$ (j) *is the standard monthly pure premium for coverage* i *and* contract month j.

If someone drives twice the amount of the standard driver (ie. 2,000 miles per month), then his monthly pure premium should be 2 $\hat{P}_i$ (j), while his extended warranty is in-force (ie. *neither time or mileage limit has been exceeded*).

Suppose historical data (trended to the average effective date) indicates that the standard pure premium per month (or 1,000 miles) for power train coverage is about \$10 per month. Further suppose that the manufacturer covers power train repairs for 5 years/60,000 miles, the extended warranty provides coverage for 6 years/72,000 miles, and we wish to estimate the cost of power train coverage for someone driving 24,000 miles per annum. Extended warranty coverage will begin after only 30 months for this type of driver (60,000/24,000 = 2.5 years), since the mileage limit of the manufacturer's warranty will have been used up. This driver's extended warranty coverage will expire after 36 months (72,000/24,000 = 3.0 years) since the mileage limit of the extended warranty will have been used up. The extended warranty in this example, provides only 6 months of coverage to this driver from month 31 to month 36.

Also, this type of driver will cost twice as much per month of coverage (ie. $20 per month) as a standard driver (ie. a driver who drives 1,000 miles per month) as long as the contract is in force. While the total power train pure premium of the standard driver and the one driving 24,000 miles per year is identical in this example, the timing of claims is much earlier in the case of the high mileage driver. The present value of claims will usually be higher for the high mileage drivers than the standard drivers, since they tend to have their claims earlier in time.

Net present value

Once the non-discounted component pure premiums are trended to the average effective date of the rating program (using equation 2b), we can project the cashflow pattern of the proposed extended warranty.

The implicit assumption in the model is that higher exposed mileage will translate into higher claim cost. Suppose a component part, by design, will fail in about 30,000 miles. Someone who drives 30,000 miles annually will probably have a claim in only 1 year while another driver who drives 10,000 miles annually will probably have a claim in 3 years.

From past claims records (showing date of repair and odometer reading) or external sources, we can roughly estimate the distribution of the annual mileage of extended warranty buyers. If $d_1, \ldots, d_y$ is the distribution of drivers by mileage driven among extended warranty buyers, and $w_1, \ldots, w_y$ are the corresponding annual mileages (expressed as multiples of a standard driver's mileage), then the weighted monthly pure premium is given by:

$$\hat{P}_i(j) * (d_1 w_1 + \ldots d_y w_y)$$

as long as the extended warranty is still inforce.

Equation (3) can be rewritten as:

$$P = \sum_{j=1}^{m} CF(j) = \sum_{j=1}^{m} \sum_{i=1}^{n} P_i(j) \qquad \ldots\ldots.(3a)$$

$$P = \sum_{j=1}^{m} CF(j) = \sum_{j=1}^{m} \sum_{i=1}^{n} \hat{P}_i(j) * (d_1 w_1 + \ldots + d_y w_y) \qquad \ldots\ldots(3b)$$

WHERE $P_i(j)$ are the selected pure premiums

$\hat{P}_i(j)$ are the standard monthly pure premiums

CF(j) is cashflow in month j

If 1.025 is the net discount rate, then the net present value of the total pure premium becomes

$$PP=\sum_{j=1}^{m} CF(j)/(1.025)^{j/12} \qquad .....(4)$$

assuming payments are made at the end of each month of repair.

A NUMERICAL EXAMPLE:

A warranty company has organized its claims data in four simple coverages: power train, non-power train, towing, and rental car.

From past experience with data limited to 5 years/60,000 miles and trended to the average effective date of the new coverage, we found

the average power train monthly standard pure premium	$\hat{P}_1(n) = 10$ for $n > 24$
(See Exhibit 1 for details)	
the ave. non-power train monthly standard pure premium	$\hat{P}_2(n) = 6$ for $n > 12$
the average towing monthly standard pure premium	$\hat{P}_3(n) = .5$ for $n > 12$
the average rental car monthly standard pure premium	$\hat{P}_4(n) = .5$ for $n > 0$

During the experience period, the underlying manufacturer's warranty was 1 year/12,000 miles full coverage, 2 years/24,000 miles power train, while the extended warranty was adjusted to 5 years/60,000 miles full coverage.

