

Antitrust Notice

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Risk Profile

Dave Ingram

Actuarial Risk Management

ERM Advisor

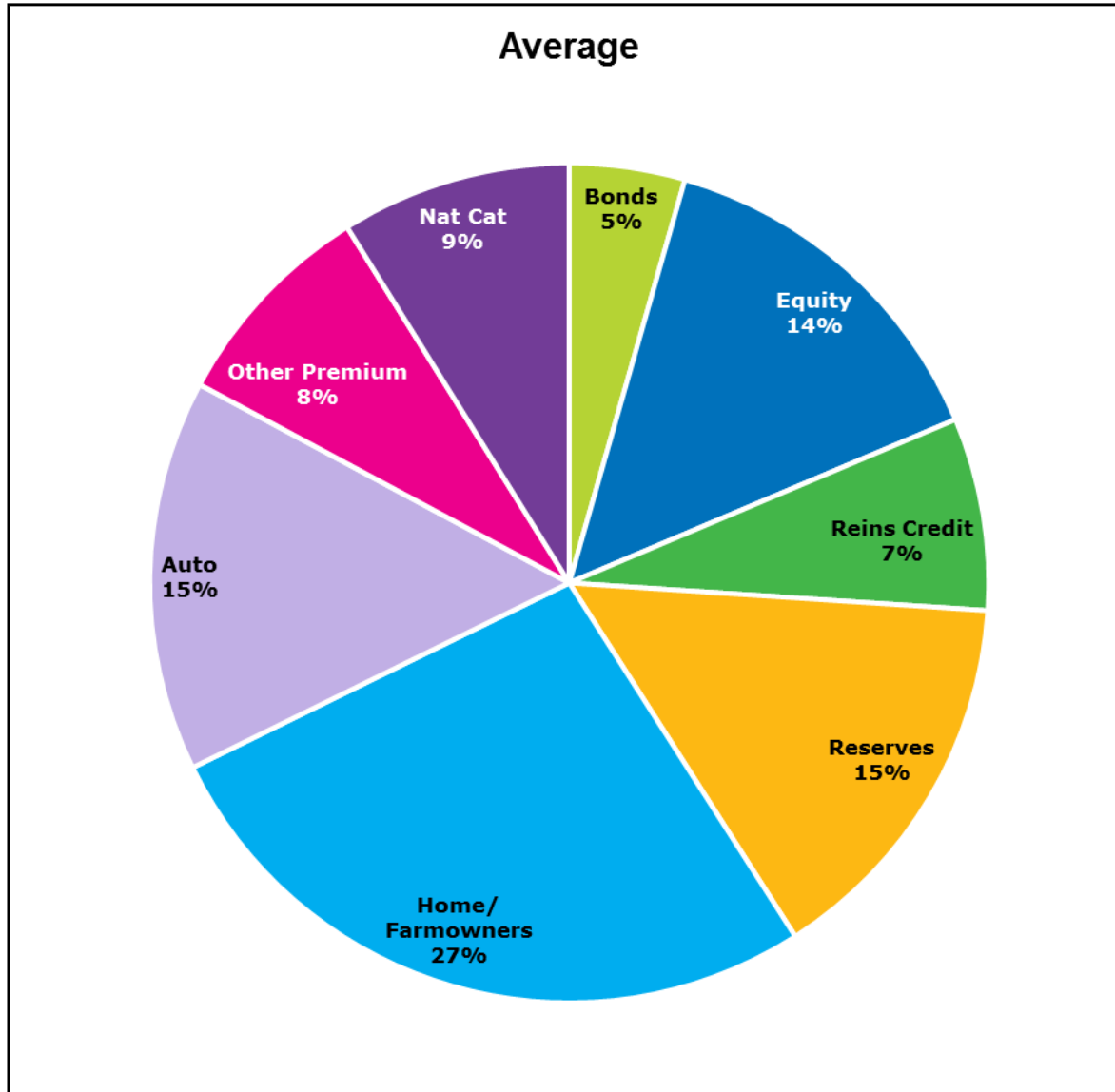
How do you describe the Profile of an Insurer?

- Most would define the profile in terms of
 - Gross Premiums
 - Net Premiums
 - Combined Ratios
 - Net Income
- Risk Management introduces a new Profile
 - Risk Profile

Risk Profile

- A look at the company activities from a risk perspective
 - How large are your risks – relative to each other
- Taking an Enterprise Perspective
 - Include Insurance, Investment and other risks
- Risk Profile is easy to construct
- Risk Profile is very powerful information
 - Strategic Planning Discussions
 - Discussions with Board
 - Discussions with Rating Agencies

Risk Profile Based on BCAR



Questions:

1. Does your Executive Team know the Premium Profile of the firm?
 - Of course they do
2. Do they also know the Risk Profile?
 - Do they know how the insurance and non-insurance risks compare in size?
3. When plans are made each year, is there any discussion of the changes in Risk Profile that will result?
4. Has the Risk Profile ever been presented to the Board?

Why Balance Risk Profile?

1. **Avoiding Concentrations of risks**
 - From doing more of what you do best
 - From risks that you do not see - **Risks in the Dark**
2. **To Be the Company that Mgt/Board wants to be**
 - Some companies have very different actual risk profiles than their self image
3. **To achieve the risk adjusted return that Mgt/Board wants**

The Law of Risk & Light

- Risks in the light shrink, Risks in the dark grow
- Return for Risks in the light shrinks faster than risk
- Return for Risks in the dark does not grow as fast as risk

All different aspects of Risk can be “In the Dark”

- Type A Risk – Short Term Volatility of cash flows in 1 year
- Type B Risk - Short Term Tail Risk of cash flows in 1 year
- Type C Risk – Uncertainty Risk (also known as parameter risk)
- Type D Risk – Inexperience Risk relative to full multiple market cycles
- Type E Risk - Correlation to a top 10
- Type F Risk - Market value volatility in 1 year
- Type G Risk – Execution Risk regarding difficulty of controlling operational losses
- Type H Risk – Long Term Volatility of cash flows over 5 or more years
- Type J Risk - Long Term Tail Risk of cash flows over 5 years or more
- Type K Risk – Pricing Risk (cycle risk)
- Type L Risk – Market Liquidity Risk
- Type M Risk – Instability Risk regarding the degree that the risk parameters are stable

Calculating a Risk Profile

Risk Profile

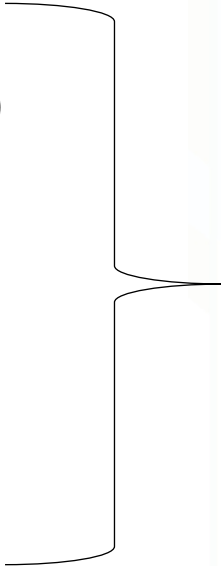
Initial Approach – Start with simple calculation

Suggestions:

1. Use both RBC, BCAR Factors and/or Stress Tests

2. Categories should be: (about 10)

- Major insurance lines (separately as in management reports)
- Reserves (one value unless you manage separately)
- Equities (if you have)
- Bonds (Interest and Credit)
- Reinsurer credit (if have large reserve credits outstanding)
- Operational (No BCAR Factor)
- Strategic (No BCAR Factor)



Bill will discuss this in a minute

3. Diversification Adjustment

- Start with Linear interpolation of 0% Correlation and 100% Correlation – Like RBC and BCAR



Best Practices in Building a Balanced Risk Profile



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Vice President, Chief Risk and Analytics Officer
Safety National Casualty Corporation

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General Risk Categories

There are two main risk categories Strategic and Operational with several attributes listed below. A good primer is *“the difference between strategic and operational risk”* on reciprocity.com

Strategic Risk:

- Technological Advancements – **Lack of AI/ML**;
- Geopolitical Challenges/Movements – **Supply Chain Issues**;
- Customer Sentiment Trends – **Climate Friendly Demands**; or
- Poor/Corrupt Management – **FTX Collapse**;

Operational Risk:

- Inadequate or failed internal processes/business protocols;
- People Risk;
 - Human Error;
 - Inadequate Training;
 - Fraud;
- Technology Issues;
 - Hardware;
 - Software;
 - Regulation (i.e. Privacy); or
- External Events;
 - Catastrophic Events;
 - Cyber.



