Credit Life Minimum Valuation Standard Recommendation

In May of 2001 the Credit Insurance Experience Committee was asked to respond to the National Association of Insurance Commissioner's request to the Society of Actuaries to develop a recommendation for a uniform national valuation standard for credit life insurance policy reserves.

The enclosed report contains the recommendation along with supporting material.

The Committee recommends that the 200X CSO Male Composite Ultimate Table be used for the valuation of credit life policy reserves using the dynamic interest rate appropriate for the original term of insurance. For joint life coverage the Committee recommends that the reserve be set assuming 200X CSO Male Composite Ultimate Table using twice the mortality for the age of the primary insured. Credit insurers do not normally maintain gender specific records, so certificates of both genders should be reserved on the male table.

The recommended standard is set at a level such that 23 of the 27 companies contributing data to the study, or 85%, showed aggregate mortality less than or equal to the standard. Overall this standard provides a 27% margin over the experience from 1998 and 1999.

Credit Life Mortality and Minimum Valuation Standard
Credit Insurance Experience Committee of the Society of Actuaries

I. Introduction

The Society of Actuaries has charged this committee to study credit life mortality and to answer the National Association of Insurance Commissioner's request to the Society of Actuaries to develop a recommendation for a uniform national valuation standard for credit life insurance policy reserves.

A review of the 50 states' and District of Columbia's laws and regulations found that only 14 states had specific policy reserve valuation requirements for credit life insurance. Inquiries were then made to the other State Departments of Insurance to determine the reserve standard they required. Appendix 1 provides what the Committee believes is the standard by state. There are situations where one company was approved to use a standard different from another company's approved standard. Where this occurred or where there is some question about the requirement, we left the reserve basis blank. The Committee found that the most common valuation standards cited were: 1958 CSO, 130% of 1958 CSO (or its near equivalent 1958 CET), 1980 CSO and the 1980 CET.

The Committee agreed to study the actual credit life mortality for a two-year period, calendar years 1998 and 1999. Death claims incurred during this two-year period and paid by the data collection date were to be included. The data collection date was the summer of 2001, which would allow a minimum of 18 months following date of death for a claim to be paid. The few death claims that may remain unpaid by the summer of 2001 were considered immaterial. The Committee agreed to limit the study to single premium credit life insurance. This was considered appropriate because it is the single premium business where mortality based policy reserves are held. Further, many companies do not maintain in their system exposure data on their monthly outstanding credit life business.

II. Description of the Data

On July 12, 2001 a request was mailed out to credit insurers from Steven L. Ostlund, Chair of the Credit Insurance Experience Committee, to contribute to a credit life mortality study. All member companies of the Consumer Credit Insurance Association (CCIA) were urged to contribute. A special effort was made to encourage any company with $1,000,000 or more of 1999 credit life single premium, whether a member of the CCIA or not, to join in the study. Appendix 2 is a copy of the request, the data requirements and the collection and processing methods used for the study.

Some companies process segments of their single premium business in summary. This is generally done for policyholders that have very small credit transactions where the cost to process certificate detail is prohibitive. The companies were asked to report data for their single premium business only where detail certificate or policy exposure information is available.

Twenty-nine companies contributed data to the study. The Committee ended up using the data from 27 of the companies. Two companies' data were found not to be useable. The list of the 29 contributors is shown in Appendix 3.

Credit life insurance is generally written with limited underwriting (a few general health questions) or no underwriting using the states' prima facie rates. Prima facie rates in each of the states do not vary by gender and do not vary issue age. We requested companies report their data by gender, by underwritten versus not underwritten and by type of lender, if available. We found many companies did not record this information in their system since it is not required for determining the credit life premium. Therefore, the Committee chose not to study differences in mortality by gender, underwriting status or type of lender.

Many companies assign a default age when applications are submitted without an age or date of birth rather than reject the application. The companies will select and assign a default age that, on average, will result in a reserve value that will match the average reserve value for their business. This age typically is 3 to 5 years higher than the arithmetic average age. Most companies do not store an indicator in their in-force file when an average age is assigned. For those companies that used a default age, there was a noticeable spike in the exposure at the default age. Some companies will vary the default age for the different markets it writes in such as auto dealer, bank, credit union, retail, finance company, etc. and, as a result, there were two or more noticeable spikes in their exposure.

Different techniques were tried to eliminate the spikes in exposure. One method was to compare the spike in exposure by company to the surrounding ages and spread the apparent excess to all ages based on their weighted exposure. In the end the Committee chose to smooth out the exposure data by company using the Karup King formula. The sum of the smoothed exposures was set equal to the sum of the raw data exposures and any underage or excess was spread by the weighted smoothed exposures. An example of the process used to smooth the exposure is shown in Appendix 4.

III. Results

Mortality rates were computed by both amount and number. The results are shown in the two tables below by five-year age brackets for all companies combined. Also shown are the expected mortality rates using 100% of the new 200X CSO Male Composite Ultimate Table mortality rates.

Table 1 by Amount

	By Amount			Expected	Expected	Actual to
Age	Grouped Exposures	Grouped Claims	Mortality Rate	Mortality Rate	Claims	Expected
22	9,298,325,546	8,679,622	0.933	0.98	9,075,267	95.64%
27	12,140,464,609	8,590,969	0.708	1.14	13,869,316	61.94%
32	13,698,973,550	11,993,194	0.875	1.15	15,788,126	75.96%
37	16,863,356,112	18,735,445	1.111	1.40	23,689,304	79.09%
42	19,912,780,285	35,453,989	1.780	2.09	41,575,038	85.28%
47	20,244,601,986	51,416,668	2.540	3.22	65,310,940	78.73%
52	18,230,572,297	72,361,215	3.969	4.78	87,351,612	82.84%
57	14,771,537,170	91,693,109	6.207	7.96	117,887,105	77.78%
62	10,456,908,824	104,136,763	9.959	13.10	137,625,565	75.67%
67	3,820,622,692	51,536,277	13.489	21.06	81,012,684	63.62%
72	319,939,790	4,662,188	14.572	33.17	10,691,014	43.61%
Total	139,758,082,861	459,259,438	3.286	4.321	603,875,972	76.05%

Table 2 by Number

	By Number			Expected	Expected	Actual to
Age	Grouped Exposures	Grouped Claims	Mortality Rate	Mortality Rate	Claims	Expected
22	1,653,980	1,649	0.997	0.976	1,614	102.13%
27	2,021,469	1,557	0.770	1.142	2,309	67.41%
32	2,115,176	2,043	0.966	1.152	2,438	83.80%
37	2,411,558	2,953	1.225	1.404	3,388	87.18%
42	2,631,072	4,670	1.775	2.086	5,493	85.01%
47	2,511,983	6,836	2.722	3.222	8,105	84.35%
52	2,117,072	8,930	4.218	4.782	10,145	88.02%
57	1,660,903	11,334	6.824	7.956	13,259	85.48%
62	1,245,886	13,563	10.886	13.096	16,405	82.68%
67	560,708	7,389	13.178	21.062	11,887	62.16%
72	56,965	704	12.365	33.170	1,901	37.05%
Total	18,986,773	61,629	3.246	4.053	76,945	80.09%

