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# Delphi Studies Past, Present and Future

By Ben Wolzenski

## ABSTRACT

This article is about research studies that use the Delphi technique. It describes what a Delphi study is; gives a thumbnail sketch of two Delphi studies the Society of Actuaries (SOA) has sponsored in the past 10 years as well as a recently initiated Delphi study; and asks readers for their ideas for future studies.

## WHAT IS A DELPHI STUDY?

Here are two answers: the Wikipedia definition followed by a question-and-answer approach:

“The **Delphi method** is a systematic, interactive forecasting method which relies on a panel of independent experts. The carefully selected experts answer questionnaires in two or more rounds. After each round, a facilitator provides an anonymous summary of the experts’ forecasts from the previous round as well as the reasons they provided for their judgments. Thus, participants are encouraged to revise their earlier answers in light of the replies of other members of the group. It is believed that during this process the range of the answers will decrease and the group will converge towards the “correct” answer. Finally, the process is stopped after a pre-defined stop criterion (*e.g.*, number of rounds, achievement of consensus, stability of results) and the mean or median scores of the final rounds determine the results.”

## WHAT'S A DELPHI STUDY? THAT SOUNDS PRETTY ESOTERIC. ARE WE HIRING A HIGH-PRICED ORACLE TO PONTIFICATE ABOUT THE FUTURE FOR US?

No way! A Delphi study sounds fancy (and high-priced); but actually, it can be a very low-cost way to get information—often much better information than you get from a high-priced consultant. The idea behind this is collaboration ... the synergy of many minds ... the wisdom of the many.

## REALLY! HOW DOES IT WORK?

We send a round of questions to a panel of interested people. Everyone’s comments are anonymous so no one person or clique can unduly influence the others by their stature, volume or assertiveness. Each person sees the anonymous

responses and then gets to change her or his mind in round two of the process. The rounds continue like this until a steady state is reached.

## YOU MEAN, WHEN EVERYONE AGREES?

No, not necessarily. You keep going until the answers seem to stop changing. Some folks may converge to one answer, but another group may settle on a different value. The Delphi study considers all of the decision groupings as valid answers.

## IT SOUNDS A BIT DISORGANIZED. THAT CAN'T BE AS GOOD AS THE OPINION OF AN EXPERT, CAN IT?

Surprisingly, Delphi studies have often resulted in findings that are much better than those of the so-called experts. They bring in the power of diverse opinions.

## IS A DELPHI STUDY APPROPRIATE FOR QUANTITATIVE STUDIES, OR IS IT FOR QUALITATIVE STUDIES?

Yes, and yes ... the SOA has sponsored both types.

## WHAT DELPHI STUDIES HAS THE SOA SPONSORED IN THE PAST?

No.1: On Oct. 6, 2005, the SOA released “A Study of the Use of the Delphi Method, A Futures Research Technique for Forecasting Selected U.S. Economic Variables and Determining Rationales for Judgments.”

This article presents only a bit of background and a few items from the report; the complete study is available on the SOA website at the address below. The quotations below are from the full study.

<http://www.soa.org/research/research-projects/finance-investment/research-delphi-study-of-economic-variables-report.aspx>

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“From August, 2004 to September, 2005 an inaugural in-depth Delphi Study was performed by the Society of Actuaries designed to obtain insights into the rationales and thought processes experts used in making judgments about the long range (20 year) values of four U.S. economic variables:

1. Annual increase in the Consumer Price Index
2. 10 Year Treasury Spot Yields
3. S&P 500 Total Rate of Return
4. Corporate Baa Spot Yields”

	Annual increase in the Consumer Price Index	10-Year Treasury Yields	S&P 500 Annual Rate of Return	Corporate Baa Spot Yields
2004–2005	3.1%	4.3%	7.9%	6.2%
Delphi Round 2 (for 2024)	3.4%	5.9%	7.8%	7.8%
9/30/09–9/30/11	2.5%	3.2%	5.5%	6.0%

The study had some interesting results, especially viewed in the light of the six years that have passed since the report was issued. But first, a cautionary note from the report about Delphi studies:

“Because the number of participants is usually small, Delphi studies do not (and are not intended to) produce statistically significant results. In other words the results provided by any panel do not predict the response of a larger population or even a different Delphi panel. The estimates and the rationale, techniques and methods for estimating the variables represent the synthesis of opinion of the particular group involved, no more, no less.”