Operational Risk Assessment

Generic Risk Register for Operational Risk

No.	Middle Classification	Small Classification	Risk components	Financial / Regulatory Impact	Likelihood	Material or Not Material	Events (If you have more than one event for a risk component, please add to bottom)	Frequency from Scenario Analysis	Severity from Scenario Analysis	Addressed in Insurance Risk	Risk Owner(s)
1	Poor Performance Risk	Business Strategy	Failure to assess market conditions and create a robust business plan								
2			Taking risks too much, causing loss experience growth and beyond the risk tolerance								
3			Management does not follow the authorized business plan								
4			Others, mistake in strategy selection								
5		Distribution	Failure in construction of sound distribution channel								
6		Product	Failure to anticipate future pricing trends of business underwritten and changes to the risk environment								
7		Actuarial Modeling Errors	Modeling controls failure								
8		Claims Service	Failure to foresee adverse claims developments through changes in judicial rulings, legislation.								
9		Dependency on Key Personnel	Key personnel leaving company								
10		Professional Advisors Failure	Inadequacy of Human Resources Solicitor, CPA, Actuary, IT Vendor etc's Failure								
11	Underwriting Risk	Selling Mistakenly	Guidelines are inappropriately applied, causing risk retained								
12			Failure to capture underwriting data accurately								
13	Legal Risk	Selling Mistakenly	Intermediaries selling products inappropriately for customers causing fines and loss of business								
14			Legal	Deficiency in a contract (Partner contract and Insurance contract included)							
15		Financial crime, money laundering									
16		Non-compliance with local laws and regulatory requirements									
17	Office Work Risk	Claims Service	Claims paid out as a result of Inadequate internal checks								
18		Accounting Errors	Human error in accounting								
19			Inadequate financial controls								
20		Reinsurance Contract Failure	Inappropriate reinsurance purchase Inadequate reinsurance								
21		Outsource Failure	Outsource not providing the service contracted or correcting service fees in unexpected schedule								
22			Delay in premium collection								
23		Investment, Liquidity, Credit	Financial Loss as a result of Inadequate internal checks								
24	System Risk	Systems Failure	System failure not caused by internal and external uncontrollable forces								
25	Information Security Risk	Information Security	Leakage of important, confidential or personal information								
26	Accident, Hazard, Crime Risk	Business Continuity	Natural hazard occurrence								
27			Flu Pandemic								
28			Terrorist attack								
29		Fraud	Intermediaries crossing up clients to gain unfair profits, causing unexpected lapses and expenses								
30			Employee's fraud and misconduct								
31	Third party's fraud										
32	Reputational Risk	Reputation	Circulation of dismissive rumor, causing credit and brand deterioration								



Insurance Risk Categories

All of the Risk Types previously discussed apply to Insurance Companies. Whether Life Insurance or Property Casualty Insurance (General Insurance) oriented, however the risks are reorganized to fit the Insurance Business Model.

➤ Underwriting Risk –

- Natural Catastrophe Risk – **Floods, Earthquakes, Tsunami, Wildfires;**
- Premium Risk – **Incorrect Current Year Budgeted Loss Ratio due to poor risk selection;**
- Reserve Risk – **Inadequate level of held Reserves due to unforeseen factors;**

➤ Investment Risk –

- Market Risk – **Loss Due to overall Investment Market Performance;**
- Investment related Credit Risk – **Failure of a party (ex. bond payer) to meet its obligations;**

➤ Other Major Risks –

- Non-Investment related Credit Risk – **Failure of a party (ex. Reinsurer) to meet its obligations;**
- Liquidity Risk – **will the assets loss value due to the need to liquidate immediately;**
- Operational Risk – **see slide 13;** and
- Group/Parent Risk – **loss as a result of a Parent or Affiliate company's action.**



Capital and Risk Assessment

Example Risk Assessment Dashboard - BoD Version

Risk Basis - 99%TVaR in USD

Risk Category	Risk Measure	Current Period Estimate	Prior Period Estimate	Change (%)	Remarks
1) Total Pre-Tax Risk (After diversification)	DFM	\$4,000,000,000	\$3,600,000,000	11.1%	Risk increased due to ...
2) Federal income Tax Benefit	-	\$840,000,000	\$756,000,000	11.1%	FIT @ 21% times 1)
3) Total After-Tax Risk (After diversification)	-	\$3,160,000,000	\$2,844,000,000	11.1%	Total Pre-Tax Risk(After Diversification) Reduced for FIT
4) Shareholders Equity	-	\$7,900,000,000	\$7,110,000,000	11.1%	Movement in Equity is based on ...
5) Economic Solvency Ratio	BoD	250.0%	195.3%	28.0%	Decision to Deploy Excess Capital Needed
6) Excess Capital	-	\$4,740,000,000	\$4,266,000,000	11.1%	Movement in Excess Capital is in alignment with movement in Overall Risk and Equity
Risk Category Assessments					
A) Underwriting Risk - Correlated Nat Cat Risk, Premium and Reserve Risk	DFM	2,097,395,331	2,306,671,627	-9.1%	The Reserve Risk assessment drove this due to improved negotiations on large claims.
B) Investment Risk - Correlated Market .and Investment-related Credit Ris	DFM	\$1,537,629,216	\$1,439,409,134	6.8%	Risk increase due to additional Market Risk in portfolio
C) Non Investment-related Credit Risk	DFB	\$810,196,163	\$717,643,122	12.9%	Growth in risk is in line with revenue projections and Reinsurer Grade changes
D) Liquidity Risk	DFB	\$249,792,850	\$224,490,083	11.3%	Growth in line with revenue growth
E) Operational Risk	DFB	\$280,719,200	\$259,629,492	8.1%	Based on Model Risk Register Values and revised probability estimates
F) Group Risk	DFB	\$32,845,803	\$28,749,625	14.2%	Group Risk grew relative to revenue growth
G) Total Pre-Tax Risk (Before diversification) - Simple Sum A thru F	DFM	\$5,008,578,562	\$4,976,593,084	0.6%	Total of UW, Investment, Credit, Liquidity, Ops & Group
H) Diversification effect - based on Correlation Study of Risks	-	\$1,008,578,562	\$1,376,593,084	-26.7%	Total Risk Before Diversification - Total Risk After Diversification

- 1) G) - H)
- 2) Federal Tax Rate times 1)
- 3) 1) - 2)
- 4) Company Assests minus Company Liabilities
- 5) 4) divided by 3)
- 6) 4) - 3)

DFM = Difference between the 99% TVaR Modeled Estimate and Mean Modeled Estimate

DFB = Difference between zero and 99%TVaR Modeled Estimate



Claims Portfolio Characteristics

Whether Life Insurance or Property Casualty Insurance (General Insurance) oriented, risks are treated in accordance to the mechanics of claim reportings and claims payments. How the company invests, the pricing of it's products or the processes that get established revolve around how the inflow & outflow of money occurs.

These flows are described in terms of “tails”.

Short Tailed

(Payments Less Than 12 Months)
High Claim Volume/Low Claim Cost

- Health Insurance
- Property Insurance (Homeowners policies or Building Policies)
- Personal Automobile

Medium Tailed

(Payments 12 - 120 Months)
Medium Claim Volume/Medium Claim Cost

- Annuities Contracts
- Disability Insurance
- General Liability Policies
- Medical Malpractice Policies

Long Tailed

(Payments More Than 120 Months)
Low Claim Volume/High Claim Cost

- Life Insurance
- Workers' Compensation Insurance
- Excess Insurance/ Reinsurance



Short-Tail Lines Key Risks

With the shorter duration, having cash available for payments outside the “normal year” of payments is critical. So you need to anticipate anything that would cause a high cash need. This could be poor underwriting risk selection, a natural catastrophe or unintended coverage of events. The following would be the Key Risks for modeling.

1 Underwriting Risk

- Premium Risk
- Natural Catastrophe Risk

2 Other Major Risks

- Liquidity Risk
- Non-Investment related Credit Risk (Reinsurance Risk)



Medium-Tail Lines Key Risks

Medium durations have a combination of shorter timeframe payments coupled with occasional large lump sum payments. The following are some Key Risks for modeling.

