THE USE OF CREDIT INFORMATION IN PERSONAL LINES INSURANCE UNDERWRITING

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Introduction

Credit, and the ability to access it and manage it, is an integral part of everyday life. Today, credit records affect getting a job, finding a place to live, securing a loan, setting up telephone service and buying insurance. Most consumers benefit from the use of credit information because most people manage their debt well and therefore have good credit histories.

The use of credit information by the financial services industry has been widespread for a long time, and credit has become a key tool for insurers. Commercial insurers have for decades reviewed the credit history of businesses before issuing certain types of policies. One reason for this is that businesses in poor financial condition might tend to cut back on maintenance and safety, which may lead to more accidents, injuries and claims.

Home and auto insurers use credit information to produce an "insurance score" because it helps them to more accurately assess and price a risk. In conjunction with other information such as years of driving experience, previous accidents, the type of car or home, and where the driver lives and drives, credit-based insurance scores allow insurers to differentiate between lower and higher insurance risks. Many recent studies confirm the strong correlation between credit history and loss in both auto and homeowners insurance.

What are Insurance Scores?

Credit-based insurance scores are confidential rankings based on credit history. They are not a measure of someone's financial assets, but of how well individuals manage their financial affairs. Insurance scores are highly accurate predictors of future loss in auto and homeowners insurance (Exhibit 1). As such, they provide an objective, accurate and consistent tool that insurers use along with other information to better anticipate claims.

Maintaining an acceptable credit record is increasingly important today. Fair Isaac, a leading credit reporting firm, reports that 76 percent of consumers exhibit good or fair credit management behavior (Exhibit 2). It is a fact that these individuals also tend to file fewer insurance claims. Only four percent of consumers are so-called "no hits", people with no credit history. This small group would include the very young, who have not yet

established a credit history; those who might not use credit on personal or religious grounds; and some retirees who have probably paid off their mortgage and do not otherwise access credit markets (e.g., through the use of credit cards or car loans).

Insurance scores do not include personal information such as race, religion, gender, family or marital status, handicaps, nationality, age, address or income (Exhibit 3). Credit-related activities within the last 12 months are given the most significance. It is important to note that use of credit information varies by insurer and state. In general, information used in insurance scoring can include adverse public records, number of collections, types of accounts, payment timing, utilization of balance relative to limits, age of accounts, number of accounts opened recently and borrower-authorized inquiries. Insurance scores developed by Fair Isaac involve a set of 15 to 30 credit characteristics, each with an assigned weight, that produce a score ranging from 100 to 999. The lower the score, the greater the risk. Some insurers have developed their own insurance scoring models that operate in a similar manner.

Insurance Scores and the Fair Credit Reporting Act

Since the enactment of the Fair Credit Reporting Act in 1970, insurers have been allowed to use credit reports in the underwriting process. According to a recent study by Conning & Co[1], more than 90 percent of personal auto insurers use insurance scoring models today. More than 50 percent began using credit data after 1998 and in the last three years there has been a large increase in its usage. Because it has been shown to be such an accurate predictor of loss, some 90 percent of insurers use credit data in new business underwriting.

Under the FCRA, insurers are required to notify consumers if they experience adverse action, such as denial, premium increase or cancellation of coverage, due to information contained in their credit report. Consumers also have the right to have errors in their credit report corrected and can request that the insurance company recalculate their insurance score and reevaluate their insurance coverage and premium.

[1] "*Insurance Scoring in Personal Automobile Insurance, Breaking the Silence", Conning & Co 2001.*

A model law on the use of credit-based insurance scoring was approved by the National Conference of Insurance Legislators (NCOIL) in December 2002. It requires insurers to disclose to consumers that a credit report may be used and to notify them when credit is the basis for an adverse action, as under the FCRA. It also prohibits the use of credit information as the sole basis for refusal to insure, nonrenew or cancel, and bars the use of disputed information or information identified as medical collection accounts in the credit report. In addition, it encourages insurers to take into account extraordinary life events, such as catastrophic illness or the death of a spouse.

Why Insurers Use Insurance Scoring

Increased use of credit information is a fact of life in the 21st century. It is a proven and reliable indicator of performance in many trust-based relationships including loans, leases, rentals, utilities, background checks, employment screening and insurance.

Insurers use credit information as a way of predicting an individual's performance under the terms of an insurance contract. Many independent studies have shown that lower credit scores are associated with higher relative loss ratios.[2] Conversely, there is a distinct and consistent decline in relative loss ratios as credit standing improves. In other words, the lower the credit score the higher the policyholder's losses are likely to be and vice versa. These studies have also demonstrated that the relationship between credit standing and relative loss ratios in both auto and homeowners insurance is statistically irrefutable. In a given random sample of policyholders the odds that such a correlation does not exist are up to 10,000 to one.

Why Insurance Scoring Works: Personal Responsibility and Stability

Insurance scoring works because it provides an objective and quantifiable means by which an individual's future performance under the terms of an insurance contract can be assessed. The statistical correlation between good credit and relatively low insurance losses confirms the reasonable assumption that the responsibility required to prudently manage one's finances is associated with other types of responsible and prudent behaviors, such as proper maintenance of homes and autos, and safe operation of cars

[2] *A "loss ratio" is simply the ratio of losses and associated expenses paid out to premiums taken in.*

(Exhibit 4). Responsibility is a personality trait that manifests itself in many aspects of a person's life and inures to the benefit of that individual in a variety of ways. It is not surprising that financially stable individuals are more likely to exhibit stability in other aspects of their lives, whereas financial stress can lead to distractions or other behaviors that produce more losses, such as deferral of car or home maintenance.