That said ... what did the panel of experts predict, and what has happened since then?

First, let’s just look at the numeric data. The table at left shows the average **expected** values produced in Round 2 of the Delphi study (for the year **2024**). (Participants also identified the highest and lowest plausible 2024 values for each economic variable.) Also shown are the average values for the two calendar years during which the study was performed and the average values for the eight quarters prior to the date this article was submitted for publication.

So far, the trend in the indicators has not met that of the Delphi panelists’ average expected value for 2024, although all the values are well within the ranges put forward by the panelists. But there is a lot of time remaining until 2024.

Now let’s see what events the Delphi panelists thought were most likely to influence the outcomes. The following were the median values of participants’ “realistic expectations during the next 20 years.”

1. Oil prices rise to above \$70 per barrel for at least five years.
2. New technologies drop the cost of production of most products by 10 percent.

THE STUDY HAD SOME INTERESTING RESULTS, ESPECIALLY VIEWED IN THE LIGHT OF THE SIX YEARS THAT HAVE PASSED SINCE THE REPORT WAS ISSUED.

3. Confidence in the United States drops; direct foreign investment falls to 65 percent of current levels.
4. U.S. government current account deficit increases to 10 percent of GDP.
5. Productivity increases 5 percent for five continuous years.
6. Profit margins of most U.S. companies drop to 70 percent of current levels for 10 years.

We are about one-third of the way to 2024 from the study date ... what have we seen so far?

1. Oil prices were above \$70 per barrel in parts of each year from 2006 to 2009 and all of 2010 and 2011 to the article submission date.
2. I am unaware of any objective measure of the effect of technology on the cost of all products. However, a Google search for “technology reduces cost of production” produced “about 101,000,000 results.”
3. As reported by the Bureau of Economic Analysis of the U.S. Department of Commerce, foreign direct investment in the United States has increased every year since the study through 2010. (Results for 2011 were not available when this article was written.)
4. The U.S. government federal deficit was approximately 10 percent in fiscal 2009 and at the time this article was written was expected to top 10 percent in fiscal 2011.
5. Productivity of nonfarm labor, as reported by the Bureau of Labor Statistics, has increased each year since the study was published, by an average of 2 percent per year. (However, reported productivity decreased in each of the first two quarters of 2011.)
6. Measured by GAAP earnings of the S&P 500, profits took a hit in 2007 and 2008; in the latter year earnings were 82 percent lower than 2006. However, by 2010, earnings were within 6 percent of the 2006 peak.

No. 2: On Feb. 27, 2009, the SOA released “Blue Ocean Strategies in Technology for Business Acquisition by the Life Insurance Industry.”



Once again, this article presents only a bit of background and a few items from the report; the complete study is available on the SOA website at the address below. The quotation and strategy description below are from the report. <http://www.soa.org/research/research-projects/life-insurance/research-blue-ocean-strat.aspx>

“‘Blue Ocean Strategy’ has come to mean a strategy that allows for a vast open blue area of undiscovered and, consequently, unexplored and unoccupied, territory. It means finding a completely new approach to an existing concept, approaching a market from an entirely new direction.”