1 Underwriting Risk

- Pricing Risk
- Reserve Risk

2 Other Major Risks

- Investment Risk (both Market & Credit Risk)
- Operational Risk (specifically Model Risk & Fraud Risk)



Long-Tail Lines Key Risks

Long durations have the greatest amount of unknown. Whether it is from claims being reported years after the policy incepts or the indeterminable length of payments to be made.

1 Underwriting Risk

- Reserve Risk

2 Other Major Risks

- Investment Risk (both Market & Credit Risk)
- Operational Risk (specifically Model Risk)

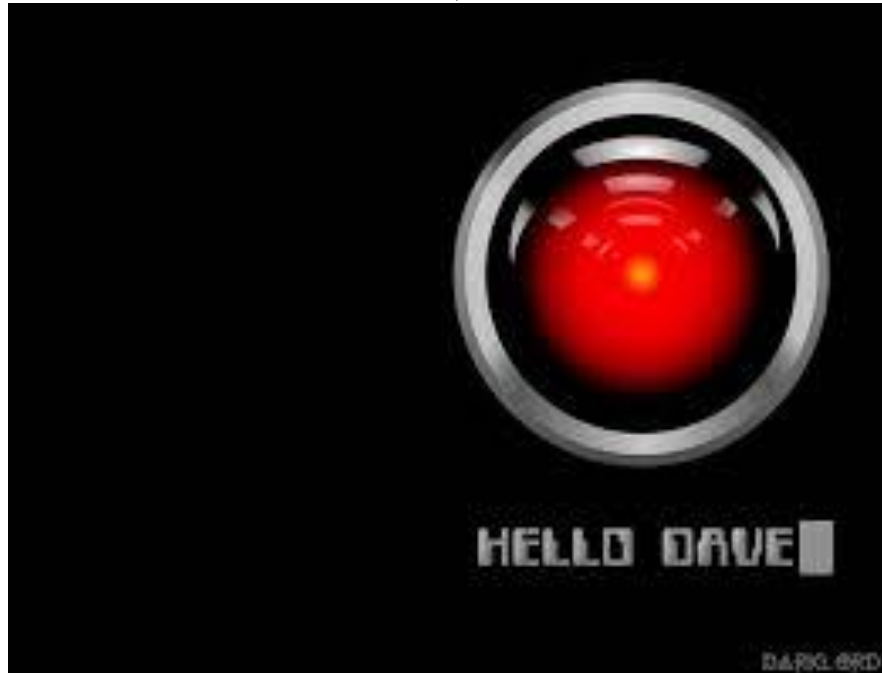


Common Key Risks

All companies share one common risk, People.

Strategic Risk

Operational Risk



Summary: Diversity, Inclusion and Equity

Diversity:

- The Best Way to Balance your Risk Portfolio is to Understand the Drivers of your Risk and preferably be a diverse balanced organization;
- Like Investment Portfolios, a spread of risk can prevent significant loss most of the time;
- Try to Optimize your tail scheme to help;
- Realize it is not fool proof, because people are still involved;

Inclusion:

- Include everything you are exposed to in terms of your risk thinking;
- But realistically assess the true drivers within your processes. This helps with balance;

Equity:

- Remember Equity (surplus) is ultimately what you are trying to protect;
- A balanced risk portfolio aids in maintaining and promoting growth.



Comparing Risk Profiles

Risk Profiles based upon Stress Tests of 30 PC Insurers

Average Risk Profile



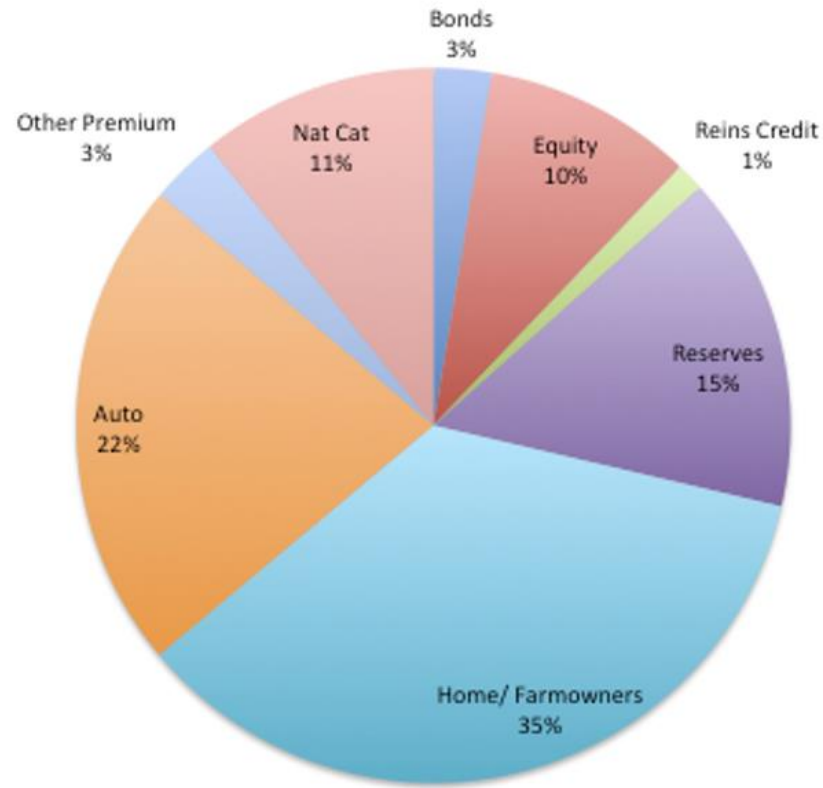
Risk Categories

- Bonds
 - Credit & Interest Rate Risk
- Equities
 - Risk of Market Value Fluctuation
- Reinsurer Credit
 - Risk of Failure of Reinsurer to pay amount of reserve offset
- Reserve
 - Risk of Unfavorable reserve development
- Premium
 - Risk of unfavorable fluctuations in Combined Ratio
- Nat Cat
 - Risk of fluctuations in Combined Ratio from Natural Catastrophe

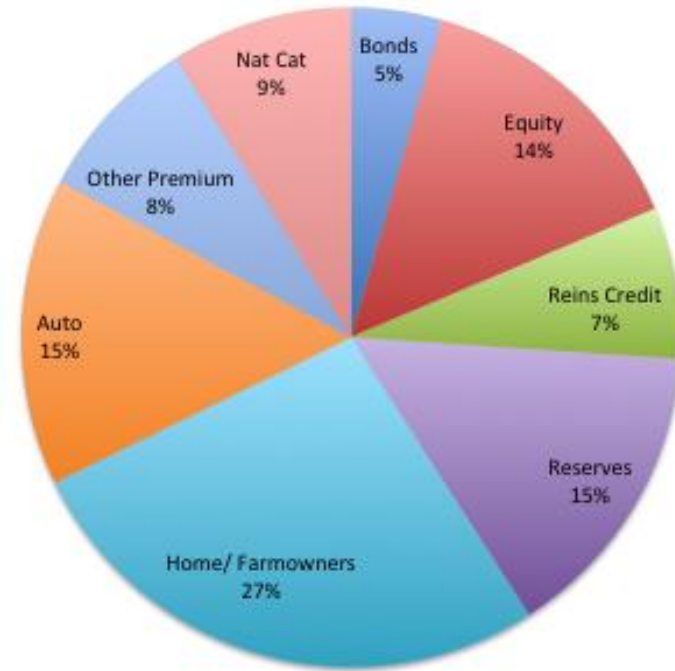
Risks Not Considered

- Operational
 - Risk of loss from failed operational process, lawsuits, human resource problems, IT problems
- Liquidity
 - Risk of loss due to lack of cash availability to pay claims or other obligations
- Strategic
 - Risk of loss due to failure of the business model including competition and shifts in the demand for company products