Evidence

The link between credit scores and potential insurance losses is not a new finding. Studies conducted as far back as the late 1940s and 1960s demonstrate the association between insurance scores and the likelihood of an individual filing a claim. For example, a study of Canada Taxi Drivers[3] in 1949 showed that 34 percent of crash repeaters had credit problems, compared with just 6 percent of those with no crashes (Exhibit 5). Similarly, a Washington State study conducted in 1968, revealed a strong link between credit standing and crash frequency. According to this analysis, some 64 percent of drivers with zero crashes had good credit, while just 35 percent had bad credit (Exhibit 6). Of those drivers involved in at least two crashes, 35 percent had bad credit, compared with just 3 percent with good credit.

In 1996, Tillinghast Towers-Perrin, a major actuarial consulting firm, completed a study using source data from Fair Isaac which looked at loss ratios relative to insurance scores[4] (Exhibit 7). Based on that data, Tillinghast concluded that it was "very unlikely" that insurance scores and loss ratio relativities are not correlated. Tillinghast reviewed nine samples of data from eight insurers, both auto and homeowners business. In eight out of nine samples, the probability that a statistically significant correlation exists between insurance scores and loss ratios exceeded 99 percent, while for one company the probability was around 92 percent (Exhibits 8-12). "A layman's interpretation of this result could be that it is very likely there is a correlation between Insurance Bureau Scores and loss ratio relativities," Tillinghast concluded.

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[3] *Tillman, W.A. and G.E. Hobbs, "The Accident-Prone Automobile Driver, American Journal of Psychiatry.*

[4] *Tillinghast Towers-Perrin, "Insurance Bureau Scores vs Loss Ratio Relativities", December 1996.*

A more recent study published by the Casualty Actuarial Society (CAS)[5] also demonstrates the strong connection between credit history and loss ratio performance (Exhibit 13). The study used a series of credit characteristics which were combined into four distinct insured population groups. These four groups ranged from those policyholders with an unacceptable credit rating (Category A), to those with an excellent credit rating (Category D). As the chart shows, the loss ratio performance for personal auto policyholders in Category A, the worst credit category, is 33 percent higher than the loss ratio for all policyholders combined. By contrast, Category D policyholders generated a loss ratio which is 25 percent lower than the combined total.

Other new studies strongly support these findings. According to a March 2003 study commissioned by the Texas legislature and prepared by the Bureau of Business Research at the University of Texas at Austin[6], credit scores are significantly related to incurred losses (Exhibit 14). The study includes information from 153,326 auto insurance policies from five insurers doing business in Texas. The database of policyholders was divided into 10 equal-sized groups (known as *deciles*) according to credit scores.

Researchers matched credit data with the corresponding claims data and found that those with the poorest credit scores generated relative losses much higher than those with the best scores. Those with the poorest credit scores generated an average incurred loss of $918 per policy, 65 percent higher than those with the best credit scores that generated an average incurred loss of $558 (Exhibit 15).

Washington and Alaska Studies

A study conducted by Washington State University[7] was released in January 2003 (Exhibits 16 and 17). The report was required under a law (ESHB 2544) passed by the state legislature in 2002 which restricted the use of credit scoring in personal lines

[5] *James E Monaghan, "The Impact of Personal Credit History on Loss Performance in Personal Lines", Casualty Actuarial Society, 2000.*

[6] *Bureau of Business Research, The University of Texas at Austin, "A Statistical Analysis of the Relationship Between Credit History and Insurance Losses", March 2003.*

[7] *"Effect of Credit Scoring on Auto Insurance Underwriting and Pricing", State of Washington Office of Insurance Commissioner, January 2003.*

underwriting. Its purpose was to find out whether credit scoring has unequal impacts on specific demographic groups. Several thousand auto insurance policyholders from three insurers were surveyed and information gathered on age, gender, residential zip code, policy inception date and credit scores and/or rate classifications. About 1,000 of each firm's policyholders were contacted by phone and asked information on ethnicity, marital status, income level and details of experience if cancelled.

The results of the study were inconclusive, leading the author to conclude that: *"while there are statistically detectable patterns in the demographics of credit scoring, most of the variation among individual scores is due to random chance or other facts not in this data."* The study did reveal, however, that the state's largest minority group, Asian-Americans, clearly benefited from credit scoring. In fact, its strongest and most consistent finding is that credit scoring is positively associated with age. In other words older, more experienced drivers tend to benefit from insurance scoring. The study does not address whether insurance scoring works or that the scoring itself is blind to ethnicity, color, gender, marital status, income or location.

A second report on insurance scoring in Alaska[8] based on a survey undertaken by the state's Division of Insurance was published in February 2003. This survey was sent to all insurers writing homeowners or personal auto insurance in Alaska. The study used information related to zip codes, age, marital status, sex and market or tier, but not individual policyholder data. Although the report says the use of insurance credit scoring appears to have different effects on different groups of Alaskan insurance consumers, its findings are inconclusive due to the limited scope of its data.

Insurance Scores vs Motor Vehicle Records

Some ask why insurers cannot obtain sufficient information from state motor vehicle departments. The problem here is that while most people perceive motor vehicle records (MVRs) to be completely or very accurate, research shows that much relevant data like reportable accidents, speeding tickets and convictions for drunk driving, is missing from

[8] *"Insurance Credit Scoring in Alaska", State of Alaska, Department of Community and Economic Development, February 2003.*

MVRs. A 2002 study by the Insurance Research Council[9] found that state MVRs are typically inaccurate and that one in five convictions for traffic violations may be missing (Exhibits 18 and 19). For example, 22 percent of convictions sampled in Connecticut and 21 percent of convictions sampled in Florida were not found on the respective drivers' MVRs. In addition, 14 percent of traffic convictions from a sample in Ohio and 10 percent from the state of Washington were missing. And of course, MVRs do not help at all with homeowners insurance.