The purpose of the study was to gather expert opinions as to whether there were any such “Blue Ocean Strategies” that could foreseeably affect the life insurance industry over the next 10 years. In total, 43 experts participated in the three-round Delphi study. As a result of these panelists’ feedback in Round 1, 10 possible strategies were identified, as follows:

- Strategy No. 1: Earth Friendly Insurance Company—“Paperless processing”

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- Strategy No. 2: Super Fast Insurance Company—“Quantum leap in time to market”
- Strategy No. 3: Insurance Without Borders Company—“Global Internet sales where regulations allow”
- Strategy No. 4: Global Insurance Company—“Global data mining, marketing”
- Strategy No. 5: Your Way Insurance Company—“Prospects custom-design coverage online”
- Strategy No. 6: Strategic Partners Insurance Company—“For operational excellence”
- Strategy No. 7: Just What You Want Insurance Company—“Micro-policies”
- Strategy No. 8: Holistic Insurance Company—“Risk ‘agents’ help mitigate all risks”
- Strategy No. 9: Big Brother Insurance Company—“Monitor individuals’ health, risk profile”
- Strategy No. 10: Virtually Real Insurance Company—“Virtual world insurance.”

These 10 strategies can be grouped into three themes:

- Greater efficiency in marketing and underwriting traditional business. These have promise, but they are not “Blue Ocean Strategies.”
- Micro approach to insuring [currently] undesirable risks. These are “Blue Ocean” because they create a viable approach to insuring a set of risks others avoid.
- Holistic approach to risk financing and mitigation. These are “Blue Ocean” because they open up a whole set of risks not previously insured and encompass an integrated approach that no one is implementing.

Two of the strategies that the respondents voted the most promising were:

**Strategy No. 1: Earth Friendly Insurance Company—“Paperless processing”**

Earth Friendly Insurance Company plans to adopt a “Blue Ocean Strategy” called: “Paperless processing: do it all online!” “Part 1” of this strategy is to use technologies and processes that do away with paper applications, which may include the pre-population of some information about the applicant from internal or external sources. Information

will be obtained through the Internet or all-in-one communication devices either directly from the applicant or a field agent. Policy approval and an option to print coverage verification will be directed back by similar routes. Earth Friendly also foresees a “part 2” of this strategy: the use of a “Touch the Screen” system in which the applicant would touch the computer/laptop screen and the fingerprint would automatically pull all medical files and other lifestyle data. One slight prick of blood, similar to that used by diabetics for blood sugar testing, would provide immediate analysis of all physical conditions, which would be fed through the computer at the same time as the one-touch activity.

**Strategy No. 7: Just What You Want Insurance Company—“Micro-policies”**

Just What You Want Insurance Company believes that there may be an emerging opportunity for a “Blue Ocean Strategy” around offering “micro-policies.” These products cover narrow risks, at targeted periods, for specific consumers, at highly specialized prices. Sophisticated—often diverse—technologies are frequently required to enable distribution, segment markets, price risk and issue coverage. Although these policies have the potential to replace broader “blanket” coverage, the greater potential is to open markets for risks otherwise uninsurable.

One final note on these two Delphi studies sponsored by the SOA ... less than 40 percent of the Blue Ocean panelists and less than 25 percent of the Economic Variables panelists were actuaries. In both cases, the project oversight group (POG) took seriously the charge to assemble a diverse group of participants.

**WHAT DELPHI STUDY IS THE SOA SPONSORING IN THE PRESENT?**

A Delphi study on Future Jobs for Actuaries is currently in the formative stage. The investigative team was chaired by Steve Easson, who has agreed to chair the POG. (Steve also chaired the POG of the Economic Variables Delphi). The Project Scope lists these two purposes:

- Facilitate the identification of strategies to increase the demand for and supply of actuaries in North America thereby ensuring actuaries have a market to apply their skills, to minimize suffering diminished job opportunities and to attract more individuals to the profession.
- Provide valuable input into the SOA's strategy setting, risk management and cultivating opportunities initiatives.

As noted above, Delphi studies involve multiple rounds of input and feedback—it will likely be a year or so until the results are released.

### WHAT DELPHI STUDIES MIGHT THE SOA SPONSOR IN THE FUTURE?

Delphi studies are a technique; the subject matter is open. To date, the Forecasting and Futurism Section has been a

co-sponsor of the three studies mentioned above. Each time, one or more other sections have been involved in providing the subject matter and topical expertise. So any area of investigation where judgmental forecasting is needed could be a legitimate candidate. We would love to hear your suggestions! Feel free to contact any member of the section council listed in this publication. ▼



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