The overall actual to expected mortality ratio based on number is higher than the mortality ratio based on amount. One might expect anti-selection by size, which is not apparent in the above tables. Only in three of the age groups is the ratio higher by amount, ages 40 to 44, 65 to 69 and 70 to 74. Two possible explanations for this might be:

1. The average size of insurance in-force is $7,453. This is not large enough to be a target for anti-selection. Many states cap the amount of insurance that can be written as credit life insurance thus eliminating or diminishing anti-selection by size.
2. Much of the business is underwritten using short form applications with limited health questions. Some of the business is guaranteed issue. Generally, an insurance company will allow guarantee issue only for clients that make small size loans (e.g., Tennessee's statute does not allow underwriting if the amount is less than $25,000). The level of underwriting employed by the credit insurance industry seems to eliminate the anti-selection by size.

IV. Reasonableness Test

A test of reasonableness was run. All companies writing credit insurance are required to report their experience by state on the Credit Insurance Experience Exhibit (CIEE), which is a supplement to the annual statement. In 1999, there were 217 companies that reported their single premium credit life data and, of these, 157 companies were actively writing new single premium business. The credit life experience is split between single premium business and monthly outstanding balance business. The actual earned premium is reported on the CIEE and what the earned premium would be if all business were written in each state at that state's prima facie rates then in-force. By knowing the states' prima facie rates in-force in 1998 and in 1999, the Committee was able to compute the credit life single premium insurance exposure by amount for each year separately during the two-year period. This was done for all companies writing credit life business in the USA, whether the company was a contributor or not. The result is:

Grouped Exposure	Grouped Claims	Mortality Rate
360,063,308,108	1,095,119,700	3.041

Comparing this to the Table 1 data above shows the study covered 39% of the single premium business in-force in 1998 and 1999. Also, the mortality rate from the study is consistent with the industry's earned premium / incurred loss experience for the same period.

V. Comparison to Other Tables

Next, the Committee compared the mortality rates from the study against six mortality tables in use today (see Appendix 5). These tables all have excessive margins for single premium credit life mortality. The table with the least margin is the 1980 CSO, male age last birthday. The ratio of the weighted mortality rate of this table to actual mortality is 217%. The valuation mortality in the 1980 CSO male age last birthday is more than double actual experience. The results by table are:

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Table	Weighted male q_x to study
1958 CSO	266%
1958 CET	346%
130 % 1958 CSO	345%
1980 CSO	216%
1980 CET	282%
130% 1980 CSO	281%

VI. Results By Individual Company

Appendix 6 shows actual to expected mortality results for the 27 individual companies in the study. A letter was assigned to each company in order to keep their specific data confidential. Twenty-three of the companies had an actual mortality to the expected mortality ratio of 100% or less by amount and 21 had a ratio of 100% or less by number. This means that 85% of the companies had actual mortality less than the 200X CSO Male Composite Ultimate Table by amount and 78% by number. Based on this the use of the 200X CSO Male Composite Ultimate Table for the valuation of credit life reserves is reasonable.

VII. Prior Study

A prior study of credit life actual mortality was published in the Transactions, Society of Actuaries, 1993–94 Reports, pages 161 to 169. There were 7 companies that contributed their full data to the study plus one company contributed partial data and one company provided their actual to expected results in summary. Like the current study, the prior study was limited to single premium business only. The prior study compared actual mortality to expected mortality where the expected mortality was the 1980 CSO male, age last birthday. The total of death claims in the prior study for the seven companies contributing their full data was $82,327,149 compared to $475,735,896 in the current study.

Because of the limited scope of the prior study only individual company results were published and not the overall results. The individual companies' total mortality ratio of actual to expected, where expected mortality was the male 1980 CSO, ranged from 48% to 96%. The overall ratio of actual to expected for the seven companies combined appears to have been about 67% compared to overall 46% in the current study. The implied improvement in mortality from 1992 to 1998 – 1999 seems high. The CIEE data for the industry shows there was only a 12.5% improvement in the overall credit life mortality during the period from 1992 to 1998 – 1999 (source: The 1999 and 2001 Fact Book of Credit-Related Insurance published by the Consumer Credit Insurance Association). It may be the prior study was not representative of the industry and the decision not to publish overall results was justified.

The average size certificate in the prior study was $5,500 to $5,600 compared to the average size exposure in this study of $7,453 and average death claim of $7,518. An annual inflation of 4.5% would account for the difference in average size, which seems reasonable.

VIII. Joint Life Reserves

The committee did not study joint life mortality at this time. The CIEE does split the experience between single life coverage and joint life coverage. The actual mortality rate per 1,000 insurance in-force per life covered on joint life credit insurance is 89% of the single life mortality rate. The CIEE single premium experience for the two-year period 1998 to 1999 was:

	Amount Exposed	Claims	Rate	Ratio
Annualized In Force Single	222,682,555,563	707,849,506	3.179	100%
Annualized In Force Joint	137,380,752,545	387,270,194	2.819	89%
Total Annualized	360,063,308,108	1,095,119,700	3.041	96%

If we make the assumptions that female mortality is 60% of male mortality and that under joint life coverage there is a male insured and a female insured, then the male gender for single life coverage is 62% of the exposure and the female gender is 38% of the exposure. This split by gender is close to what was found to be true for credit disability insurance. In today's economy and society it is reasonable to assume that the ratio of credit life coverage by gender is approaching a 50/50 mix. It is conservative to assume the joint life mortality is twice single life mortality. It is therefore the Committee's recommendation that policy reserves for joint life certificates (or policies) be set by assuming twice the mortality rate used for single life coverage.

IX. Reserve Comparisons

To test the appropriateness of the 200X CSO Male Composite Ultimate Table reserve, comparisons were run at the central age at issue of 45. Expected reserves were set at 78.73% of the 200X CSO Male Composite Ultimate Table reserve. The 78.73% is the ratio of actual mortality to the 200X CSO Male Composite Ultimate Table mortality for ages 45 to 49. The ratio of the policy reserves using the 200X CSO Male Composite Ultimate Table to expected show there is a reasonable margin of 27% compared to the margins of 116% up to 255% for the other tables. Clearly, the other tables have excessive margins. The results of these tests are:

Original Term 48 Months, 5.0% valuation rate, ALB						
$10,000 Initial Amount Insured, Gross Reducing Coverage						
Issue Age 45						
			Reserve Amount			
Remaning Term	58 CET	80 CSO	80 CET	60 CSG	2001 CSO	Expected*
48	147	95	123	130	56	44
36	90	58	75	80	34	27
24	44	28	36	39	16	13
12	12	8	10	11	4	3
		Ratio of Reserve Amount to Expected Amount				
48	334%	216%	280%	296%	127%	100%
36	338%	217%	281%	299%	127%	100%
24	346%	219%	285%	305%	127%	100%
12	355%	222%	292%	315%	127%	100%
*Expected equals 78.73% of 2001 CSO male ultimate						

X. Final Recommendation

The Committee recommends that the 200X CSO Male Composite Ultimate Table be used for the valuation of credit life policy reserves using the dynamic interest rate appropriate for the original term of insurance. For joint life coverage, the Committee recommends that the reserve be set assuming 200X CSO Male Composite Ultimate Table using twice the mortality for the age of the primary insured. This recommended standard is set at a level such that 23 of the 27 companies, or 85%, showed aggregate mortality less than or equal to the standard.

