

A collection of items including a dartboard with a red ribbon, a blue ribbon, and a white star-shaped medal, a pair of glasses, and a compass.

Southeastern Actuaries Conference  
Fall Meeting – Atlanta, November 2008

# Futurism – More Than a Dart Board

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## An Overview of Selected Futurism Techniques, Including Examples of Applications

- ◆ Futurism and the Section
- ◆ The Delphi Method
- ◆ Predictive Markets Method
- ◆ Definition / Methodology
- ◆ Case Study Steps and Results
- ◆ Conclusions / Observations





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SEAC Meeting – November 2008: Futurism – More Than a Dart Board



## The Futurism Section is morphing

- ◆ The name and articles of the Section are changing:
  - Applied Forecasting and Futurism Section
- ◆ The charter of the Section is undergoing a modernization:
  - Stay current with changes in the forecasting field





## The Futurism Section is morphing (cont'd)

### ◆ New Articles

- *Article I - Name:* The Section's name is "Applied Forecasting and Futurism Section".
- *Article II - Purpose:* The purpose of the Applied Forecasting and Futurism Section is to facilitate the professional development of its members by providing them information about forecasting and futurism methods and tools applicable to the work of actuaries, including:
  - What the methods and tools are,
  - When to use them and when not to (based on experiential evidence),
  - How to use them (including practical examples of their use, and best-practice guidelines), and
  - How to present the results.



## The Futurism Section is morphing (cont'd)

- ◆ **Stay current with changes in the forecasting field:**

The change in the Section's purpose mirrors what is happening in the field of applied forecasting. In this field, traditional futurism techniques are now being combined with traditional statistical methods and newer modeling techniques (like agent-based modeling) to produce more powerful ways to explore the future.



## Credit Where Credit Due

- ◆ Presentations have been produced by members of the Futurism Section Council
- ◆ A number of individuals have contributed, including:
  - Ben Wolzenski
  - Dennis Martin
  - Jeffrey Harper
  - Scott McInturff
  - Al Klein
  - John Tiller
  - Participants of these studies – actuaries and others
- ◆ Original material from me is limited





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## Delphi Method



## The Oracle at Delphi

- ◆ Delphi was considered the center of the Earth
- ◆ The Oracle was the voice of the gods
  - Cloudy visions of the future
  - Unintelligible rantings and rumblings
  - Predictions shrewdly phrased without specificity
    - Open to misinterpretation
  - Significant generator of income for local economy
- ◆ Resemblance to any actuary, living or dead, is highly likely – but coincidental





## Delphi Method Defined

- ◆ Collaborative, credible and creative exploration of ideas
  - Generally little or no published topical information
- ◆ Uses Structured Consultation to solicit opinions
- ◆ Individual opinions formed using expertise, logic and intuition



## Delphi Method Defined (cont'd)

- ◆ Input from controlled group opinion feedback
  - Anonymous individual opinions
    - Since anonymous, opinions not based on individual authority or social pressure
  - Facilitates group opinion formation
- ◆ Output is collective group judgment
  - No realistic control for bias
  - Does not produce statistically significant results

## Delphi Methodology

- ◆ Identify topic for research
- ◆ Develop approach to solicit expert opinions
  - Instructions
  - Questionnaires
  - Timetables
  - Summarization panel
- ◆ Assemble panel of participants
  - Variety of expertise, disciplines and perspectives





## Delphi Methodology (cont'd)

- ◆ **Structured Consultation**
  - Solicit participant written responses and perspectives
    - Surveys and questionnaires
    - Anonymous and non-confrontational
- ◆ **Develop anonymous summary of responses and perspectives**
  - Avoid bias in summarization
  - Individual perspectives can be provided
- ◆ **Provide summary to all participants**



## Delphi Methodology (cont'd)

- ◆ Repeat Structured Consultation
  - Participants may “re-think” their positions
- ◆ Repeat until pre-defined criteria met
  - Consensus
  - Stability of opinions
  - Number of rounds of Structured Consultation varies
- ◆ Summarize and publish final results
  - Consensus may not be reached



## Delphi Method Case Study

- ◆ Topic: 20 Year Forecast of Select US Economic Variables (2005 Study)
  - Annual CPI increase
  - 10 Year Treasury Bond Spot Yield
  - S&P 500 Total Annual Rate of Return
  - Corporate Baa Bond Spot Yield
- ◆ Co-sponsors were the Futurism Section, Investment Section, the Committee on Finance Research and the Committee on Knowledge Extension
- ◆ Report to SOA October, 2005