Pricing Effect

Insurance scores, together with other rating factors, help insurers create a pricing system in which individuals who impose more costs on the system by filing more frequent and/or more expensive claims pay more, while individuals who file fewer or less expensive claims pay less. Without insurance scoring, many good drivers and responsible homeowners would pay more—sometimes much more—for coverage. Forcing people to pay more for their insurance is inconsistent with long-established and widely accepted rating methodologies. Examples are found in other rating factors commonly used by auto insurers to ascertain risk and arrive at a premium which reflects that risk, such as age or gender.

For example, National Highway Traffic Safety Administration statistics show that drivers aged 16 to 20 are two to three times more likely to be involved in auto accidents (Exhibit 20). To ignore this fact and make more experienced drivers subsidize teenagers would be inequitable. There is a striking similarity in the relationship between youth and accident frequency and the relationship between poor credit score and high relative losses in Exhibit 14. In terms of gender, a 2001 survey by the National Safety Council indicates that males are 71 percent more likely to be behind the wheel in fatal auto accidents (Exhibit 21). If this fact were ignored and female drivers made to subsidize male drivers in the pricing of their insurance, clearly those at higher risk of loss would be the beneficiaries. In insurance, underwriting and rating processes are geared specifically to

[9] *Insurance Research Council, "Accuracy of Motor Vehicle Records" (2002*).

differentiate good from bad risks, i.e. people who impose more costs on all policyholders should pay more for their policy.

Within any group there will be exceptions. There are teenagers who have never had an accident, even though teenagers as a group have more accidents than people in other age groups. Likewise, there are males (even teenage males) who have never been involved in accidents. Nevertheless, using age and gender as rating factors results in a more fair and equitable system overall. While these relationships will never be 100 percent predictive of every individual, not to use them would in effect require everyone to pay nearly the same amount for insurance irrespective of the risk they represent.

Following are 21 exhibits which illustrate the uses of credit information in personal lines underwriting.

For additional information, see:

- Insurance Information Institute, www.iii.org
- Fair Isaac, www.fairisaac.com
- Insurance Institute for Highway Safety, www.hwaysafety.org
- A.M. Best, www.ambest.com
- Conning & Co., www.conning.com
- Tillinghast-Towers Perrin, www.tillinghast.com
- Casualty Actuarial Society, www.casact.org
- University of Texas, Bureau of Business Research, www.utexas.edu/depts/bbr
- National Safety Council, www.nsc.org
- National Highway Traffic Safety Administration, www.nhtsa.dot.gov
- Insurance Research Council, www.ircweb.org
- National Conference of Insurance Legislators, www.ncoil.org
- National Association of Insurance Commissioners, www.naic.org

Exhibit 1

Insurance Scoring

- What is "Insurance Scoring"?
  - Insurance scores are HIGHLY accurate predictors of future loss in auto and homeowners insurance
  - Insurance scores provide an objective, accurate and consistent tool that insurers use with ***other*** applicant information to better anticipate claims
  - Insurers use credit information as a way of determining individual's responsibility and performance under the terms of an insurance contract.

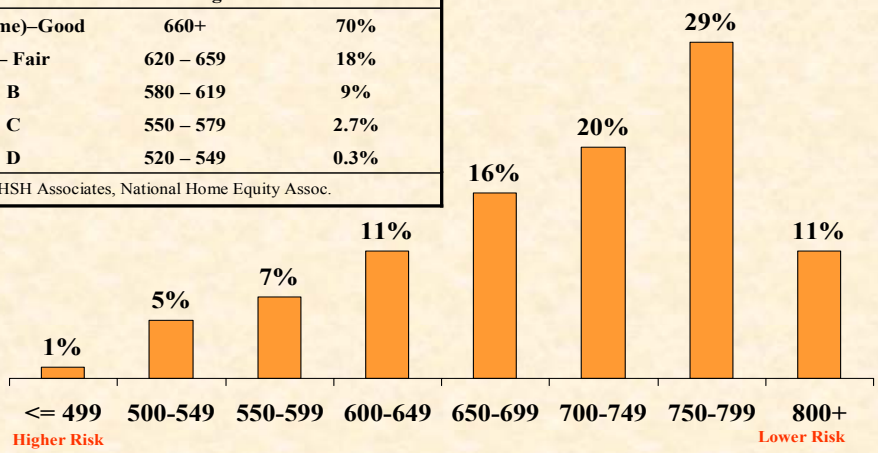
Exhibit 2

Distribution of FICO Scores

Distribution of Borrower Credit Scores by Risk Tier		
Risk Tier	**Credit Score – Banking**	**% of Borrowers**
A (prime)–Good	660+	70%
A – Fair	620 – 659	18%
B	580 – 619	9%
C	550 – 579	2.7%
D	520 – 549	0.3%
Source: HSH Associates, National Home Equity Assoc.		