Appendix 1
State Requirements

State	Table	Source	Explanation
Alabama			No stated basis.
Alaska	1980 CSO	E-mail from DOI	
Arizona	1980 CET @ Dynamic%	Phone call with DOI	
Arkansas	130% 1980 CSO @ Dynamic%	Letter from DOI	
California	1980 CSO @ 3.5%	Letter from DOI	Permission given to at least one company within industry.
Colorado	1980 CSO		Permission given to at least one company within industry.
Connecticut	1980 CSO @ Dynamic%	E-mail from DOI	
Delaware	1958 CET	R5-6-(1)	
District of Columbia	1980 CSO	E-mail from DOI	
Florida	1980 CSO @ 3.5%	S625.131.(2)	
Georgia	1980 CSO @ Dynamic%	E-mail from DOI	
Hawaii			No stated basis.
Idaho	1980 CSO @ Dynamic%	E-mail from DOI	
Illinois	1980 CET @ Dynamic%	E-mail from DOI	
Indiana*	1980 CET @ Dynamic%	E-mail from DOI	
Iowa	1980 CSO @ Dynamic%	E-mail from DOI	
Kansas	1958 CET	KSA 40-409-(d)(1)(viii)	At least one company given permission to use 1980 CSO.
Kentucky*	1980 CSO @ Dynamic%	Letter from DOI	130% of table if no evidence of insurability required
Louisiana	Any reasonable	Letter from DOI	
Maine	1980 CSO		Permission given to at least one company within industry.
Maryland	1980 CSO @ 3.5%	E-mail from DOI	
Massachusetts	1980 CSO @ 3.5%	E-mail from DOI	
Michigan	1980 CET @ 5.25%	R550.209	
Minnesota	1980 CSO @ 3.5%	E-mail from DOI	
Mississippi	1980 CSO	E-mail from DOI	
Missouri	1980 CSO	E-mail from DOI	
Montana	1980 CSO @ Dynamic%	E-mail from DOI	
Nebraska	1980 CSO		Permission given to at least one company within industry.
Nevada			No stated basis.

State	Basis	Citation	Notes
New Hampshire			No stated basis.
New Jersey			No stated basis.
New Mexico	130% 1980 CSO @ Dynamic%	Letter from DOI	
New York			No stated basis.
North Carolina	1980 CSO @ 3.5%	Letter from DOI	Specific to ABLAC
North Dakota			No stated basis.
Ohio	1958 CET @ 4.5%	R3901-1-14	At least one company given permission to use 1980 CSO.
Oklahoma	1980 CET @ 4.5%	OAC 365:10-5-71	
Oregon	1980 CSO @ 4.5%	OAR 836-060-0027	Policies issued after 01/01/2001 (1958 CET @ 4.5% Prior)
Pennsylvania	1980 CET @ Dynamic%	R31-73.138	
Puerto Rico	1980 CSO @ 3.5%	Letter from DOI	Permission given to at least one company within industry.
Rhode Island	1980 CSO		Permission given to at least one company within industry.
South Carolina	1980 CSO @ Dynamic%	S34-29-160	
South Dakota	Accepts State of Domicile Min	Letter from DOI	
Tennessee	1980 CET @ 3.5%	S56-7-911	
Texas	1980 CSO @ 5.5%	28 TAC 3.6101	
Utah	1980 CSO @ 5.5%	R590-91	
Vermont			No stated basis.
Virginia	1980 CSO @ Dynamic%	S38.2-3723	
Washington	1958 CSO @ 3.5%	Bulletin 74-7	
West Virginia	1980 CSO @ Dynamic%	Letter from DOI	
Wisconsin	1958 CSO @ 4.5%	WAC 3.25	
Wyoming	1980 CSO @ Dynamic%	Letter from DOI	
* May require an additional reserve if unearned exceeds mortality.			
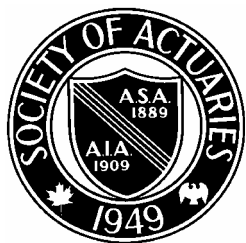
SOCIETY OF ACTUARIES

475 N. MARTINGALE RD., SUITE 800, SCHAUMBURG, IL 60173-2226

Date: July 30, 2001

To:
From: Steven L. Ostlund, Chair
Credit Insurance Experience Committee

CC: John A. Luff
Experience Studies Actuary, SoA

RE: Credit Life Mortality Study

The NAIC has asked the Society of Actuaries to develop a recommendation for a valuation standard for Credit Life Insurance. I am asking for your participation by submitting experience for Single Premium Credit Life Insurance in-force during 1998 and 1999. I have attached the specifications for the data call. Please note that we need an extract from your certificate file for every certificate that was in-force at some point during 1998 and 1999. This will include all certificates issued prior to 1998, still active on January 1, 1998, as well as all certificates issued during 1998 and 1999. We will also need an extract from your claim file for all deaths incurred during this period for these certificates.

William M. Buchanan & Associates has contracted to perform the data collection and can be contacted if you have any questions. They have agreed that this data will only be used for the purpose of this study, and that the identity of the company will not be associated with its experience after it has been collected, thereby preserving confidentiality. If the agreement between Buchanan & Associates and the Society of Actuaries does not meet your needs, you may either send your experience to Jack Luff at the Society of Actuaries, or negotiate a direct confidentiality agreement with Buchanan & Associates.

In order to be included in the study the data must be received by October 31, 2001. We anticipate that we will establish an annual data call to monitor emerging experience and to validate the valuation standard, if adopted. If you are unable to meet the October 31 deadline, I ask that you consider developing the necessary programs to participate next year.

If you are not the appropriate person to receive this data call, please forward it to the responsible party. I strongly encourage that you participate in this study to allow the development of a valuation standard that truly represents all companies in the Credit Insurance Industry. On behalf of the Credit Insurance Experience Committee, I thank you in advance for your participation.