## Delphi Method Case Study (cont'd)

- ◆ Guided by Ted Gordon and Steve Easson
- ◆ Two Rounds Only
- ◆ 28 initial participants; 24 in second round  
(21 overlap with first round)



## Delphi Method Case Study (cont'd)

### ◆ Round 1 Instructions

1. List lowest, expected, and highest plausible value for each economic variable in 20 years
  - Give reasons for your views
2. List prospective (plausible) developments that could significantly alter your estimates for each economic variable
3. Provide a rating (1 to 5) of the usefulness of this judgmental (Delphi) process in enhancing traditional actuarial processes (*e.g.*, stochastic, deterministic) to seven actuarial applications (*e.g.*, expected values, volatility, outliers, mean reversion, time period used)



## Delphi Method Case Study (cont'd)

- ◆ Feedback provided on Round 1 Results
- ◆ Round 2 Instructions
  1. Review results and judgments of Round 1 and list lowest, expected, and highest plausible value for each economic variable in 20 years
    - Give reasons for your views
  2. Review list of prospective developments from Round 1 that could impact each economic variable and provide judgment as to likelihood and impact
  3. Using results of all three first round questions, provide a rating and assessment of the usefulness of a judgmental (Delphi) process to the seven listed actuarial applications





## Delphi Method Case Study (cont'd)

- ◆ Trend Impact Analysis (TIA)
  - To benchmark Delphi results, TIA was used to stochastically determine economic variables
- ◆ TIA Methodology
  - Use historical data to establish baseline
  - Use Delphi input to determine potential developments that could impact economic variables
  - Assign probabilities of each potential development
  - Assign impact of each potential development
  - Perform Monte Carlo simulation



# Delphi Method Case Study – Results

## Quantitative Results – Lowest Value

	<b>Round 1 Lowest Value</b>	<b>Round 2 Lowest Value</b>	<b>TIA 10<sup>th</sup> Percentile Value</b>
<b>Annual increase in CPI</b>	<b>0.8%</b>	<b>0.6%</b>	<b>2.3%</b>
<b>10 Year Treasury Spot Yield</b>	<b>3.3%</b>	<b>3.3%</b>	<b>5.9%</b>
<b>S&amp;P 500 Total Rate of Return</b>	<b>(20.1)%</b>	<b>(20.2)%</b>	<b>(12.6)%</b>
<b>Corporate Baa Spot Yield</b>	<b>4.8%</b>	<b>3.8%</b>	<b>9.4%</b>

# Delphi Method Case Study – Results (cont'd)

## Quantitative Results – Expected Value

	<b>Round 1 Expected Value</b>	<b>Round 2 Expected Value</b>	<b>TIA Median Value</b>
<b>Annual increase in CPI</b>	<b>3.8%</b>	<b>3.4%</b>	<b>6.7%</b>
<b>10 Year Treasury Spot Yield</b>	<b>6.5%</b>	<b>5.9%</b>	<b>8.6%</b>
<b>S&amp;P 500 Total Rate of Return</b>	<b>8.4%</b>	<b>7.8%</b>	<b>2.3%</b>
<b>Corporate Baa Spot Yield</b>	<b>8.4%</b>	<b>7.6%</b>	<b>13.3%</b>



## Delphi Method Case Study – Results (cont'd)

### Quantitative Results – Highest Value

	<b>Round 1 Highest Value</b>	<b>Round 2 Highest Value</b>	<b>TIA 90<sup>th</sup> Percentile Value</b>
<b>Annual increase in CPI</b>	<b>11.0%</b>	<b>9.9%</b>	<b>11.0%</b>
<b>10 Year Treasury Spot Yield</b>	<b>12.0%</b>	<b>11.4%</b>	<b>13.6%</b>
<b>S&amp;P 500 Total Rate of Return</b>	<b>25.3%</b>	<b>23.1%</b>	<b>19.5%</b>
<b>Corporate Baa Spot Yield</b>	<b>14.3%</b>	<b>13.4%</b>	<b>17.7%</b>