•70% of borrowers have good credit

•They also tend to file fewer insurance claims



Source: Fair Isaac

What You Might Not Know About Insurance Scoring

Exhibit 3

1. Insurers have been using credit since early 1990s
   - Credit has been used in commercial insurance for decades
2. Insurance scores do ***not*** use the following information:
   - *Ethnicity* *Nationality* *Religion* *Age*
   - *Gender* *Marital Status* *Familial Status* *Income*
   - *Address* *Handicap*
3. Insurance scoring is revenue neutral
4. Increased use of credit information is a fact of life in the 21st century (*Why?*: Works for trust-based relationships)
   - *Loans* *Leases* *Rentals* *Insurance*
   - *Utilities* *Background Checks* *Empl. Screening*
   - NEXT: *Preferred airport screening for frequent fliers*

Source: Insurance Information Institute

*Intuition Behind Insurance Scoring**

Exhibit 4

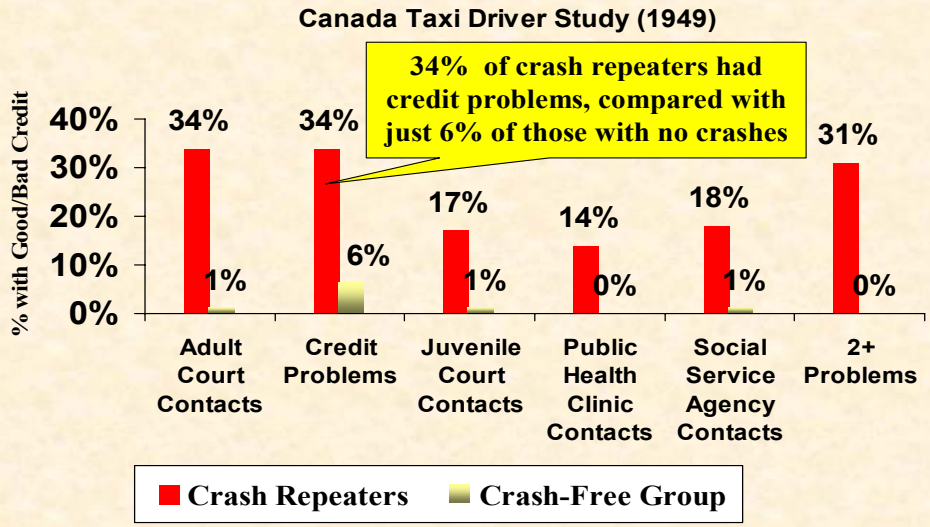
1. Personal Responsibility
   - Responsibility is a personality trait that carries over into many aspects of a person's life
   - It is intuitive and reasonable to believe that the responsibility required to prudently manage one's finances is associated with other types of responsible and prudent behaviors, for example:
     - Proper maintenance of homes and automobiles
     - Safe operation of cars
2. Stability
   - It is intuitive and reasonable to believe that financially stable individuals are likely to exhibit stability in many other aspects of their lives.
3. Stress/Distraction
   - Financial stress could lead to stress, distractions or other behaviors that produce more losses (e.g., deferral of car/home maintenance).

*This list is neither exhaustive nor is it intended to characterize the behavior of any specific individual.

Source: Insurance Information Institute

Exhibit 5

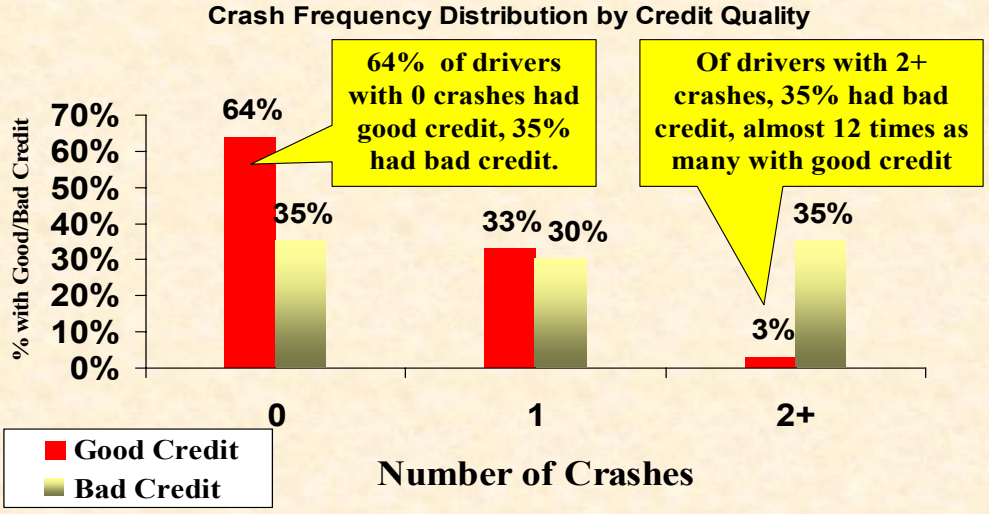
Social Problems of Crash Repeaters vs. Crash-Free Drivers



Source: Tillman, W.A. and G.E. Hobbs, "The Accident-Prone Automobile Driver," *American Journal of Psychiatry*