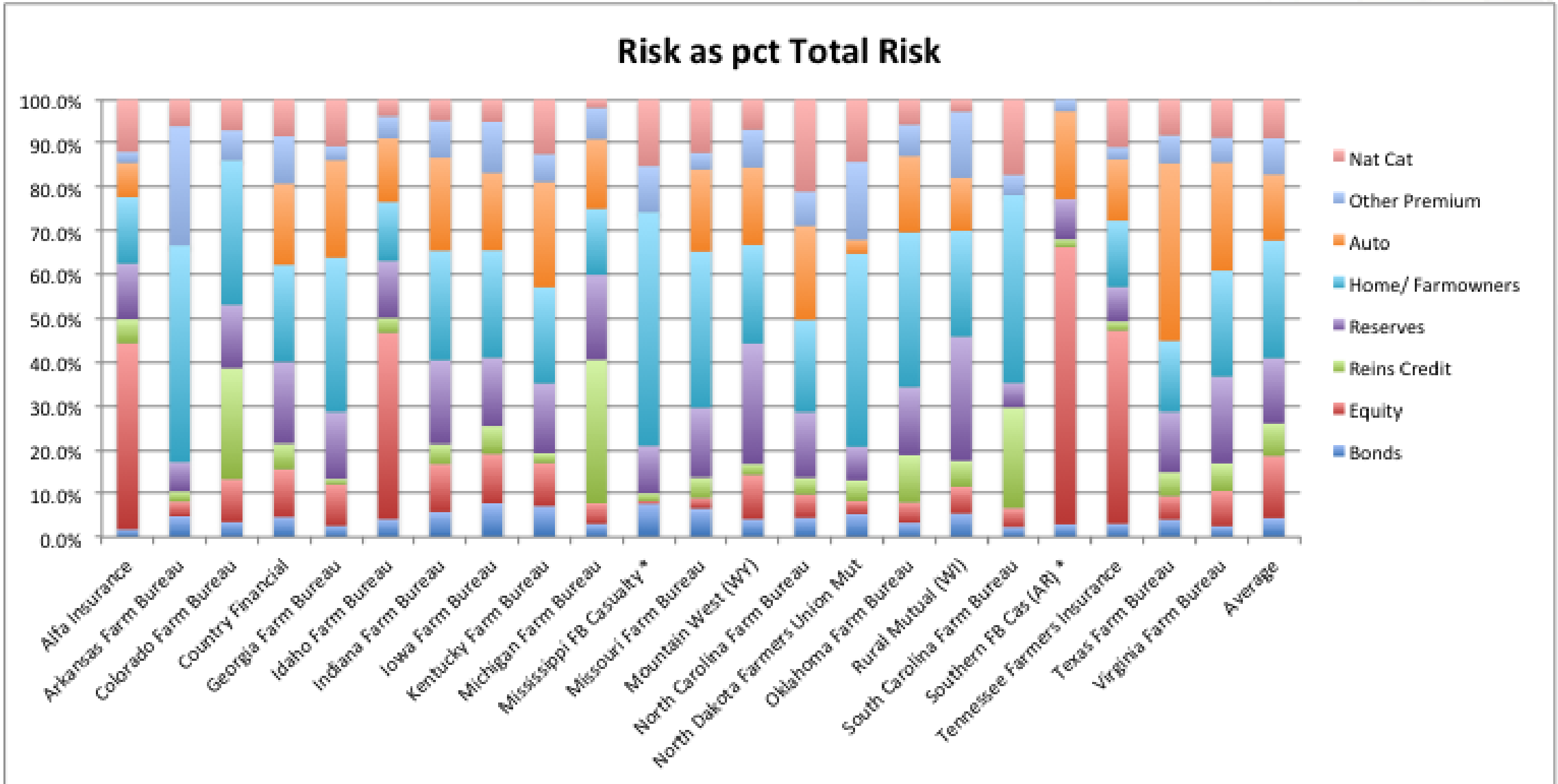
XYZ Farm Bureau



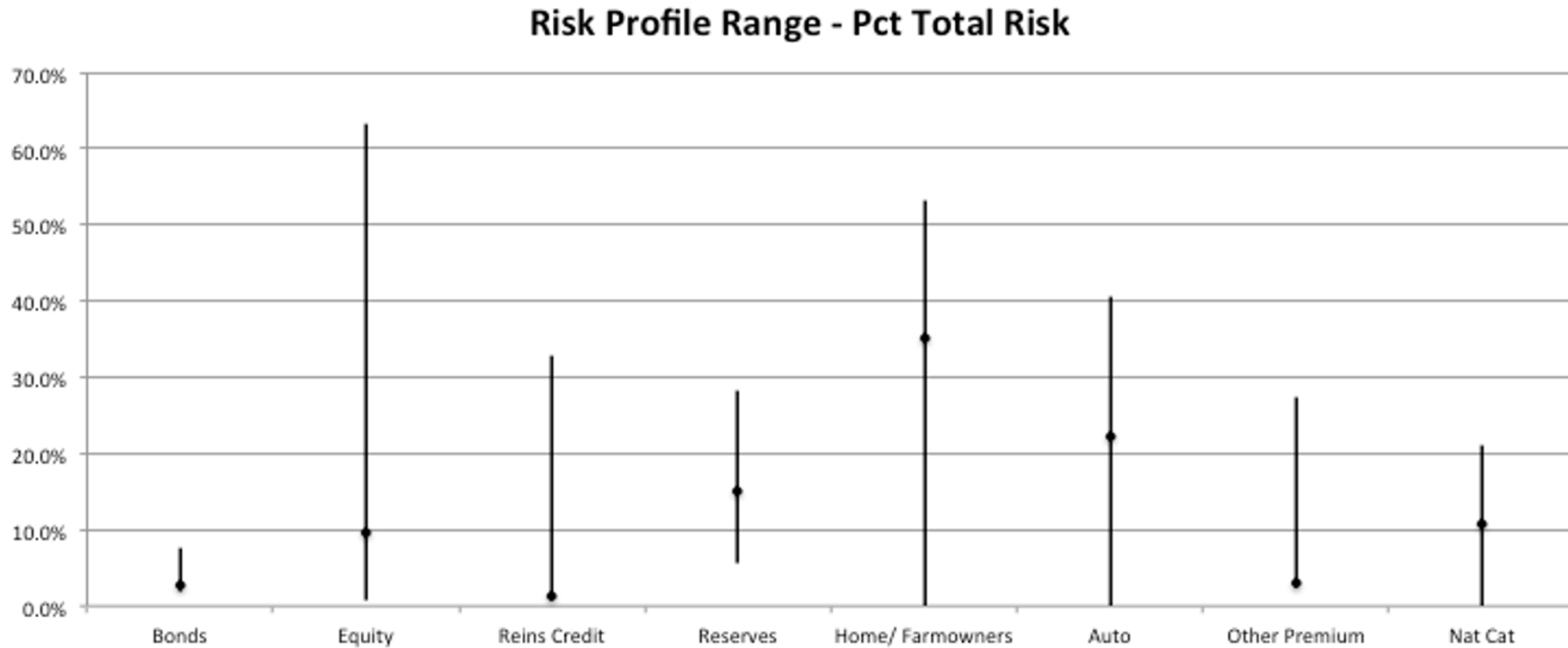
Average



Risk as Pct Total Risk

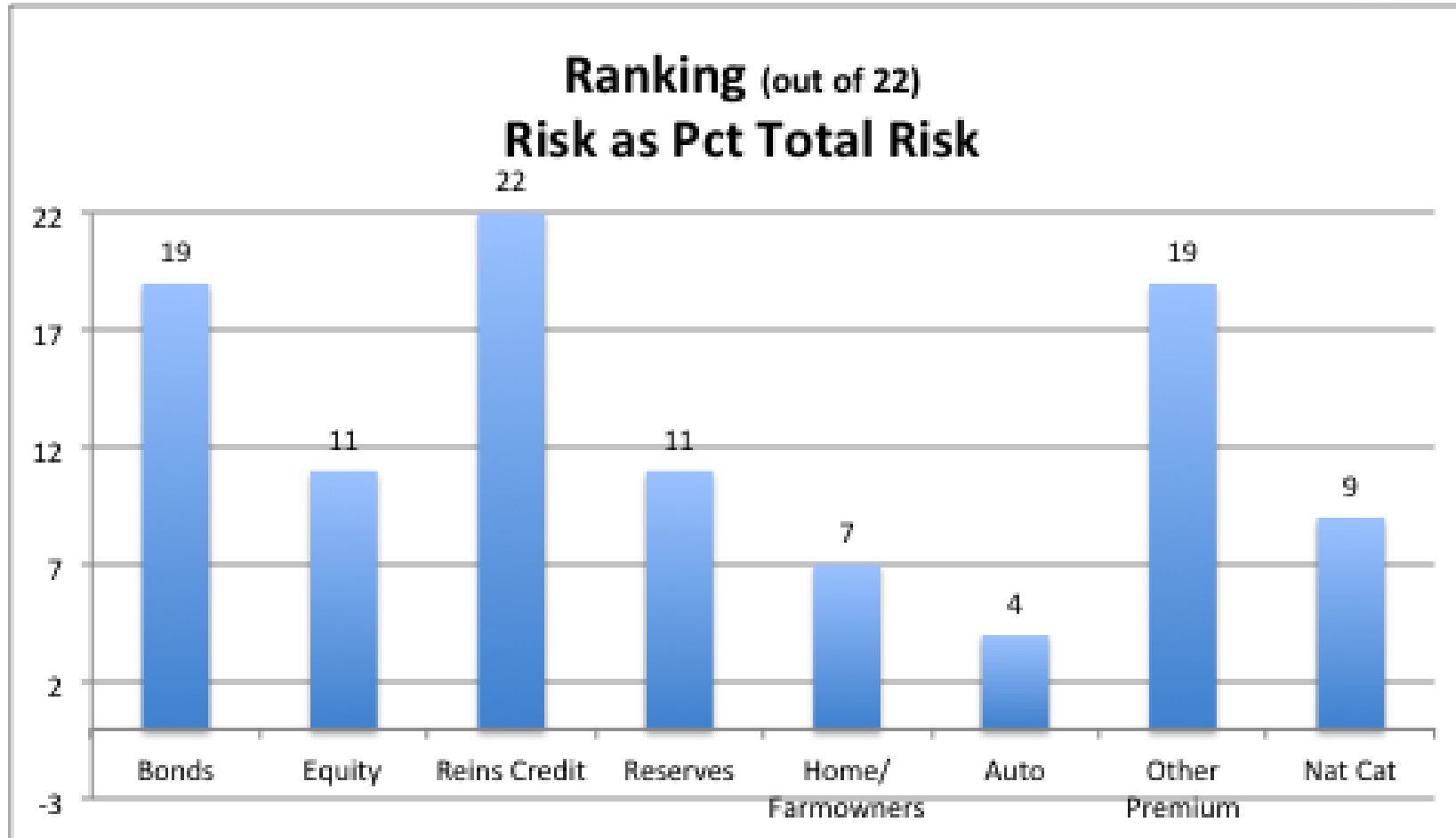


Range of Values