Suppose the new manufacturer's warranty is enhanced to 3 years/36,000 miles full coverage (but no rental car coverage), 5 years/60,000 miles power train, and one has to price a 6 years/72,000 miles full coverage extended warranty (including rental car coverage).

The proposed extended warranty will provide one year of power train coverage, three years of non-power train coverage, three years of towing coverage, and six years of rental car coverage.

During the experience period, the extended warranty did not provide any rental car coverage. However, we estimate that the frequency of a rental car claim will be one-quarter that of a towing claim, while the severity of a rental car claim will be four times that of a towing claim. Thus, we estimate the monthly cost of rental car coverage to be about $0.50.

Before considering the cashflow pattern, the non-discounted ultimate pure premium of a standard driver for this contract is made up of:

power train $$\sum_{61}^{72} \hat{P}_1(n) = 12 \; x \; \$10 = \$120$$

non-power train $$\sum_{37}^{72} \hat{P}_2(n) = 36 \; x \; \$6 = \$216$$

towing $$\sum_{37}^{72} \hat{P}_3(n) = 36 \; x \; \$0.50 = \$18$$

rental car $$\sum_{1}^{72} \hat{P}_4(n) = 72 \; x \; \$0.50 = \$36$$

total non-discounted standard pure premium	$\hat{P}=\sum_{n=1}^{72} \hat{P}(n) =\sum_{n=1}^{72} \hat{P}_1(n) +\hat{P}_2(n) +\hat{P}_3(n) +\hat{P}_4(n) = \$390$

$\hat{P}_1(n) = \$10$ is, by design, only appropriate for someone who drives 12,000 miles annually. For someone who drives 15,000 annually, his component 1 pure premium becomes \$12.50 (10 x 15/12). However, since the contract is limited to 72,000 miles in aggregate, we would expect the latter to use up his coverage in only 57.6 months (as opposed to 72 months). His component 1 pure premium in month 58 represents only a partial month of exposure, and equals \$7.50 (0.6 x \$12.50). (See Exhibit 2 column P1 in 15,000 block 20th Qtr entry.)

Suppose the plan in question shows that 65% of drivers drive 12,000 miles per year, 25% of drivers drive 15,000 miles per year, and 10% of drivers drive 24,000 miles per year. The non-discounted pure premiums by coverage, weighted by the above driving patterns, are shown in Exhibit 2. (To facilitate the display of the results, the data has been grouped into quarters.) Next, we compute a discounted weighted pure premium reflecting claims inflation and the time value of money. We have assumed a net discount rate of 2.5% per annum and claims are paid uniformly throughout each development quarter. The discounted pure premiums are shown in Exhibit 3.

Finally, we load the discounted pure premium for expenses and profit to determine the gross rate.

$$\text{Gross Rate} = \frac{PP + FE}{1 - (VE + C)}$$

PP - discounted pure premium

FE - fixed expenses

VE - variable expenses as a % of gross premium

C - profit and contingencies load.

Exhibit 1

Actual Power Train Experience Based on 4/91 to 3/92 data limited to 5 years/60,000 miles

Age (in mos)	Frequency Per Contract Month	Average Claim Size	Monthly Pure Premium $\hat{P}_1(j)$	Quarterly Pure Premium $3 \times \hat{P}_1(j)$
1-3	0.000	0	0.00	0.00
4-6	0.000	0	0.00	0.00
7-9	0.000	0	0.00	0.00
10-12	0.001	150	0.15	0.45
13-15	0.002	140	0.28	0.84
16-18	0.003	200	0.60	1.80
19-21	0.005	210	1.05	3.15
22-24	0.007	220	1.54	4.62
25-27	0.020	280	5.60	16.80
28-30	0.030	280	8.40	25.20
31-33	0.035	260	9.10	27.30
34-36	0.040	250	10.00	30.00
37-39	0.038	250	9.50	28.50
38-42	0.040	280	11.20	33.60
43-45	0.035	275	9.63	28.89
46-48	0.030	350	10.50	31.50
49-51	0.036	300	10.80	32.40
52-54	0.035	280	9.80	29.40
55-57	0.030	290	8.70	26.10
58-60	0.025	300	7.50	22.50
Total				343.05 *