## Delphi Method Case Study – Results (cont'd)

### Quantitative Results – Range

	<b>Round 2 Lowest Value</b>	<b>Round 2 Highest Value</b>	<b>TIA 10<sup>th</sup> Percentile Value</b>	<b>TIA 90<sup>th</sup> Percentile Value</b>
<b>Annual increase in CPI</b>	<b>0.6%</b>	<b>9.9%</b>	<b>2.3%</b>	<b>11.0%</b>
<b>10 Year Treasury Spot Yield</b>	<b>3.3%</b>	<b>11.4%</b>	<b>5.9%</b>	<b>13.6%</b>
<b>S&amp;P 500 Total Rate of Return</b>	<b>(20.2)%</b>	<b>23.1%</b>	<b>(12.6)%</b>	<b>19.5%</b>
<b>Corporate Baa Spot Yield</b>	<b>3.8%</b>	<b>13.4%</b>	<b>9.4%</b>	<b>17.7%</b>

## Delphi Method Case Study – Results (cont'd)

- ◆ Quantitative Results – Observations
  - Range between lowest and highest quite wide
  - Little shifting in average results between rounds
    - Narrative indicates some shifting in individual positions
  - TIA median significantly higher than Delphi expected for CPI and interest rates
  - TIA median significantly lower than Delphi expected for S&P total return with lower range





## Delphi Method Case Study – Results (cont'd)

- ◆ Key potential developments that would impact the economic variables were as follows:
  1. Oil prices rise over \$60 per barrel for at least 5 years
  2. U.S. dollar currency collapse vs. Euro
  3. CPI pressures from growing budget deficits, rising demand for services (*e.g.*, health care), stable or declining labor force and growth in retirees
  4. New technologies drop costs of production of most products by 10% or more
  5. Significant corporate defaults (tripling over current rates)
  6. Confidence in U.S. drops; direct foreign investment drops 50%
  7. Global political instability, more Iraq-like wars and terrorist activities
  8. New technologies improve productivity in services > 10%
  9. U.S. investment climate proves attractive
  10. Globalization lowers labor costs by an average of 10%

## Delphi Method Case Study – Results (cont'd)

- ◆ Participants felt that the following were realistic to expect over the next 20 years:
  1. Oil prices rise to above \$70 per barrel for at least 5 years
  2. New technologies drop costs of production of most products by 10%
  3. Confidence in U.S. drops; direct foreign investment drops 35%
  4. U.S. Government current account deficit increases to 10% of GDP
  5. Productivity increases 5% for five continuous years
  6. Profit margins of most U.S. companies drop to 70% of current levels for 10 years
- ◆ Several of the key potential developments and realistic expectations have already come to fruition

## Delphi Method Case Study – Results (cont'd)

Applicability of Judgmental Methods (Delphi) to Actuarial Modeling – Seven Specific Applications

Scores: 3 = somewhat useful; 4 = extremely useful

<b>Application</b>	<b>Avg. Score</b>
1. Identification of potential developments that could affect forecasts	4.21
2. Validity of outliers that stochastic models may forecast	3.86
3. Volatility assumptions used in stochastic models	3.64
4. The historical period used to calibrate stochastic models	3.50
5. Expected value of variables	3.43
6. Mean reversion assumptions in stochastic models	3.36
7. The period over which the current assumptions reverts to mean	3.21



## Delphi Method Case Study – Conclusions

- ◆ Delphi approach effective to collect judgments about:
  - Long term forecasts of volatile economic parameters
  - Reasons behind quantitative answers
- ◆ Opinions of and confidence level of participants varied widely, based on:
  - Mental models of nature of economy
  - Role of external events
  - Effectiveness of regulatory controls
- ◆ Judgmental tools used in study found by participants to be useful and even essential
- ◆ Application of Delphi Method to collect quantitative and qualitative information about the economic future was a valuable and insightful exercise



## Delphi Methodology Case Study – Observations

- ◆ We all do this informally – the methodology provides structure to the process
- ◆ Strength / value of method is allowing people to think outside their normal “box”
  - No formal models or assumptions to review
  - Minimal framework to force line of thinking
  - Thinking, not computation
- ◆ Actuaries tend to rely too much on detailed models and do not think outside that “box”
  - Delphi and other techniques cause us to lift our heads up from our computers and think



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## Predictive Market Method Defined

- ◆ Information is aggregated via a market (or other) mechanism for the primary purpose of forecasting the probability that an event will occur
- ◆ Requirements
  - Well-specified future event
    - Typically short-term outcome that can be definitively determined to be true or false
  - Enough active traders to provide market-efficient price
  - Open information with regard to event
  - Diversity and independence
    - No single source dictates price