Credit Mortality Data Request
In-Force and Terminated Business
Claim Data

Company Name _____

Company's 1999 Credit Life Single Premium Direct Writings _____

Percentage of Direct Business for Which Data is Provided _____

Contact: Name   _____
            Address: _____
                          _____
            Phone #   _____
            Fax #   _____

Questions can be directed to:

> Chris Hause,
> William M. Buchanan & Associates
> Phone (913) 685-2200
> Fax (913) 685-2205
> E-Mail ChrisH@wmbuchanan.com

In-Force File Description

The in-force file should contain all certificates that were in-force at any time during the study period. Policies not inforce at the end of the study period should be included. We will calculate exposures for each certificate, based on the type of coverage and face amount at the beginning and end of each month the certificate was in-force. We must have a valid issue age or date of birth so that exposures can be properly allocated to the correct attained age.

The data should be in ASCII text, comma delimited format. If dollars and cents are represented, the decimal point must be inserted in the field where appropriate. Date formats should be delimited by forward slashes.

In-Force File

#	Name of Field	Field Type	Field Options or Description	Default/Not Available Value
1	Issuing Company Name	Alphanumeric	Full Name of Direct Carrier	NA
2	Group Policy Number	Alphanumeric	Identifier for Group	NA
3	Individual Certificate Number	Alphanumeric	Unique Certificate Number within the Group	NA
4	Primary Insured Date of Birth	Date (MM/DD/CCYY)	Either this field or the following must be supplied, or exposure will not be recorded.	Blank
5	Primary Insured Age Last Birthday at Issue	Numeric	Either this field or the previous must be supplied, or exposure will not be recorded. Will override date field.	99
6	Primary Insured Gender	Alpha	M = Male F = Female U = Unknown	U
7	Secondary Insured Date of Birth	Date (MM/DD/CCYY)	Either this field or the following must be supplied, or exposure will not be recorded.	Blank
8	Secondary Insured Age Last Birthday at Issue	Numeric	Either this field or the previous must be supplied, or exposure will not be recorded. Will override date field.	Primary Insured Age
9	Secondary Insured Gender	Alpha	M = Male F = Female U = Unknown	U
10	Coverage Type	Alpha	GD = Gross Decreasing ND = Net Decreasing GL = Level TN = Truncated Net O = Other, (please explain in transmittal)	GD
11	Single/Joint Indicator	Alpha	S = Single J = Joint	S
12	Effective Date	Date (MM/DD/CCYY)	Required field	01/01/1900
13	Term of Coverage in Months	Numeric	Required field	0
14	Initial Face Amount	Numeric	Required field	0
15	Face Amount Limitation Indicator	Alpha	M = Max. Exposure R = Ratio to Loan N = Not Used	N
16	Face Amount Limitation	Numeric	Maximum face Amount	0
17	Principal Amount of Loan	Numeric	Includes financed credit premiums	0
18	Gross Loan Amount	Numeric	Total of Payments	0
19	Term of Loan in Months	Numeric	Used for truncated coverage. We will use coverage term if 0.	0
20	APR of Loan	Numeric	Used for Net Pay coverage. Default will be 10%, if 0 is entered.	10
21	Cancellation Date	Date (MM/DD/CCYY)	Date of cancellation, blank if still in-force.	Blank
22	Reason for Cancellation	Alpha	D = Death E = Expiration of Term O = Other	O
23	Underwritten Indicator	Alpha	N = Not Underwritten U = Underwritten	N
24	Type of Lender	Alpha	A = Auto Dealer B = Bank C = Credit Union D = Other Dealer F = Finance Company O = Other not Specified	U

#	Name of Field	Field Type	Field Options or Description	Default/Not Available Value
			U = Unknown	
25	State of Issue	Alpha	Two Letter Postal Abbreviation	NA

Claim File Description

The data should be in ASCII text, comma delimited format. If dollars and cents are represented, the decimal point must be inserted in the field where appropriate. Date formats should be delimited by forward slashes. We must have at least one valid age or date of birth so claims can be properly allocated to the correct attained age.

#	Name of Field	Field Type	Field Options or Description	Default/Not Available Value
1	Issuing Company Name	Alphanumeric	Full Name of Direct Carrier	NA
2	Group Policy Number	Alphanumeric	Identifier for Group	NA
3	Individual Certificate Number	Alphanumeric	Unique Certificate Number within the Group	NA
4	Claim Number	Alphanumeric	Unique Claim Number	NA
5	Primary Insured Date of Birth	Date (MM/DD/CCYY)	Either this field or the following must be supplied, or claim will not be recorded.	Blank
6	Primary Insured Age Last Birthday at Death	Numeric	Either this field or the previous must be supplied, or claim will not be recorded. Will override date field.	99
7	Primary Insured Gender	Alpha	M = Male F = Female U = Unknown	U
8	Claimant Date of Birth	Date (MM/DD/CCYY)	Either this field or the following must be supplied, or Primary Insured date will be used.	Blank
9	Claimant Age Last Birthday at Issue	Numeric	Either this field or the previous must be supplied, or Primary Insured age will be used. Will override corresponding date field.	Primary Insured Age
10	Claimant Gender	Alpha	M = Male F = Female U = Unknown	U
11	Coverage Type	Alpha	GD = Gross Decreasing ND = Net Decreasing GL = Level TN = Truncated Net O = Other, (please explain in transmittal)	GD
12	Single/Joint Indicator	Alpha	S = Single J = Joint	S
13	Date of Death	Date (MM/DD/CCYY)	Required field	01/01/1900
14	Claim Amount	Numeric	Required field	0
15	Underwritten Indicator	Alpha	N = Not Underwritten U = Underwritten	N
16	Type of Lender	Alpha	A = Auto Dealer B = Bank C = Credit Union D = Other Dealer F = Finance Company O = Other not Specified U = Unknown	U
17	State of Issue	Alpha	Two Letter Postal Abbreviation	NA

Collection of Data

Data was collected in the form of text files, in the format in which it was received. It was converted to a standard format, then imported into an Access database. Where necessary, some files were combined, split, converted or ignored completely. Record counts were verified against the original data.

Processing of Exposures & Claims - The participating companies submitted In-force and Claim files. The data processed was either grouped together or split per the companies' request.

Data Collection and Processing Methods

The program used was a Visual Basic 6.0 application that extracted and stored the data in an Access Database, which included six tables.

The total number of Claims records and total number of In-force records used for input for each company were recorded and stored on a spreadsheet. The total number of Claims and total number of In-force records used for input were then compared to the total number of Claims and total number of In-force records that were processed insuring that all records were accounted for.

There are 25 fields in the In-force File and seventeen fields in the Claim File. If a required field in a record is not filled out, the record is written out to a bad record file. The process stopped if the number of bad records for either the In-force file or the Claim file exceeded 1,000. The client was contacted and sent the bad records so they could supply the missing information. After the client supplied the missing data, the entire process was rerun until all bad records were eliminated. If a record did not affect the study, such as in a case where the claim amount was zero, the record was ignored. A default value was used for fields that were blank but not required.