Average experience date = 1991-10-01

Average rating date = 1993-01-01

Selected trend = $1.04^{1.25} = 1.05$

Total power pure premium = $\sum_{j=1}^{60} \hat{P}_1(j) = (343.05)*1.05 = 360.20$

Power train exposure = 60 - 24 = 36 months

Average monthly pure premium = 360.20/36 = 10

* this total is three times the sum of the monthly pure premium column; each monthly pure premium entry is applicable for a three month period.

EXHIBIT 2

NON - DISCOUNTED COMPONENT PURE PREMIUMS

	12,000				24,000				15,000				Total				
Dev.	65%				10%				25%				100%				
Qtr.	P1	P2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P4	P
1Q				1.50				3.00				1.875	0.00	0.00	0.00	1.74	1.74
2Q				1.50				3.00				1.875	0.00	0.00	0.00	1.74	1.74
3Q				1.50				3.00				1.875	0.00	0.00	0.00	1.74	1.74
4Q				1.50				3.00				1.875	0.00	0.00	0.00	1.74	1.74
5Q				1.50				3.00				1.875	0.00	0.00	0.00	1.74	1.74
6Q				1.50				3.00				1.875	0.00	0.00	0.00	1.74	1.74
7Q				1.50		36.00	3.00	3.00				1.875	0.00	3.60	0.30	1.74	5.64
8Q				1.50		36.00	3.00	3.00				1.875	0.00	3.60	0.30	1.74	5.64
9Q				1.50		36.00	3.00	3.00				1.875	0.00	3.60	0.30	1.74	5.64
10Q				1.50		36.00	3.00	3.00		9.00	0.75	1.875	0.00	5.85	0.49	1.74	8.08
11Q				1.50	60.00	36.00	3.00	3.00		22.50	1.88	1.875	6.00	9.23	0.77	1.74	17.74
12Q				1.50	60.00	36.00	3.00	3.00		22.50	1.88	1.875	6.00	9.23	0.77	1.74	17.74
13Q		18.00	1.50	1.50						22.50	1.88	1.875	0.00	17.33	1.44	1.44	20.21
14Q		18.00	1.50	1.50						22.50	1.88	1.875	0.00	17.33	1.44	1.44	20.21
15Q		18.00	1.50	1.50						22.50	1.88	1.875	0.00	17.33	1.44	1.44	20.21
16Q		18.00	1.50	1.50						22.50	1.88	1.875	0.00	17.33	1.44	1.44	20.21
17Q		18.00	1.50	1.50					37.50	22.50	1.88	1.875	9.38	17.33	1.44	1.44	29.59
18Q		18.00	1.50	1.50					37.50	22.50	1.88	1.875	9.38	17.33	1.44	1.44	29.59
19Q		18.00	1.50	1.50					37.50	22.50	1.88	1.875	9.38	17.33	1.44	1.44	29.59
20Q		18.00	1.50	1.50					7.50	4.50	0.38	0.380	1.88	12.83	1.07	1.07	16.84
21Q	30.00	18.00	1.50	1.50									19.50	11.70	0.98	0.98	33.15
22Q	30.00	18.00	1.50	1.50									19.50	11.70	0.98	0.98	33.15
23Q	30.00	18.00	1.50	1.50									19.50	11.70	0.98	0.98	33.15
24Q	30.00	18.00	1.50	1.50									19.50	11.70	0.98	0.98	33.15
	120.00	216.00	18.00	36.00	120.00	216.00	18.00	36.00	120.00	216.00	18.00	36.01	120.00	216.00	18.00	36.01	389.97