Exhibit 6

Washington State Study (1968) Credit Standing & Driving Record



Source: Insurance Institute for Highway Safety

Exhibit 7

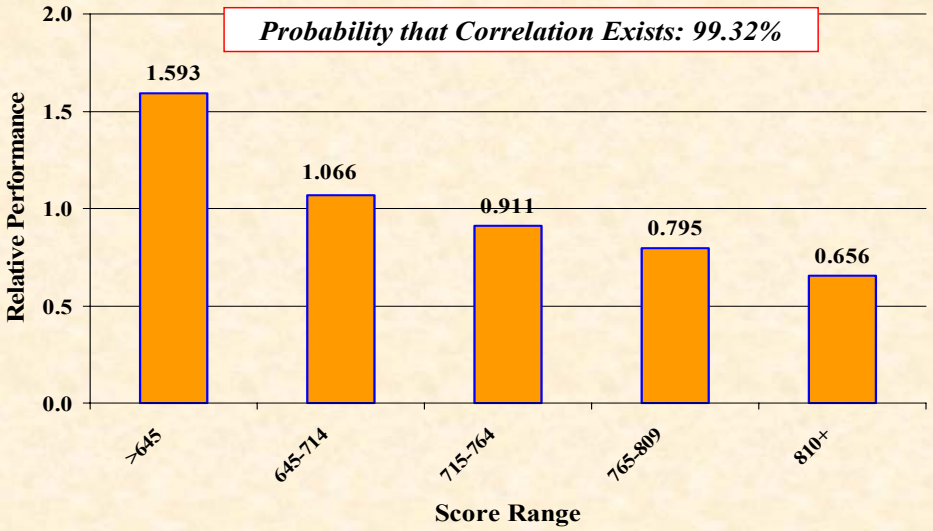
Tillinghast Towers-Perrin Study

- Studied 9 Samples of Data from 8 Companies*
  - Looked at loss ratio relativity in relation to insurance score
  - Studied both auto/home
- Analyzed probability that a correlation exists between insurance score and loss ratio relativity
  - In 8 of 9 samples, probability that a statistically significant correlation exists exceeded 99% (in one case the probability was approximately 92%)

*One company supplied both auto and homeowners data. The submissions are counted as separate companies for the purposes of this analysis.