The six tables and their purpose are shown below:
1) Claim file table - used for importing the claims records.
2) Claim file bad record table - used for storing records that did not have all of the required fields. The records were reviewed once the program completed. The client was contacted if a bad record affected the results of the study.
3) Claim summary - A summary of all of the claims records processed. This data was imported into an excel spreadsheet for further calculations.
4) In-force file table - used for importing the in-force records.
5) In-force file bad record table - used for storing records that did not have all of the required fields. The records were reviewed once the program completed. The client was contacted if a bad record affected the results of the study.
6) In-force summary - A summary of all of the in-force records processed. This data was imported into an excel spreadsheet for further calculations.

Formulas Used

The formulas were based off the required fields in the Claims table and In-force table. The listings below show all of the fields for both the Claims and In-force tables. If the field is required, the appropriate action is listed next to the field description if the field was left blank on a given record:

Claim File Fields and Criteria

1) Claim Company - Default is "NA."
2) Claim Group Policy Number - Default is "NA."
3) Claim Individual Certificate Number - Default is "NA."
4) Claim Number = Default is "NA."
5) Claim Primary Insured's Date of birth - If blank, use Primary Insured's Age.
6) Claim Primary Insured's Age - If blank, calculate from the Primary Insured's date of birth.
7) Claim Primary Insured's Gender - Default is "U."

8) Claim Insured's Date of birth - If blank, use Claim Insured's Age.
9) Claim Insured's Last Birthday - If blank, calculate from the Claim Insured's Date of birth. If both Claim Primary Insured's Date of birth and the Claim Primary Insured's Age are blank, use the Claim Insured's Age or calculate the age from the Claim Insured's Date of birth. If all fields are blank, write out a bad record.
10) Claim Insured's Gender - If blank, the default is "U."
11) Claim Coverage Type - If blank, write out a bad record.
12) Claim Single/Joint Indicator - If blank, the default is "S."
13) Claim Date of Death - If blank, write out a bad record.
14) Claim - If blank, default is 0.
15) Claim Underwritten Indicator = If blank, the default is "N."
16) Claim Type of Lender = If blank, the default is "U."
17) Claim State = If blank, the default is "NA."

In-Force File Fields and Criteria

1) Company - Default is "NA."
2) Group Policy Number - Default is "NA."
3) Individual Certificate Number - Default "NA."
4) Primary Insured's Date of birth - If blank, use the Primary Insured's Last Birthday.
5) Primary Insured's Last Birthday - If blank, calculate from the Primary Insured's date of birth. If both Primary Insured's Date of birth and Primary Insured's Last Birthday are blank, write out a bad record.
6) Primary Insured's Gender - If this is blank, set the default to "U" for Unknown.
7) Insured's Date of birth - If blank, use the Secondary Insured's Last Birthday.
8) Sec Insured's Last Birthday - If blank, calculate from Secondary Insured's date of birth. If both Secondary Insured's Date of birth and Secondary Insured's Last Birthday are blank, write out a bad record.
9) Secondary Insured's Gender - If this is blank, set the default to "U" for Unknown.
10) Coverage Type - If blank, write a bad record. Required field.
11) Single/Joint Indicator - If this is blank, use "S" for single.
12) Effective Date - If blank, write a bad record. Required field.
13) Term Coverage in Months - If blank or zero, write a bad record. Required field.
14) Initial Face - If blank or zero, write a bad record. Required field.
15) Face Amount Limitation Indicator - If blank, set the default to "N."
16) Face Amount Limitation - If blank, set the default to zero.
17) Principal Amount of Loan - If blank, set the default to zero.
18) Gross Loan Amount - If blank, set the default to zero.
19) Term of Loan in Months - If blank, set default to 0 and write a bad record. Required field.
20) APR of Loan = Used for Net Pay Calculations. If blank, set default to 10%.
    If APR of Loan = 0, set APR of Loan to 10% as the default value.
    If APR of Loan > 1, then APR of Loan = APR of Loan / 100 to convert whole numbers to decimals.
21) Cancellation Date = If blank, the default is zero.
22) Reason for Cancellation - If blank, the default is "O."
23) Underwritten Indicator - If blank, the default is "N."
24) Type of Lender - If blank, the default is "U."
25) State - If blank, the default is "NA."

Calculation of Exposures

The formulas for the current months' exposure for the various coverage types are listed here. The exposure was measured at the beginning and end of each calendar month that the insurance was in-force at 1/24 of the face amount in-force as of that date. The face amount at any date was subject to the maximum exposure indicated by the company.

Gross Decreasing Term Coverage

Initial Face Amount * (1 – (Elapsed Months/Term of Coverage))

Level Term Coverage

Initial Face Amount

Net Payoff

Initial Face Amount * a(Term of Coverage – Elapsed Months) / a(Term of Coverage)
Where a() is an annuity immediate factor at the Annual Percentage Rate of the underlying loan

Truncated Net Payoff

Initial Face Amount * a(Term of Loan – Elapsed Months) / a(Term of Loan)
Where a() is an annuity immediate factor at the Annual Percentage Rate of the underlying loan

The total exposure by amount and by count was accumulated for each type of coverage. If the policy indicated joint coverage, the exposure routine was run again on the second insured. For any information missing from the second insured information, the first insured information was used.

The start date is 1/1/1998. The end date is 12/31/1999. The start date and end date was changed if the client requested to only include one year instead of two in the study.

Loop through the dates, 1/1/1998, 1/31/1998, 2/1/1998 all the way until 12/31/1999.

While the Evaluation Date is less than or equal to the End Date, do the following:
First check to see if the certificate has been issued. If Effective Date is less than or equal to Evaluation Date, go to the next date; if this is the last date, go to next certificate.

If the evaluation date is after the termination date, end this certificate and go to next certificate.

Calculate the exposure and calculate the age last birthday for the exposure if the certificate is included in the study.

If the Primary Insured's Last Birthday is not given, calculate the Primary Insured's Last Birthday from the date of birth.

Set the calculated Primary Insured's last Birthday to the Attained Age.

If the Primary Insured's Last Birthday is less than 0 set the Primary Insured's Last Birthday equal to 0.

Get the Attained Age by adding the Primary Insured's Last Birthday to the number of whole years that have elapsed from the Effective date to the Evaluation date.

If the Attained Age is greater than 100, set the Attained Age equal to 100.

Procedures for Evaluation of the Claims File

Read through the claim file record. If any of the required fields are blank, write out a bad record. The process is stopped if 1,000 bad records are written.

Read in the last birthday and gender. Write out the total number of claims for each age group for male, female and unknown. Write out the accumulated claim total for each age group. Store the results in a separate output table called Claims Summary

If the record is valid, determine the Age by doing the following:

If both Claim Primary Insured's date of birth and Claim Primary Insured's Age are blank use the Claim Insured's Age or Calculate from the Claim insured's date of birth. If all fields are blank write out a bad record. If the number of bad records is greater than 1000, stop the program. Review the bad records and contact the client if necessary. After the bad records have been adjusted, rerun the process.