discount rate 2.50%

DISCOUNTED COMPONENT PURE PREMIUMS

EXHIBIT 3

	12,000				24,000				15,000				Total				
Dev.	65%				10%				25%				100%				
Qtr.	P1	P2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P4	P1	P2	P3	P4	P
1Q	0.00	0.00	0.00	1.50	0.00	0.00	0.00	2.99	0.00	0.00	0.00	1.87	0.00	0.00	0.00	1.74	1.74
2Q	0.00	0.00	0.00	1.49	0.00	0.00	0.00	2.97	0.00	0.00	0.00	1.86	0.00	0.00	0.00	1.73	1.73
3Q	0.00	0.00	0.00	1.48	0.00	0.00	0.00	2.95	0.00	0.00	0.00	1.85	0.00	0.00	0.00	1.72	1.72
4Q	0.00	0.00	0.00	1.47	0.00	0.00	0.00	2.94	0.00	0.00	0.00	1.83	0.00	0.00	0.00	1.71	1.71
5Q	0.00	0.00	0.00	1.46	0.00	0.00	0.00	2.92	0.00	0.00	0.00	1.82	0.00	0.00	0.00	1.70	1.7
6Q	0.00	0.00	0.00	1.45	0.00	0.00	0.00	2.90	0.00	0.00	0.00	1.81	0.00	0.00	0.00	1.69	1.69
7Q	0.00	0.00	0.00	1.44	0.00	34.58	2.88	2.88	0.00	0.00	0.00	1.80	0.00	3.46	0.29	1.67	5.42
8Q	0.00	0.00	0.00	1.43	0.00	34.37	2.86	2.86	0.00	0.00	0.00	1.79	0.00	3.44	0.29	1.66	5.39
9Q	0.00	0.00	0.00	1.42	0.00	34.16	2.85	2.85	0.00	0.00	0.00	1.78	0.00	3.42	0.29	1.65	5.35
10Q	0.00	0.00	0.00	1.41	0.00	33.95	2.83	2.83	0.00	8.49	0.71	1.77	0.00	5.52	0.46	1.64	7.62
11Q	0.00	0.00	0.00	1.41	56.23	33.74	2.81	2.81	0.00	21.09	1.76	1.76	5.62	8.65	0.72	1.64	16.63
12Q	0.00	0.00	0.00	1.40	55.89	33.53	2.79	2.79	0.00	20.96	1.75	1.75	5.59	8.59	0.72	1.63	16.53
13Q	0.00	16.66	1.39	1.39	0.00	0.00	0.00	0.00	0.00	20.83	1.74	1.74	0.00	16.04	1.34	1.34	18.72
14Q	0.00	16.56	1.38	1.38	0.00	0.00	0.00	0.00	0.00	20.70	1.73	1.73	0.00	15.94	1.33	1.33	18.6
15Q	0.00	16.46	1.37	1.37	0.00	0.00	0.00	0.00	0.00	20.57	1.71	1.71	0.00	15.84	1.32	1.32	18.48
16Q	0.00	16.36	1.36	1.36	0.00	0.00	0.00	0.00	0.00	20.45	1.70	1.70	0.00	15.75	1.31	1.31	18.37
17Q	0.00	16.26	1.35	1.35	0.00	0.00	0.00	0.00	33.87	20.32	1.69	1.69	8.47	15.65	1.30	1.30	26.72
18Q	0.00	16.16	1.35	1.35	0.00	0.00	0.00	0.00	33.66	20.20	1.68	1.68	8.42	15.55	1.30	1.30	26.57
19Q	0.00	16.06	1.34	1.34	0.00	0.00	0.00	0.00	33.45	20.07	1.67	1.67	8.36	15.46	1.29	1.29	26.4
20Q	0.00	15.96	1.33	1.33	0.00	0.00	0.00	0.00	6.65	3.99	0.33	0.34	1.66	11.37	0.95	0.95	14.93
21Q	26.43	15.86	1.32	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.18	10.31	0.86	0.86	29.21
22Q	26.27	15.76	1.31	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.08	10.24	0.85	0.85	29.02
23Q	26.11	15.67	1.31	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.97	10.19	0.85	0.85	28.86
24Q	25.95	15.57	1.30	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.87	10.12	0.85	0.85	28.68
	104.76	193.34	16.11	33.47	112.12	204.33	17.02	34.69	107.63	197.67	16.47	33.95	106.22	195.53	16.30	33.72	351.79