Exhibit 8

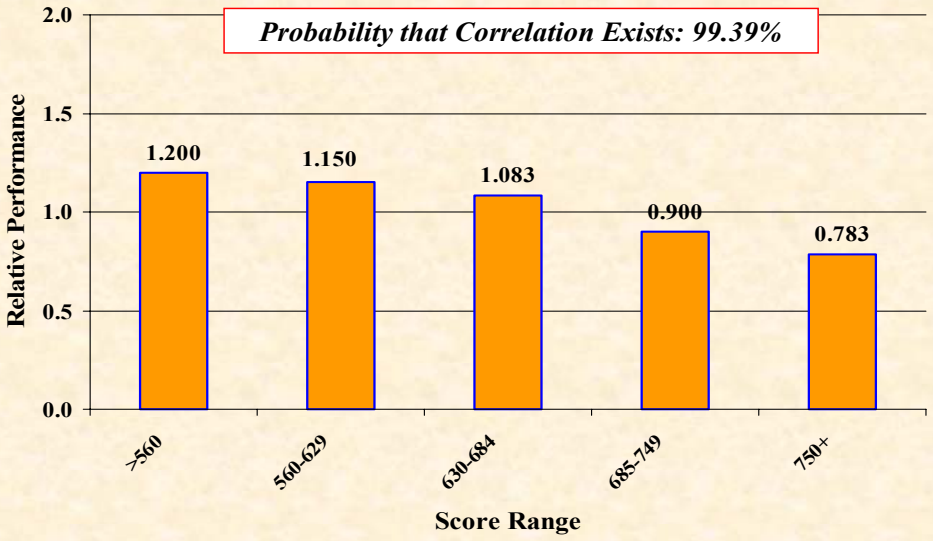
Homeowners Company A



Source: Tillinghast Towers-Perrin

Exhibit 9

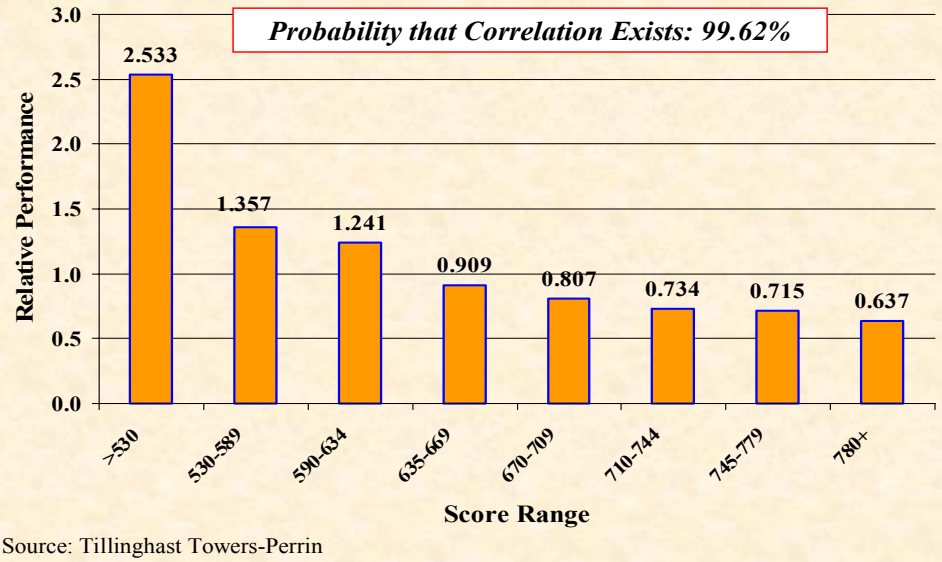
Homeowners Company B



Source: Tillinghast Towers-Perrin

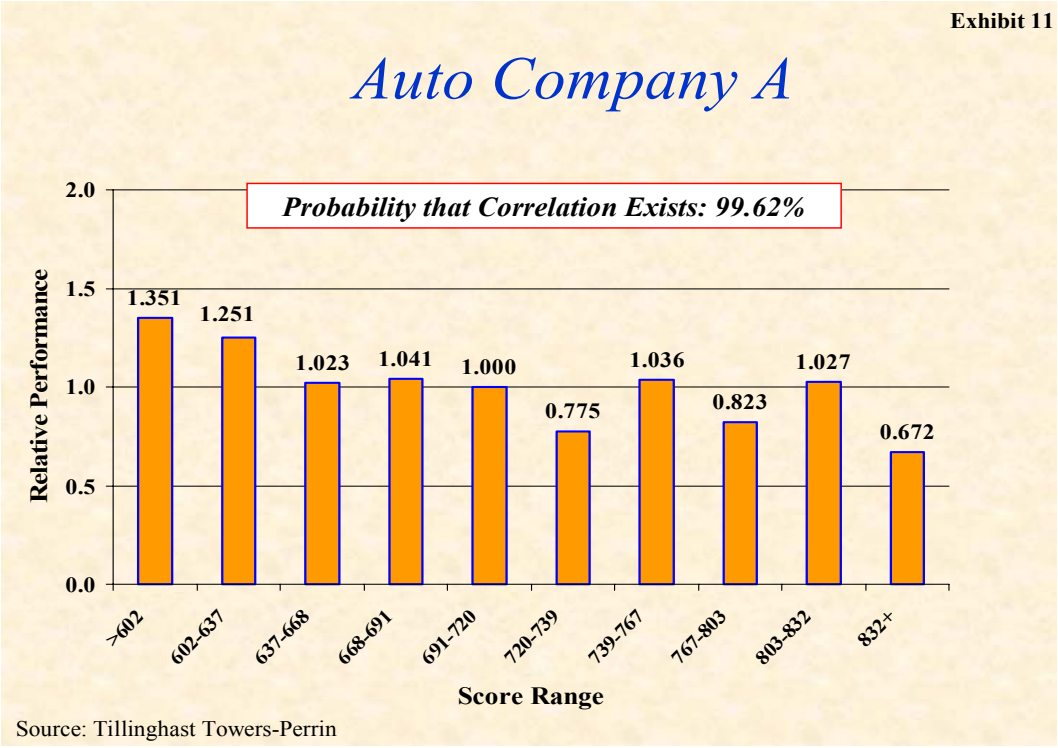
Exhibit 10

Homeowners Company C



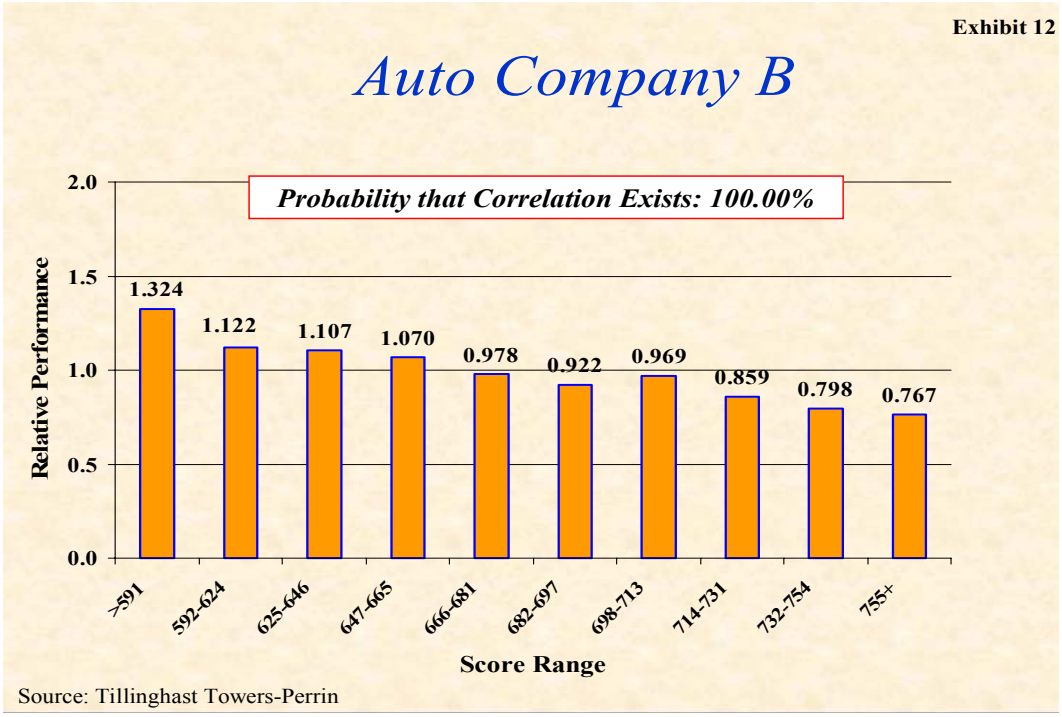
Source: Tillinghast Towers-Perrin

Exhibit 11



Source: Tillinghast Towers-Perrin

Exhibit 12



Source: Tillinghast Towers-Perrin

Exhibit 13

Casualty Actuarial Society Credit Study

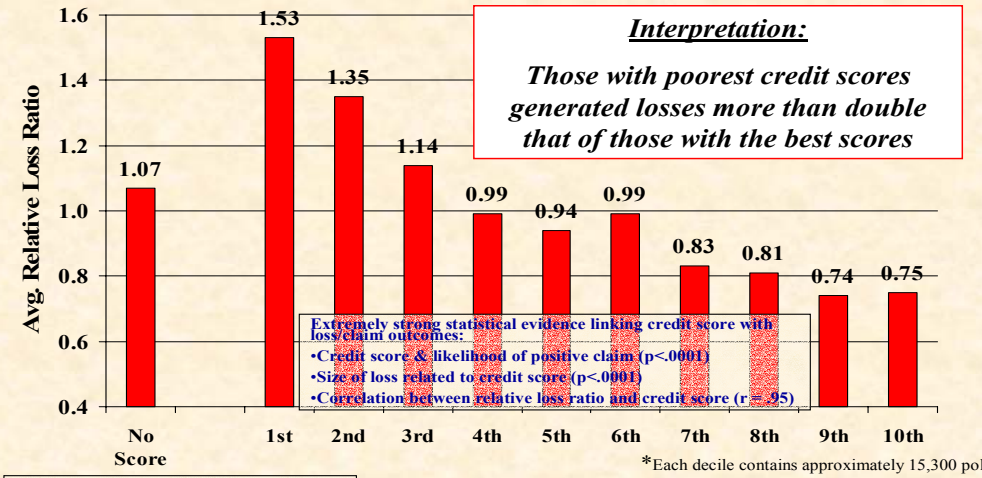
Personal Automobile Loss Ratio by Credit Category				
Category	**Earned Premium**	**Incurred Loss**	**Loss Ratio**	**Loss Ratio Relativity**
A	$74,279	$75,333	101.4%	133
B	158,922	124,723	78.5%	103
C	69,043	47,681	69.1%	91
D	91,746	52,688	57.4%	75
Total	**$393,990**	**$300,425**	**76.3%**	