- XYZ Farm Bureau

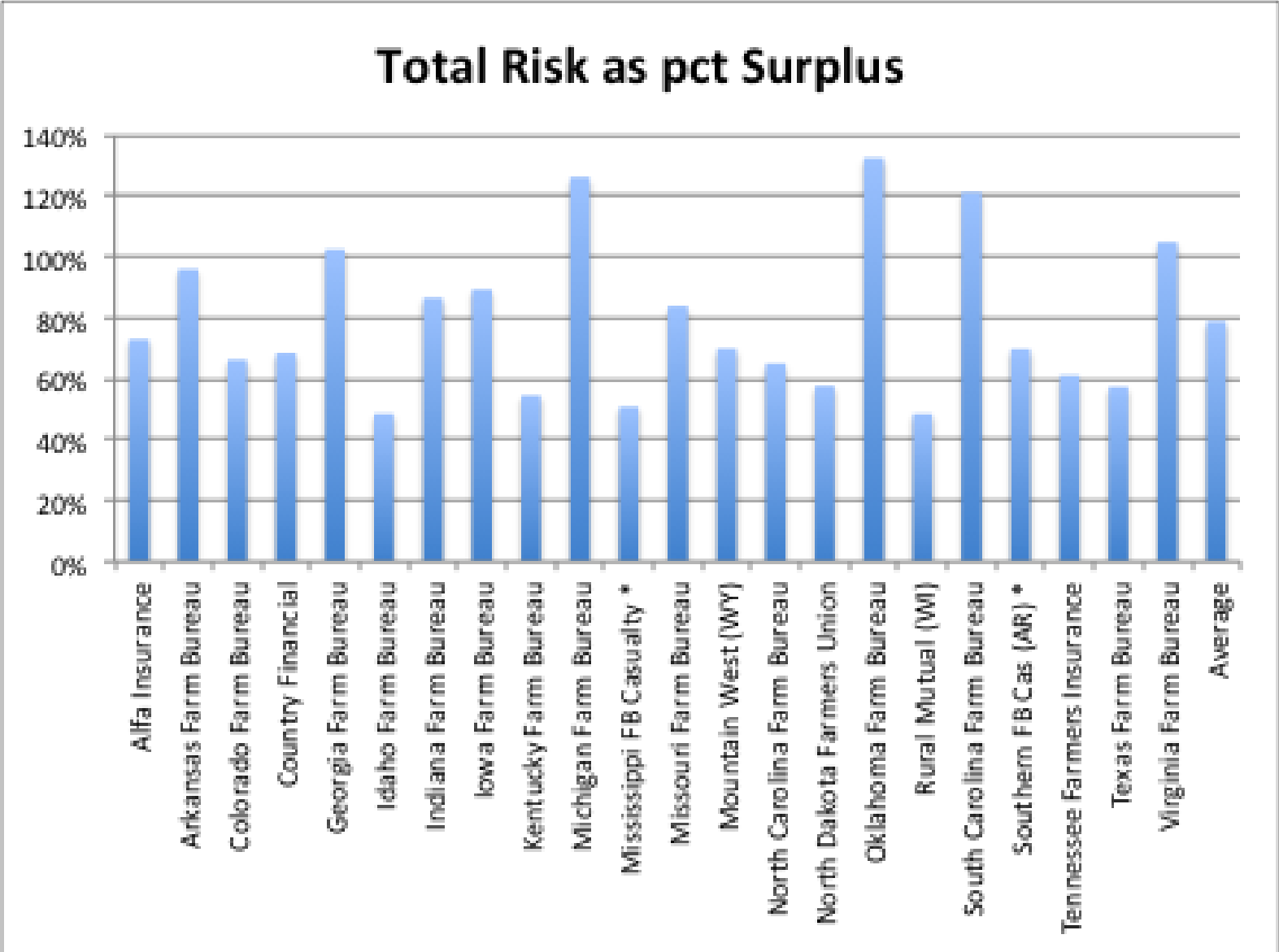
XYZ Rankings



* Rank of 22 is the lowest percentage among group.

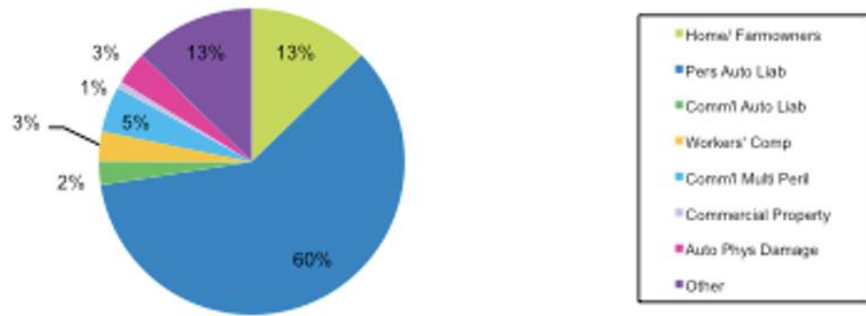
Total Risk

without diversification adj.