If the claim insured's age is less than 0 set the age equal to 0.

Select the Claim's Primary Insured's Gender. Add 1 to the total number of claims for the gender and add the claim amount to the accumulated claim total for the age.

        Case "M"   ' Male
          Claim Sum Age for Male = Claim Sum Age for male + 1
          Claim Sum Totals for Male = Claim Sum Totals for Male + Claim amount
       Case "F"   ' Female
          Claim Sum Age for Female = Claim Sum Age for Female + 1
          Claim Sum Totals for Female = Claim Sum Totals for Female + Claim amount
       Case "U"   'Unknown Gender
          Claim Sum Age for Unknown = Claim Sum Age Unknown + 1
          Claim Sum Totals for Unknown = Claim Sum Totals for Unknown + Claim amount

Add 1 to the total number of claims for this age group. Add the accumulated total for the age for all genders.
Claim Sum Age for the age = Claim Sum Age for male + Claim Sum Age for female + Claim Sum Age for unknown.
Claim Sum Totals for the age = Claim Sum Totals for male + Claim Sum Totals for female + Claim Sum Totals for unknown.

Read the next record.

Write the Claims and In-force Summary tables by starting at age zero and ending at age 100. Write out the accumulated totals for each age.

The complete Claim Summary table went from ages 0 through 100. An abbreviated version of the claims table is shown below:

Age	Male	Total Male Claims	Female	Total Female Claims	Unknown	Total Unknown Claims	Total Gender	Total Claims
0	0	$0.00	0	$0.00	0	$0.00	0	$0.00
18	1	$1,500.00	2	$2,000.00	3	$2,750.00	6	$6,260.00
70	12	$6,285.00	9	$4,1,97.00	0	$0.00	21	$10,482.00
100	0	$0.00	0	$0.00	0	$0.00	0	$0.00

The complete In-Force Summary table went from ages 0 through 100. An abbreviated version of the in-force table is shown below:

Age	Male	Total Male Exposure	Female	Total Female Exposure	Unknown	Total Unknown Exposure	Total Gender	Total Exposure
0	0	$0.00	0	$0.00	0	$0.00	0	$0.00
18	969	$2,225,195.00	79	$425,915.00	0	$0.00	1048	$2,651,110.00
70	885	$558,795.37	12	$13,197.16	0	$0.00	897	$571,992.53
100	0	$0.00	0	$0.00	0	$0.00	0	$0.00

Collection of Data into Excel

The claim file and in-force file were processed by the application and stored into a Claim summary and In-force Summary table. These tables were imported into an Excel spreadsheet for further processing.   The total number of records for the Claim file and In-force file were compared against the number of records used for input to insure that all records were accounted for.

Appendix 3
Mortality Study Participating Companies

1	American Bankers Life Assurance Company of Florida
2	American General Assurance Company
3	American Modern Life Insurance Company
4	American National Insurance Company
5	American United Life Insurance company
6	Bankers American Life Assurance Company
7	Bankers Life Insurance Company
8	Central States Health & Life Company of Omaha
9	Cherokee National Life Insurance Company
10	Commerce National Life Insurance Company
11	CUNA Mutual Insurance Society
12	Enterprise Life Insurance company
13	First Fortis Life Insurance Company
14	Ford Life Insurance Company
15	Homeshield Insurance Company
16	Household Life Insurance Company
17	Jacksonville Life Insurance Company
18	JMIC Life Insurance Company
19	Minnesota Life Insurance Company
20	Protective Life Insurance Company
21	Protective Life Insurance Company - LA SBU
22	Servco Life Insurance Company
23	Union Fidelity Life Insurance Company
24	Union Security Life Insurance Company
25	Vista Life Insurance Company
26	Voyager Life and Health Insurance Company
27	Voyager Life Insurance Company
28	Western Diversified Life Insurance Company
29	Westhrift Life Insurance Company

Appendix 4
Elimination of Over, Under and Default Ages

There were two classes of in-force data that were reallocated.

First, it was assumed that all in-force data, both count and amount was invalid if the recorded age was less than 16 or greater than 74.

It is recognized in the processing of credit insurance certificates that certain ages are used as "default ages" when the age of the insured is not known. Individual companies use their own methods to calculate and adjust these default ages. In order to smooth the data and avoid artificially low mortality rates at the default ages, a method was used to remove most of the effect of the default. The Karup-King formula was applied to the exposure data by company. There was, for some companies, a clear indication of a default age being employed, by a "spike" in the in-force for certain ages over the Karup-King adjusted data. If the data for that age and surrounding ages was higher than the adjusted data, the difference was deemed to be falsely inflated.

A graphical example of one of the companies' data appears below. The default ages are apparent by the "spike shown at ages 41 and 51. Ages 40, 41, 42, 49, 50, 51 and 52 were deemed to be inflated by the use of default ages. The inflation amount was deemed to be the difference between the two lines at these points. A new line was drawn that was equal to the original line at all points except these default points, and the Karup-King line at these points.

Karup-King Formula

The Karup-King formula was applied as follows:

Each quinquennial age ending in 2 or 7 was set equal to the average of the surrounding five ages, and treated as successive values of F(x). These central ages were interpolated to intervening individual ages using the formula:

$$F(x+s) = s * F(x+1) - (1/2) * (s \wedge 2) * (1-s) * (2CD) F(x+1)$$
$$+ (1-s) F(x) - (1/2) * ((1-s) \wedge 2) * (s) * (2CD) F(x)$$

Where:

$(2CD) x = (x+1) - 2 * (x) + (x-1)$ (Second Central Difference at x)