Category A – Unacceptable Credit Rating
Category B – No established credit history (or does not meet the definition of A, C or D)
Category C – Good Credit Rating
Category D – Excellent Credit Rating

Source: Casualty Actuarial Society

Exhibit 14

Texas Auto: Relative Loss Ratio
*(by Credit Score Decile, Total Market)**



1st Decile = Lowest Credit Scores
10th Decile = Highest Credit Scores.

Score Range

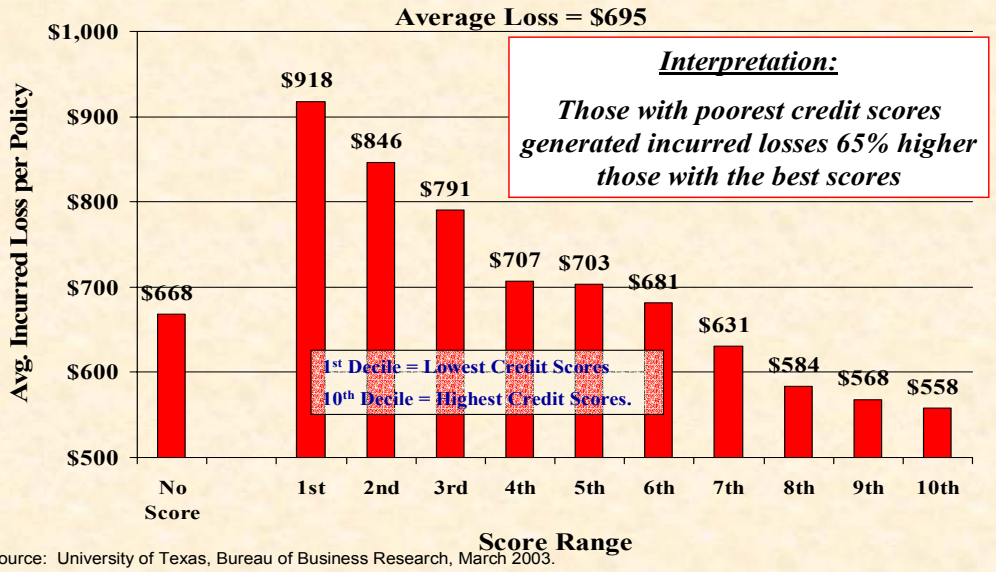
*Each decile contains approximately 15,300 policies. Includes standard and non-standard policyholders.

Source: University of Texas, Bureau of Business Research, March 2003.

Exhibit 15

Texas Auto: Average Loss per Policy

(by Credit Score Decile, Total Market)



Source: University of Texas, Bureau of Business Research, March 2003.

Exhibit 16

Washington State Study on Credit Scoring in Auto UW & Pricing

STUDY DESIGN

- WA State study released in January 2003 required under ESHB 2544, which also restricted the use of scoring
- Conducted by Washington State University (WSU)
- Objective was to determine who benefits/is "harmed" by scoring, impact of scoring on rates, disparate impacts on "the poor" or "people of color"
- Sampled about 1,000 auto policyholders from each of 3 insurers: age, gender, zip, inception date, score/rate class.
- Study's models typically explain only 5% - 15% of variation (very low R-square in regression analyses)
- WSU contacted policyholders asked: ethnicity, marital status, income, details of experience if cancelled

Exhibit 17

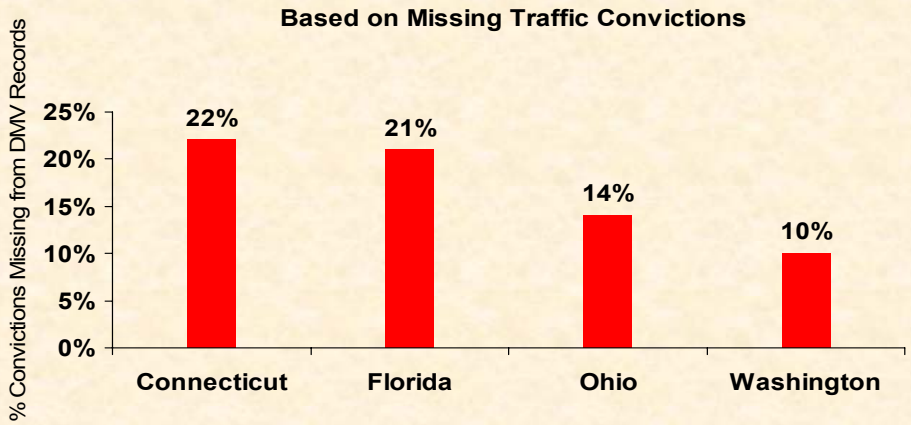
Washington State Study on Credit Scoring in Auto UW & Pricing