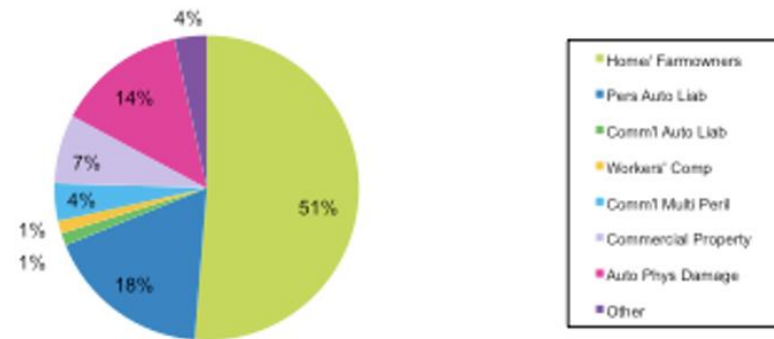


Premium Risk

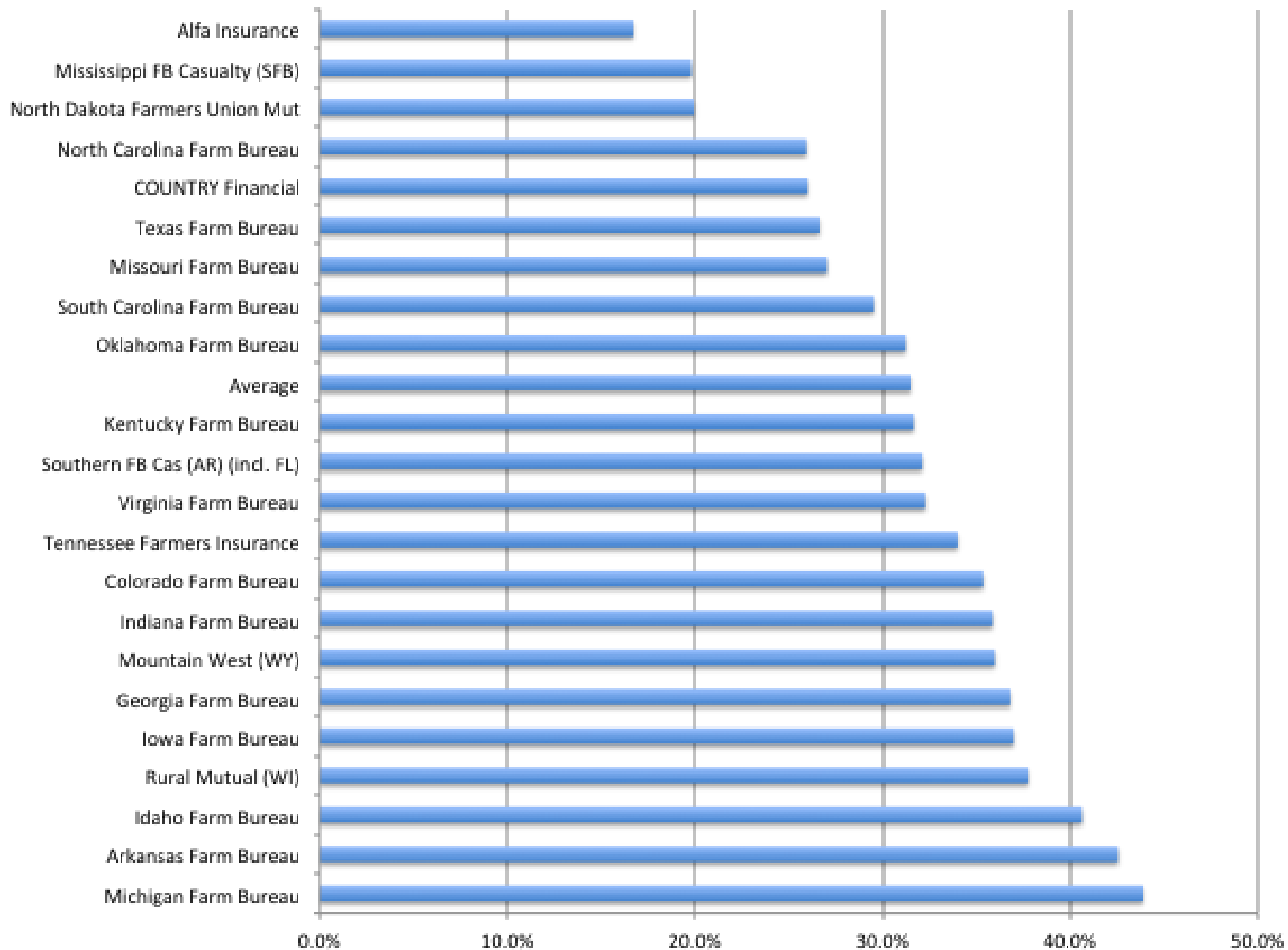
XYZ Farm Bureau



Peer Average

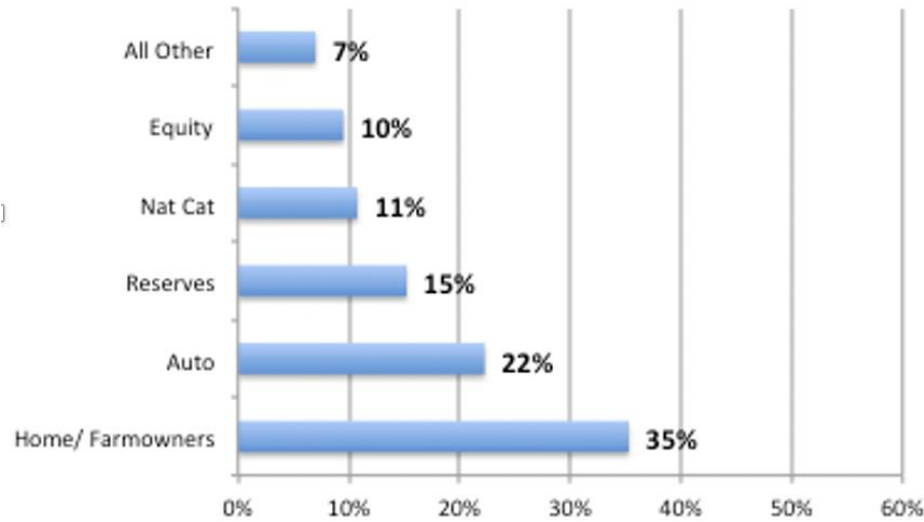


Diversification Credit

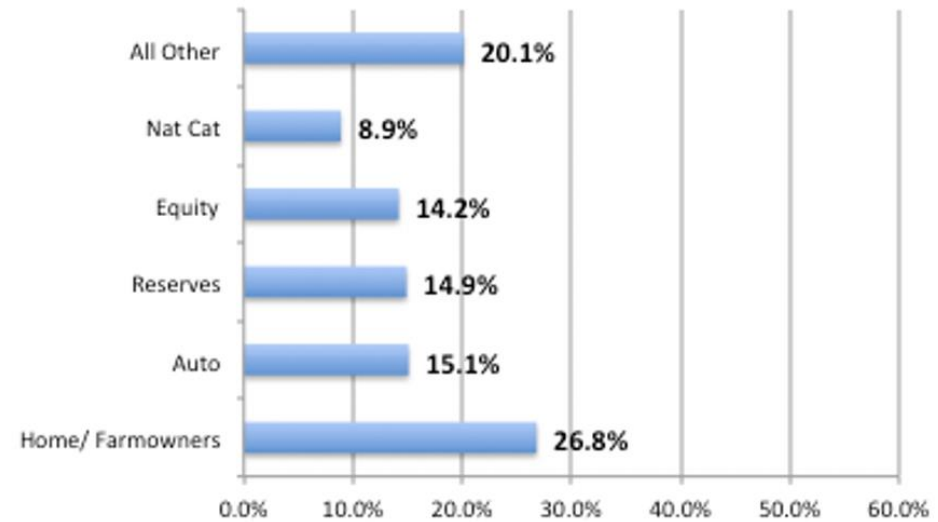


Risk Profiles – Top 5 Risks

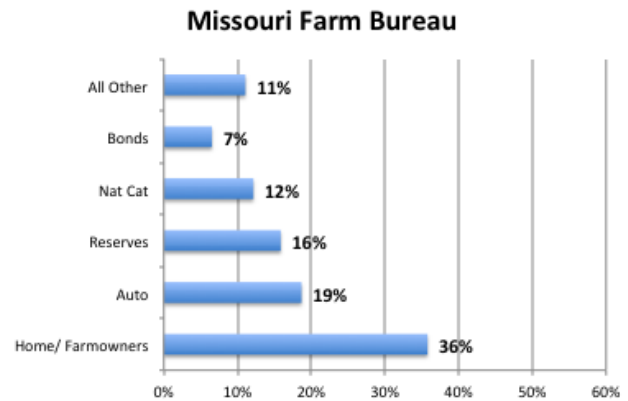
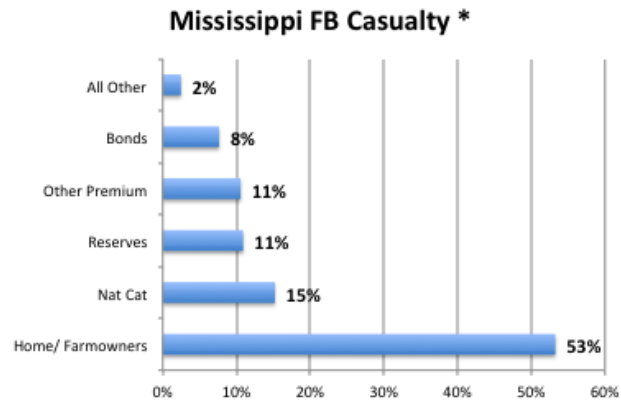
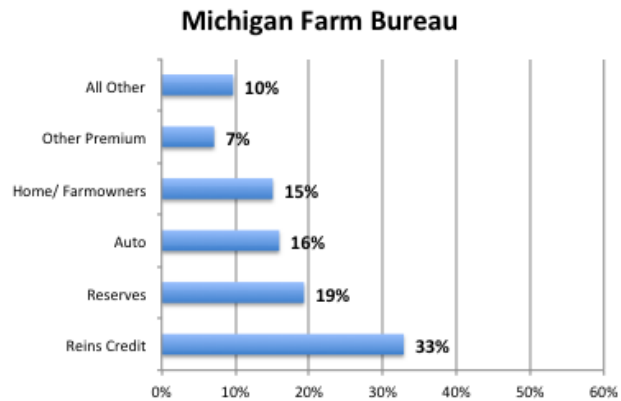
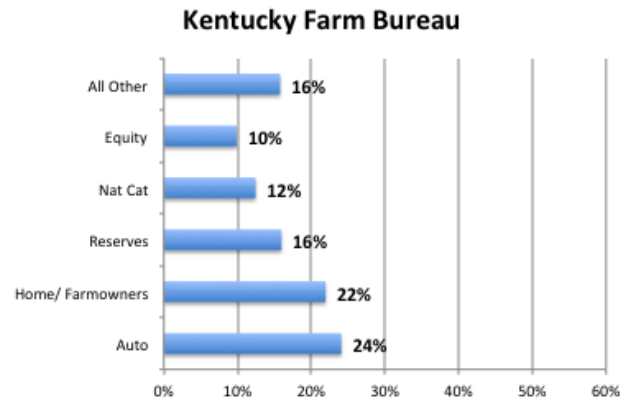