In aggregate, a total of 2,315,906,172 of exposure, representing approximately 1.66% of the total, was reallocated due to the above procedures for over, under and default ages. In view of the pattern of smoothed data, the error introduced by this procedure is minimal.
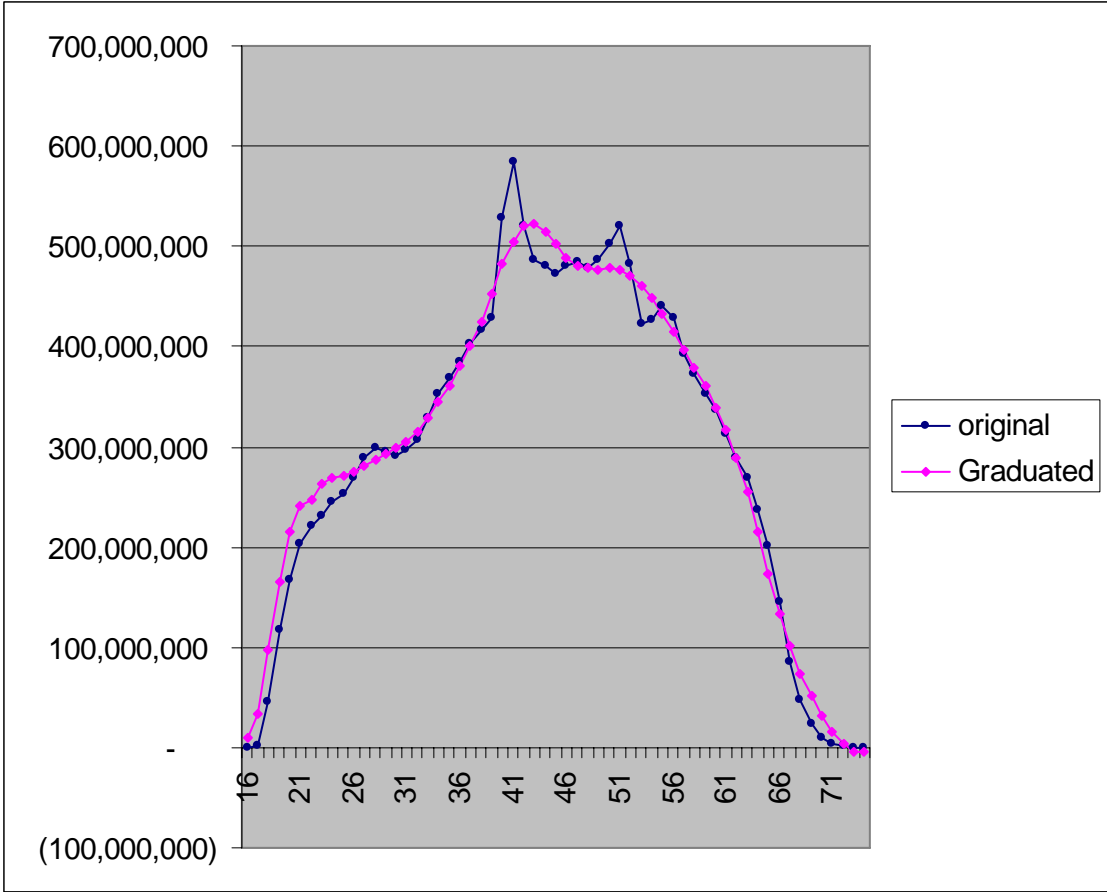
Appendix 5
Credit Life Mortality Study

Age Range	Central Age	Exposure Distribution	58 CSO	58 CET	130% 58 CSO	80 CSO	80 CET	130% 80 CSO	2001 CSO	Study Results
16 to 24	22	6.7%	1.78	2.53	2.32	1.81	2.56	2.36	0.98	0.93
25 to 29	27	8.7%	2.02	2.77	2.62	1.72	2.47	2.24	1.14	0.71
30 to 34	32	9.8%	2.30	3.05	2.98	1.88	2.63	2.45	1.15	0.88
35 to 39	37	12.1%	2.94	3.83	3.83	2.51	3.30	3.27	1.40	1.11
40 to 44	42	14.2%	4.38	5.69	5.69	3.74	4.86	4.86	2.09	1.78
45 to 49	47	14.5%	6.71	8.73	8.73	5.56	7.23	7.23	3.22	2.54
50 to 54	52	13.0%	10.50	13.65	13.65	8.42	10.95	10.95	4.78	3.97
55 to 59	57	10.6%	16.40	21.31	21.31	13.11	17.05	17.05	7.96	6.21
60 to 64	62	7.5%	25.63	33.31	33.31	20.33	26.43	26.43	13.10	9.96
65 to 69	67	2.7%	40.13	52.16	52.17	32.00	41.60	41.60	21.06	13.49
70 to 74	72	0.2%	61.08	79.38	79.40	50.66	65.86	65.86	33.17	14.57
Weighted Total		100.0%	8.73	11.38	11.35	7.09	9.28	9.22	4.31	3.29
Ratio of Table q_x to actual			266%	346%	345%	216%	282%	281%	131%	100%

$1000\ q_x$ rates

Appendix 6
Mortality Rates by Amount

Age	Company A Mortality Rate Per 1000	Company B Mortality Rate Per 1000	Company C Mortality Rate Per 1000	Company D Mortality Rate Per 1000	Company E Mortality Rate Per 1000
22	1.09	0.82	1.58	.97	1.22
27	0.67	0.70	1.52	.55	1.03
32	1.12	0.73	1.96	.77	0.74
37	1.52	0.96	1.87	.86	0.98
42	2.11	2.74	2.45	1.44	1.40
47	2.78	2.37	3.99	2.14	3.58
52	3.72	4.08	6.32	2.94	3.50
57	6.49	5.81	10.08	4.80	7.86
62	10.93	10.21	16.55	8.03	12.39
67	10.73	17.41	22.52	5.33	16.08
72	3.92	22.08	9.35	2.41	50.43

Age	Company F Mortality Rate Per 1000	Company G Mortality Rate Per 1000	Company H Mortality Rate Per 1000	Company I Mortality Rate Per 1000	Company J Mortality Rate Per 1000
22	0.75	0.24	0.69	0.85	0.90
27	0.68	0.03	1.23	0.72	0.37
32	0.39	0.23	0.96	1.20	0.74
37	0.56	0.56	1.22	1.01	0.98
42	1.01	0.30	1.77	1.23	1.25
47	1.32	0.90	3.73	2.27	2.17
52	1.52	0.76	4.64	3.92	3.49
57	2.76	1.71	7.04	6.17	6.45
62	4.30	2.30	11.12	9.95	8.62
67	3.98	0.00	16.51	13.35	14.37
72	1.58	0.00	43.62	19.47	20.01

Age	Company K Mortality Rate Per 1000	Company L Mortality Rate Per 1000	Company M Mortality Rate Per 1000	Company O Mortality Rate Per 1000	Company P Mortality Rate Per 1000
22	0.64	1.46	1.05	1.77	0.76
27	0.55	0.41	0.73	0.74	0.42
32	0.71	0.99	0.79	0.94	0.64
37	0.92	1.18	1.25	1.60	0.99
42	1.18	2.22	1.78	2.76	1.12
47	2.00	3.10	2.60	3.64	1.86
52	3.17	4.77	4.87	4.49	2.73
57	5.30	8.37	8.04	6.03	3.78
62	7.69	12.71	13.64	9.62	5.29
67	2.94	7.09	18.34	5.54	3.30
72	0.00	2.73	25.73	2.45	1.94