SUMMARY OF FINDINGS

- Statistically the findings are extremely weak, leading even the study's author to conclude: *"The ...models only explain a fraction of the variance in score or discount found in the sample population"* and that *"...while there are statistically detectable patterns in the demographics of credit scoring, most of the variation among individual scores is to due to random chance or other facts not in this data."*
- Study's models typically explain only 5% - 15% of variation (very low R-square in regression analyses).
- Strongest and most consistent finding is that credit score is positively associated with ***age***
  - ➢ Implication: banning on scoring creates disparate impact on older, more experienced drivers

Exhibit 18

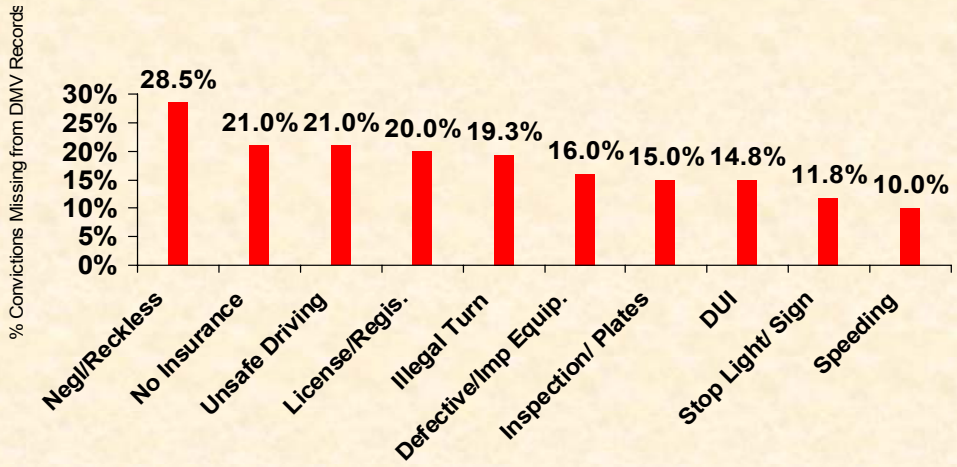
Overall Inaccuracy of State Motor Vehicle Records



Source: Insurance Research Council, *Accuracy of Motor Vehicle Records* (2002).

Exhibit 19

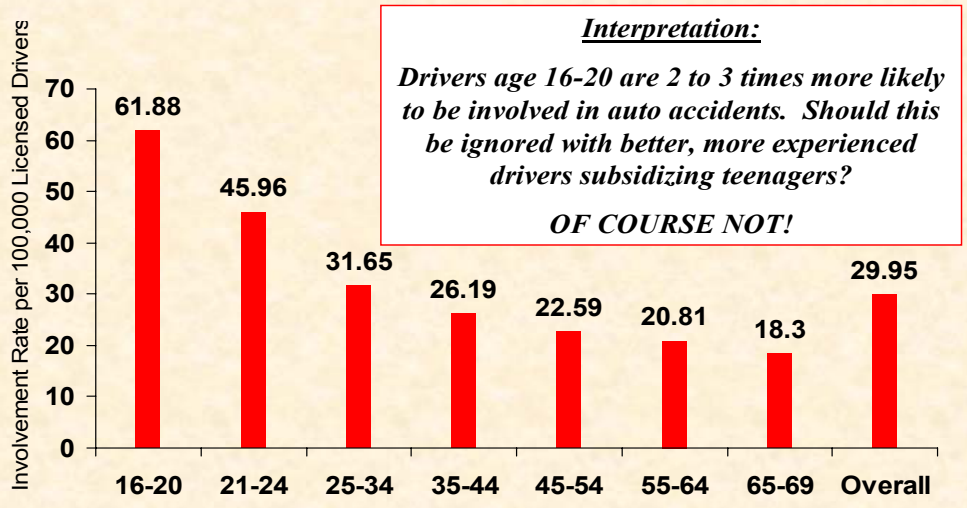
Average Omission Rate for Selected Convictions



Source: Insurance Research Council, *Accuracy of Motor Vehicle Records* (2002).

Exhibit 20

Age of Drivers Involved in Auto Accidents, 2000



Interpretation:

Drivers age 16-20 are 2 to 3 times more likely to be involved in auto accidents. Should this be ignored with better, more experienced drivers subsidizing teenagers?

OF COURSE NOT!

Source: National Highway Traffic Safety Administration, *Traffic Safety Facts 2000.*

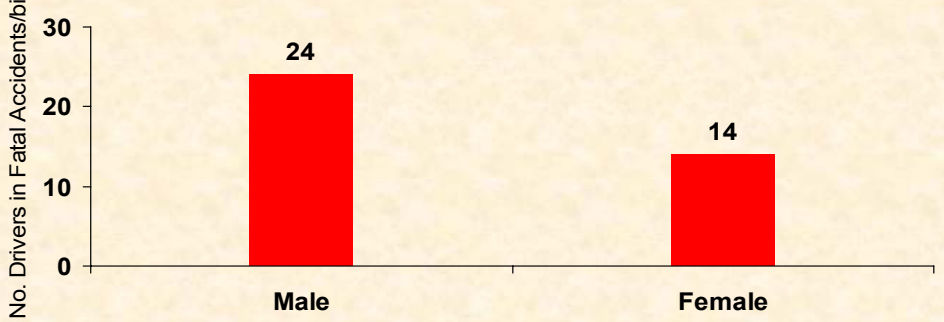
Exhibit 21

Gender of Drivers Involved in Fatal Auto Accidents, 2001

Interpretation:

Males are 71% more likely to be driving in fatal auto accidents. Should this be ignored and females be forced to subsidize males?

OF COURSE NOT!



Source: National Safety Council