## Predictive Market Method Defined (cont'd)

- ◆ Participants “invest” in whether or not a future event is going to happen
  - Buy and sell event is driven by futures contracts
  - Price range is between 0 and 1 inclusive
    - Price is the assessed probability of occurrence
  - Many opportunities to revise or reassess
    - Prices change as new information emerges

## Predictive Market Method Defined (cont'd)

- ◆ What makes it work?
  - Wisdom of Crowds
    - Many are smarter than the few
  - Markets provide incentives for information discovery
  - Markets reflect the beliefs of traders
  - Efficient Market Hypothesis – all available information is factored into price



## Predictive Market Method Defined (cont'd)

### ◆ Examples

Example 1 – 2008 US Presidential Election

Winner \*

	September 5, 2008			September 19, 2008		
	Bid	Ask	Last	Bid	Ask	Last
Obama	57.0	58.4	58.5	50.8	50.9	50.9
McCain	42.3	43.0	42.9	48.0	48.4	48.0
Democrat	58.0	59.6	59.2	52.1	54.0	52.5
Republican	41.1	42.0	42.0	47.5	47.9	47.8

\*Source: Intrade 9/5/08 (1 day after Republican convention)

Example 2 – Bird flu in the US

## Predictive Market Methodology

- ◆ Identify topic for research
  - Probability based topic ideal
- ◆ Identify panel of experts
- ◆ Develop approach to solicit expert opinions
  - Instructions to participants
  - Means of disseminating information
  - Means of collecting opinions/bets
  - Number of “betting” rounds
  - Information provided after each round
  - Timetables
- ◆ Analyze and summarize results





## Predictive Market Case Study

- ◆ Persistence of Individual Insured Mortality Risk Differentials (2006-2007 Study)
- ◆ Futurism Section partnered with Social Technologies
- ◆ Project Oversight Group (POG) formed
  - Designed approach
  - Chose experts to participate
- ◆ Report to SOA August, 2007



## Predictive Market Case Study (cont'd)

- ◆ 60 “traders” chosen to participate

<b>Professional Affiliations of Participants</b>			
<b>Profession</b>	<b>Number of Participants</b>	<b>Employer Type</b>	<b>Number of Participants</b>
Actuary	32	Life Insurer	31
Medical Director	12	Reinsurer	22
Underwriter	11	Consulting Firm	4
Other	5	Other	3
<b>Total</b>	<b>60</b>	<b>Total</b>	<b>60</b>

## Predictive Market Case Study (cont'd)

- ◆ Participants given baseline risk characteristics for a cohort of fictitious individual life insurance policies
  - Assumption that all policies have identical risk characteristic values
  - Baseline mortality risk set to score of 100
- ◆ Participants also given a cohort with “preferred” risk characteristics and a cohort of “residual standard” risk characteristics
  - Characteristics for these two cohorts were introduced one at a time over six rounds
  - Mortality divergence from baseline is what was to be evaluated

## Predictive Market Case Study (cont'd)

- ◆ All policies were assumed to be for males, ages 35 and 60
- ◆ We were interested in the mortality divergence from the baseline assessed at duration 0 (2006), duration 15 (2021) and duration 30 (2036)
  - For the “preferred” risk cohort, we were looking for risk discount below the baseline (*e.g.*, an evaluation of 25% below the baseline of 100% would be scored 75)
  - For the “residual standard” risk cohort, we were looking for the risk premium above the baseline (*e.g.*, an evaluation of 30% above the baseline of 100% would be scored 130)
- ◆ After each round, mean and median score was provided to participants to help determine scoring for next round



## Predictive Market Case Study (cont'd)

### ◆ Baseline assumptions

Male Initial Age 35 and 60 Baseline Risk Characteristics	
Smoking Status	No smoking in last year
Total Cholesterol/HDL Ratio	5.5
Blood Pressure	140/90
Family History of Cancer	No cancer <b>deaths</b> of parents or siblings before age 60
Driving Record	<2 moving violations in 3 years/ No DUI in 10 years
Build (5' 10")	200 lbs