	Company Q	Company R	Company S	Company T	Company U
Age	Mortality Rate	Mortality Rate	Mortality Rate	Mortality Rate	Mortality Rate
	Per 1000	Per 1000	Per 1000	Per 1000	Per 1000
22	0.56	1.25	0.90	0.79	0.00
27	0.46	0.92	1.10	0.54	1.44
32	0.49	0.92	1.68	1.01	0.91
37	0.77	1.21	1.23	0.98	0.50
42	1.07	1.76	2.52	1.70	3.15
47	1.69	2.82	3.23	2.81	1.87
52	3.02	4.45	6.26	4.11	4.18
57	4.60	6.66	7.88	6.16	8.87
62	7.20	10.45	11.35	7.45	23.12
67	12.20	18.59	13.61	7.16	9.66
72	35.86	24.53	16.74	6.11	19.03

	Company V	Company W	Company Y	Company BB	Company GG
Age	Mortality Rate	Mortality Rate	Mortality Rate	Mortality Rate	Mortality Rate
	Per 1000	Per 1000	Per 1000	Per 1000	Per 1000
22	0.00	0.00	0.52	0.52	0.49
27	0.00	0.00	0.87	0.00	0.96
32	16.60	0.00	2.46	0.99	0.99
37	0.00	0.00	4.13	0.77	1.59
42	0.00	0.00	2.17	2.05	2.52
47	0.00	0.00	2.60	0.00	3.71
52	0.00	0.00	18.50	4.08	6.45
57	26.96	0.00	10.94	1.99	8.31
62	57.44	0.00	21.39	2.57	11.25
67	55.89	0.00	0.00	49.67	17.73
72	0.00	0.00	0.00	0.00	5.08

	Company HH	Company II	All Companies
Age	Mortality Rate	Mortality Rate	Mortality Rate
	Per 1000	Per 1000	Per 1000
22	0.00	1.52	0.93
27	0.00	0.95	0.71
32	0.93	0.34	0.88
37	0.86	1.14	1.11
42	1.41	0.81	1.78
47	2.37	3.38	2.54
52	3.06	3.70	3.97
57	4.15	8.81	6.21
62	3.29	13.06	9.96
67	3.33	7.98	13.49
72	0.00	4.58	14.57

Appendix 6
Actual to Expected Ratios by Company
Expected is 200X CSO Male Composite Ultimate Table, ALB

Age	Company A	Company B	Company C	Company D	Company E
22	111.67%	83.55%	161.56%	99.67%	124.64%
27	58.47%	61.58%	133.25%	47.79%	90.27%
32	97.40%	63.15%	169.66%	66.61%	64.51%
37	107.99%	68.53%	133.20%	61.51%	69.73%
42	100.81%	131.15%	117.20%	69.15%	66.97%
47	86.14%	73.49%	123.71%	66.28%	110.82%
52	77.60%	85.16%	131.64%	61.40%	73.05%
57	81.33%	72.79%	126.03%	60.23%	98.39%
62	83.00%	77.57%	125.36%	61.06%	94.00%
67	50.66%	81.94%	105.74%	25.23%	75.73%
72	11.79%	65.82%	28.04%	7.24%	148.27%
Total	78.06%	80.46%	121.42%	58.68%	88.92%

Age	Company F	Company G	Company H	Company I	Company J
22	76.70%	25.00%	71.17%	87.34%	92.39%
27	59.85%	2.75%	107.53%	63.38%	32.28%
32	34.21%	19.89%	82.88%	104.18%	63.87%
37	39.65%	39.64%	86.49%	71.73%	69.48%
42	48.25%	14.37%	85.01%	58.91%	59.99%
47	40.93%	27.80%	115.61%	70.27%	67.13%
52	31.78%	15.86%	96.85%	81.89%	72.78%
57	34.62%	21.47%	88.13%	77.30%	80.85%
62	32.77%	17.52%	84.47%	75.58%	65.53%
67	18.87%	0.02%	77.76%	62.94%	67.73%
72	4.77%	0.00%	128.70%	58.12%	59.73%
Total	30.10%	19.45%	90.15%	73.55%	69.89%

Age	Company K	Company L	Company M	Company O	Company P
22	65.21%	149.83%	107.80%	181.00%	77.99%
27	47.77%	36.00%	64.05%	64.41%	37.05%
32	61.41%	85.85%	68.78%	81.54%	55.47%
37	65.53%	83.73%	88.89%	114.20%	70.61%
42	56.73%	106.30%	85.27%	132.05%	53.62%
47	61.93%	96.05%	80.52%	112.73%	57.77%
52	66.26%	99.61%	101.69%	93.72%	56.91%
57	66.46%	104.81%	100.70%	75.62%	47.48%
62	58.53%	96.47%	103.42%	73.10%	40.30%
67	13.95%	33.54%	86.28%	26.24%	15.62%
72	0.00%	8.23%	76.59%	7.39%	5.85%
Total	56.30%	78.33%	93.24%	80.20%	45.94%

Age	Company Q	Company R	Company S	Company T	Company U
22	57.49%	127.99%	92.14%	81.26%	0.00%
27	40.70%	80.16%	96.22%	47.16%	126.40%
32	42.74%	79.40%	146.00%	87.76%	78.95%
37	54.86%	86.19%	87.88%	70.08%	35.93%
42	51.18%	84.39%	120.74%	81.55%	150.80%
47	52.56%	87.31%	100.16%	86.96%	58.10%
52	63.10%	92.90%	130.52%	85.83%	87.31%
57	57.68%	83.46%	98.63%	77.18%	110.99%
62	54.75%	79.37%	86.18%	56.71%	174.54%
67	57.55%	87.47%	64.16%	33.87%	45.62%
72	106.19%	73.05%	50.05%	18.35%	56.83%
Total	55.94%	85.17%	100.05%	67.34%	98.40%

Age	Company V	Company W	Company Y	Company BB	Company GG
22	0.00%	NA	53.54%	53.63%	50.34%
27	0.00%	0.00%	76.19%	0.00%	83.94%
32	1429.52%	0.00%	213.38%	85.63%	85.69%
37	0.00%	0.00%	293.53%	54.73%	113.43%
42	0.00%	0.00%	103.84%	98.27%	120.49%
47	0.00%	0.00%	80.74%	0.00%	114.93%
52	0.00%	0.00%	383.23%	85.24%	134.35%
57	334.34%	0.00%	136.73%	25.01%	104.06%
62	426.39%	NA	161.58%	19.57%	85.45%
67	258.14%	NA	0.00%	230.09%	83.46%
72	0.00%	NA	0.00%	NA	15.27%
Total	234.60%	0.00%	164.42%	56.47%	100.75%

Age	Company HH	Company II	All Companies
22	0.00%	156.03%	95.64%
27	0.00%	83.21%	61.94%
32	80.87%	29.65%	75.96%
37	60.95%	81.20%	79.09%
42	67.39%	38.82%	85.28%
47	73.32%	104.82%	78.73%
52	63.87%	77.27%	82.84%
57	52.11%	110.19%	77.78%
62	25.08%	99.07%	75.67%
67	15.77%	37.73%	63.62%
72	0.00%	13.76%	43.61%
Total	47.60%	71.11%	76.05%