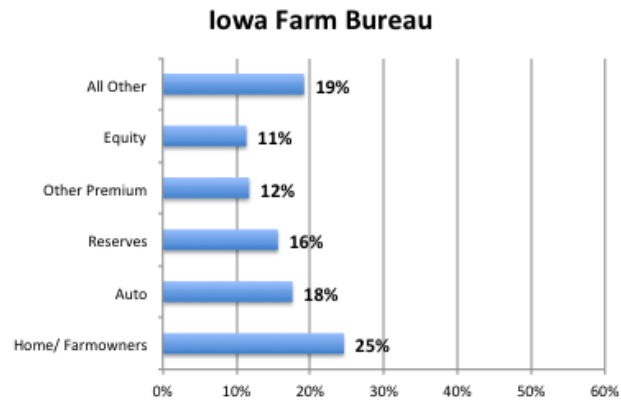
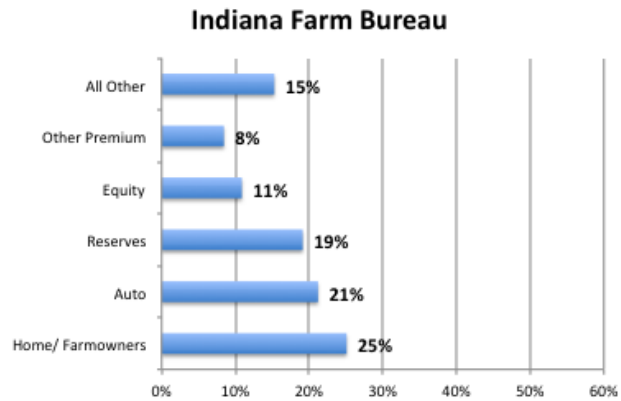
XYZ Farm Bureau



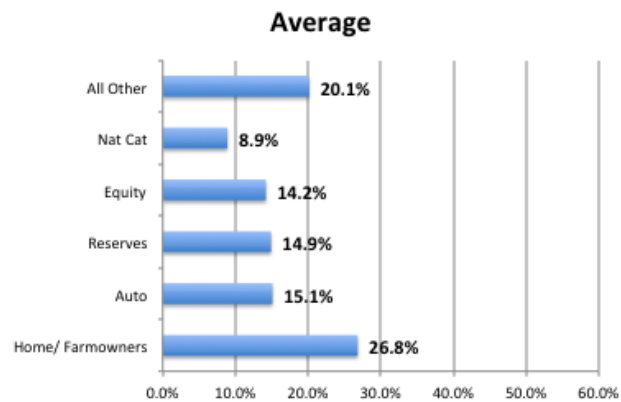
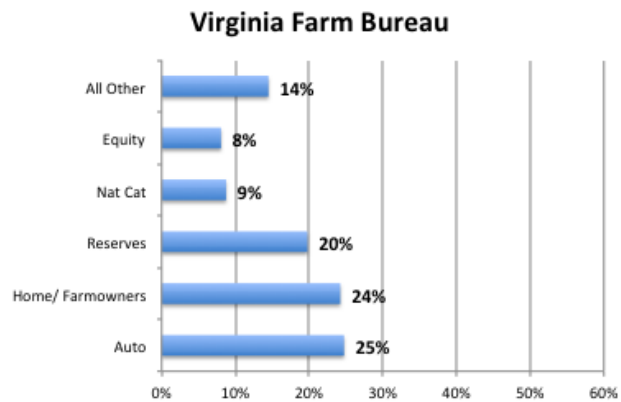
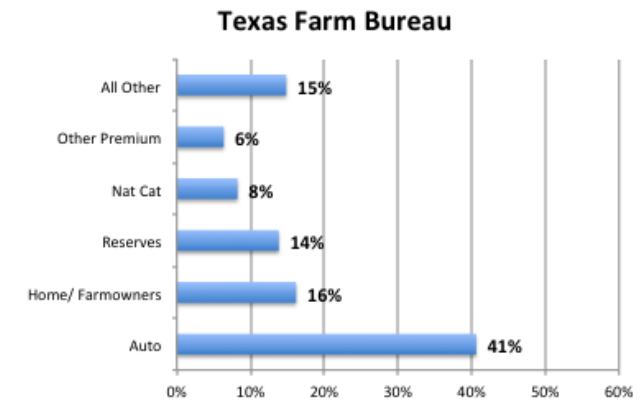
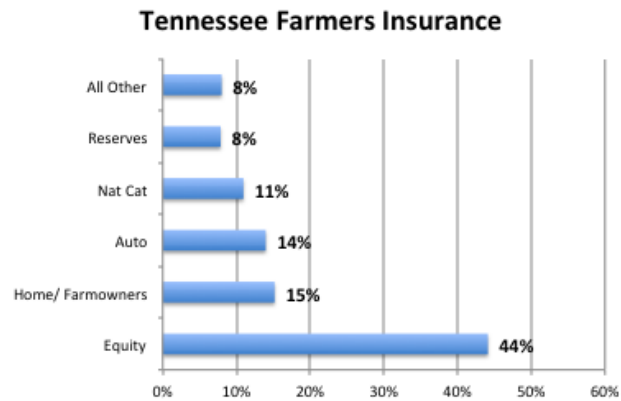
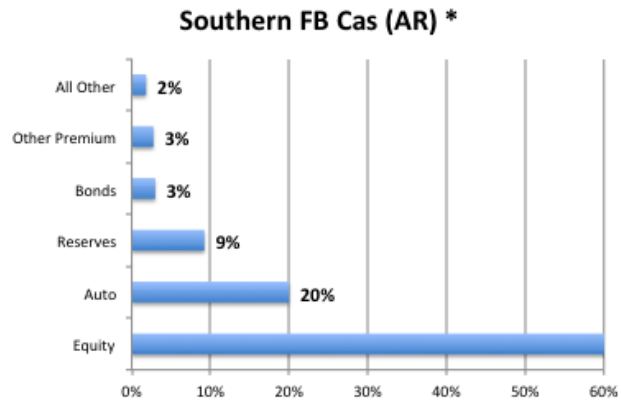
Peer Average



Risk Profiles – Top 5 Risks



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Which Risks are Important?