## Predictive Market Case Study (cont'd)

### ◆ Introduction Sequence of Risk Criteria

<b>Round Number</b>	<b>Preferred Risk Discount Criteria</b>	<b>Standard Risk Premium Criteria</b>
<b>One</b>	Blood Pressure	Smoking Status
<b>Two</b>	Total Cholesterol/HDL	Build
<b>Three</b>	Driving Record	Blood Pressure
<b>Four</b>	Family History Cancer	Total Cholesterol/HDL
<b>Five</b>	Smoking Status	Driving Record
<b>Six</b>	Build	Family History Cancer

## Predictive Market Case Study (cont'd)

### ◆ Preferred Risk Criteria

<b>Male Initial Age 35 and 60 Preferred Risk Criteria Vs. Baseline</b>		
<b>Risk Characteristic</b>	<b>Baseline</b>	<b>Preferred</b>
<b>Smoking Status</b>	No smoking in last year	Never smoked
<b>Total Cholesterol/HDL Ratio</b>	5.5	4.5
<b>Blood Pressure</b>	140/90	125/80
<b>Family History of Cancer</b>	No cancer <b>deaths</b> of parents or siblings before age 60	No cancer <b>diagnosis</b> of parents or siblings before age 65
<b>Driving Record</b>	<2 moving violations in 3 years/No DUI in 10 years	<1 moving violations in 2 years/No DUI ever
<b>Build (5' 10")</b>	200 lbs	180 lbs

## Predictive Market Case Study (cont'd)

### ◆ Standard Risk Criteria

<b>Male Initial Age 35 and 60 Residual Standard Risk Criteria Vs. Baseline</b>		
<b>Risk Characteristic</b>	<b>Baseline</b>	<b>Residual Standard</b>
<b>Smoking Status</b>	No smoking in last year	No smoking in last year Pipe smoking allowed
<b>Total Cholesterol/HDL Ratio</b>	5.5	7.0
<b>Blood Pressure</b>	140/90	150/95
<b>Family History of Cancer</b>	No cancer <b>deaths</b> of parents or siblings before age 60	No cancer <b>deaths</b> of parents or siblings before age 50
<b>Driving Record</b>	<2 moving violations in 3 years/No DUI in 10 years	<3 moving violations in 3 years/No DUI in 5 years
<b>Build (5' 10")</b>	200 lbs	215 lbs



## Predictive Market Case Study (cont'd)

- ◆ In each round, participants assessed the cumulative impact of all risk criteria revealed to date
- ◆ New information led to re-calibration by participants based on new criteria and “market data” of consensus opinion
- ◆ Participants scored each round independently



## Predictive Market Case Study (cont'd)

- ◆ To collect qualitative data, participants were asked to provide written rationales for their scoring
  - However, written results were not shared among participants during the process
- ◆ The incremental methodology allowed the impact of each criterion to be studied separately
  - However, sequential introduction may have had an impact on successive scoring



## Predictive Market Case Study – Results

- ◆ Persistence of risk discounts (preferred risks) and risk premiums (standard risks) were larger than the POG expected
- ◆ There was a larger range/variance in risk premiums than risk discounts
- ◆ Blood pressure and smoking were considered to be the largest proponents of the risk discounts and premiums
- ◆ There were differences by professional affiliation
  - *e.g.*, in general, medical directors judged the risk discounts and premiums lowest and actuaries judged them highest

## Predictive Market Case Study – Results (cont'd)

### ◆ Preferred Risk Discount

<b>Male Preferred Risk Discount/Persistence Prediction Market Case Study</b>			
<b>Risk Discount</b>	<b>Issue Age 35</b>		
	<b>Duration 0</b>	<b>Duration 15</b>	<b>Duration 30</b>
	-28%	-25%	-21%
<b>Implied Persistence of Discount</b>	100%	89%	74%
<b>Risk Discount</b>	<b>Issue Age 60</b>		
	<b>Duration 0</b>	<b>Duration 15</b>	<b>Duration 30</b>
	-28%	-23%	-19%
<b>Implied Persistence of Discount</b>	100%	85%	68%



## Predictive Market Case Study – Results (cont'd)

- ◆ Preferred risk discount results for issue ages 35 and 60 and durations 0, 15 and 30
  - Initial preferred risk discount judged to be 28% for both ages 35 and 60
  - Almost  $\frac{3}{4}$  of the preferred risk discount was judged to persist for 30 years for issue age 35 and over  $\frac{2}{3}$  was judged to persist for 30 years for issue age 60