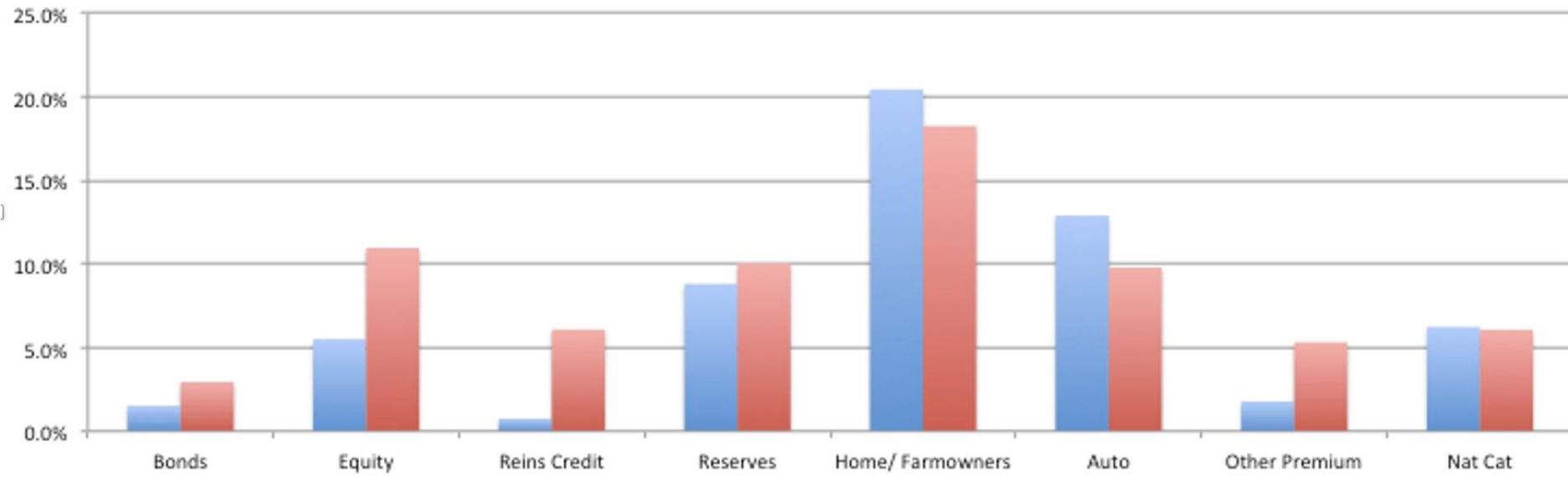
- Homeowners/Farmowners is 1 top risk for 50% of companies
 - And one of top 5 risks for 95% of companies
- Auto is #1 for 18% of companies
 - And one of top 5 for 77% of companies
- Equities is also top risk for 18% of companies
 - And one of top 5 for 59% of companies
- Reserves is one of top 5 for all 22 companies
 - But is only the #1 risk for 9%

Risk Profile - Pct Net Premiums Written

(000)

Company	Bonds	Equity	Reins	Credit	Reserves	Home/ Farmowners	Auto	Other Premium	Nat Cat	Total Risk	Excess Surplus	Surplus
Colorado Farm Bureau	4.6%	12.8%	33.0%		18.9%	43.2%	0.0%	8.9%	9.2%	130.6%	66.6%	197.2%
Idaho Farm Bureau	3.6%	36.0%	3.0%		11.0%	11.4%	12.3%	4.3%	3.2%	84.8%	90.0%	174.8%
Tennessee Farmers Insurance	2.8%	40.2%	1.9%		7.2%	13.8%	12.7%	2.5%	10.0%	91.1%	57.9%	149.0%
Southern FB Cas (AR) *	2.8%	59.1%	1.7%		8.6%	0.0%	18.7%	2.6%	0.0%	93.4%	40.6%	134.0%
Mississippi FB Casualty *	5.0%	0.4%	1.2%		7.1%	34.9%	0.0%	6.9%	10.0%	65.5%	63.3%	128.9%
Rural Mutual (WI)	3.0%	3.3%	3.2%		15.6%	13.3%	6.6%	8.3%	1.6%	54.9%	58.3%	113.3%
Texas Farm Bureau	2.5%	3.2%	3.3%		8.4%	9.8%	24.5%	3.8%	5.0%	60.4%	45.0%	105.4%
Kentucky Farm Bureau	4.0%	5.6%	1.3%		9.1%	12.5%	13.7%	3.6%	7.1%	57.0%	47.5%	104.5%
Mountain West (WY)	3.0%	7.3%	1.8%		19.8%	16.3%	12.8%	6.2%	5.0%	72.3%	31.2%	103.4%
Average	3.0%	11.0%	6.1%		10.1%	18.3%	9.8%	5.3%	6.1%	69.5%	27.1%	96.6%
North Dakota Farmers Union Mut	3.0%	1.6%	2.7%		4.3%	24.4%	1.7%	9.9%	7.9%	55.4%	40.6%	96.0%
North Carolina Farm Bureau	2.8%	3.2%	2.4%		9.1%	12.9%	13.1%	4.8%	12.8%	60.9%	32.9%	93.8%
South Carolina Farm Bureau	2.4%	4.3%	23.2%		5.8%	43.3%	0.0%	4.6%	17.5%	101.1%	-17.7%	83.4%
Alfa Insurance	1.1%	25.8%	3.4%		7.7%	9.2%	4.8%	1.6%	7.2%	60.8%	22.5%	83.3%
Country Financial	2.6%	6.0%	3.3%		10.4%	12.3%	10.4%	6.0%	4.7%	55.7%	25.7%	81.4%
Missouri Farm Bureau	4.0%	1.5%	2.9%		9.7%	21.9%	11.4%	2.4%	7.4%	61.3%	11.8%	73.2%
Michigan Farm Bureau	2.6%	3.8%	27.1%		16.0%	12.5%	13.2%	5.9%	1.6%	82.6%	-17.1%	65.5%
Indiana Farm Bureau	3.2%	5.9%	2.5%		10.5%	13.7%	11.6%	4.6%	2.6%	54.7%	8.5%	63.2%
Iowa Farm Bureau	4.2%	6.1%	3.4%		8.4%	13.3%	9.5%	6.3%	2.7%	53.9%	6.4%	60.3%
Georgia Farm Bureau	1.5%	5.5%	0.7%		8.8%	20.4%	12.9%	1.8%	6.2%	58.0%	-1.4%	56.6%
Virginia Farm Bureau	1.5%	4.8%	3.7%		11.7%	14.4%	14.7%	3.3%	5.2%	59.3%	-2.7%	56.5%
Arkansas Farm Bureau	2.6%	1.7%	1.3%		3.5%	26.3%	0.0%	14.5%	3.2%	53.2%	2.2%	55.4%
Oklahoma Farm Bureau	2.1%	2.9%	6.8%		9.7%	22.1%	10.9%	4.5%	3.6%	62.6%	-15.3%	47.2%

Risk as Pct Total Net Premiums Written



XYZ Farm Bureau

Peer Average