## Predictive Market Case Study – Results (cont'd)

### ◆ Standard Risk Premium

<b>Male Residual Standard Risk Premium/Persistence Prediction Market Case Study</b>			
	<b>Issue Age 35</b>		
	<b>Duration 0</b>	<b>Duration 15</b>	<b>Duration 30</b>
<b>Risk Premium</b>	+51%	+49%	+49%
<b>Implied Persistence of Premium</b>	100%	97%	96%
	<b>Issue Age 60</b>		
	<b>Duration 0</b>	<b>Duration 15</b>	<b>Duration 30</b>
<b>Risk Premium</b>	+44%	+41%	+38%
<b>Implied Persistence of Premium</b>	100%	94%	86%

## Predictive Market Case Study – Results (cont'd)

- ◆ Residual standard risk premium results for issue ages 35 and 60 and durations 0, 15 and 30
  - Initial additional risk premium judged to be 51% at issue age 35 and 44% at issue age 60
  - Thirty year persistence of risk premium judged to be 96% for issue age 35 and 86% for issue age 60



## Predictive Market Case Study – Results (cont'd)

- ◆ Detailed results for preferred risk criteria specific for age 35 vs. age 60 are available, but not here
- ◆ Detailed results for standard risk criteria specific for age 35 vs. age 60 are available, but not here
- ◆ Detailed results by professional affiliation (actuary vs. underwriter vs. medical director; life insurer vs. reinsurer) are available, but not here
- ◆ However, some highlights do follow here





## Predictive Market Case Study – Results (cont'd)

- ◆ The criteria with the largest preferred risk discount were blood pressure and smoking for both issue ages 35 and 60
- ◆ Only blood pressure had an initial higher discount at issue age 60 than issue age 35
- ◆ Most criteria were judged to decline by duration, however:
  - The preferred risk discount for smokers was judged to actually rise by year 30 for issue age 35
  - The preferred risk discount for build was judged to rise by year 30 for issue age 60



## Predictive Market Case Study – Results (cont'd)

- ◆ The criteria with the largest standard risk premium were also blood pressure and smoking for both issue ages 35 and 60
- ◆ Driving record and smoking had an initial higher premium at issue age 60 than issue age 35
- ◆ Most criteria were judged to decline by duration, however:
  - The standard risk premium for blood pressure, family history of cancer and smokers was judged to rise by year 30 for issue age 35
  - Only the standard risk premium for blood pressure was judged to rise by year 30 for issue age 60

## Predictive Market Case Study – Results (cont'd)

- ◆ Professional Affiliation Observations
  - With a couple of exceptions, the preferred risk discounts and standard risk premiums across all issue ages and duration were judged to be lowest by the medical directors and highest by the actuaries
  - The underwriters judged there to be an increase in residual standard premium by duration
  - Life insurers judged there to be a higher standard risk premium across all durations than reinsurers



## Predictive Market Case Study – Conclusions

- ◆ Primary finding is the estimate of persistence of preferred risk discount and residual standard premium over time

Initial Risk Discount and Premium Thirty Year Persistence Society of Actuaries' Futurism Section – Modified Prediction Market Study		
	Issue Age 35	Issue Age 60
Preferred Risk Discount	74%	68%
Standard Risk Premium	96%	86%

- ◆ These values are higher than the POG expected
- ◆ As futurism techniques are not based on statistical data, you must step back and make sure the result is reasonable



## Predictive Market Case Study – Conclusions (cont'd)

- ◆ While the primary goal of the case study was to determine preferred persistency and these specific results need to be used cautiously, there were a number of good things that came out of this study:
  - The knowledge that a pseudo predictive market can be used to test complex issues
  - A better understanding of the relationship and importance of various common preferred risk criteria
  - Professional and institutional affiliations have tangible effects on how risks are assessed and expected to change over time
  - A good relationship with Social Technologies, which will hopefully allow us to do future studies



## Futurism – Studying the Future

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- ◆ Are those who don't study the future condemned to falter in it?



## Futurism – Studying the Future

- ◆ By using futurism techniques to anticipate, if not predict, looming problems, you increase the quality of your advice and recommendations.
- ◆ Are those who don't study the future condemned to falter in it?
- ◆ There is a lot of percentage in creatively imagining the worst (or the best) and then planning for it.





Questions, part 1:

How do I use the Delphi Methodology?  
the Predictive Market Methodology?

[ask me now]

Questions, part 2:

What should I do with my money now?  
What will our new administration do?

[meet me in the hall afterwards; bring your  
checkbook and passport]

