

# **EXPLORATION OF REPUTATIONAL RISK FROM THE PERSPECTIVE OF A VARIETY OF STAKEHOLDERS**

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## EXECUTIVE SUMMARY

This report describes and demonstrates a method to understand reputational risk that you can apply to the unique circumstances of your insurance firm. This method applies a policy-capturing survey with scenario analysis to generate insight into reputational risk from the perspective of a variety of stakeholders. The activity we report here designed and analyzed six survey instruments which were distributed online to the members of the Risk Management Section<sup>a</sup> and to the individuals listed in the contact database of the Enterprise Risk Management Initiative (ERMI) of North Carolina State University. In all, 519 people each responded to 30 scenarios to make 15,570 purchase decisions informed by 12 cues about an insurance company's reputation.

The analysis of survey responses provides probabilistic information about three different purchase decisions (New Policy, Renewal, and Investment) prompted by reputational cues<sup>b</sup> suggested by insurance industry literature and experts. Using multinomial logistic regression analysis on decisions submitted by survey respondents, we report results for all reputational cues informing the purchase decisions. We then convert these results to predicted probabilities for each decision outcome.

Results suggest that policy-capturing in online surveys using scenario analysis is a practical and useful technique for management of reputational risk. To support the use of this methodology in the risk management function, we report material decision outcomes in probabilistic terms that risk managers can integrate with financial ratios. Further, to make this information more accessible to risk managers, this document describes the construction and use of a spreadsheet that holds the results of multinomial logistic regression analyses in hidden worksheets and presents the user with menu-driven query capability for customized reporting in tabular and graph displays.

In sum, the results of this project provide a new set of tools for the management of reputational risk. This toolkit contains policy-capturing to engage stakeholders in online scenario-based surveys informed by reputational cues, multinomial logistic regression to predict probabilities of outcomes that have material consequences, and spreadsheet-based query and reporting to facilitate the use of this information in the risk management function. The next sections of this report describe in more detail the methodology, the results, and the use of the spreadsheet for query and reporting of the regression results. The survey instruments are provided in Appendices) included as separate documents.

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<sup>a</sup> For brevity, the *“Joint Casualty Actuarial Society / Canadian Institute of Actuaries / Society of Actuaries (CAS/CIA/SOA) Risk Management Section”* is referred to as the *“Risk Management Section”* throughout this paper.

<sup>b</sup> This study groups Reputational Cues into two sets -- (Set#1): *“Company Care For Stakeholders In Direct Relationships”*, and (Set#2): *“Company Reputation for Reliability, Integrity, and Trustworthiness in Third-Party Assessments”*. We list the cue descriptions and coding in an Appendix.

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## WHAT WE KNOW ABOUT REPUTATION

*Reputation risk* was found to be of great business importance in prior research sponsored by the Society of Actuaries and the Casualty Actuarial Society, but a nebulous concept "incredibly difficult to quantify, and therefore, to define and measure"<sup>c</sup>. In prior work, definitions of reputational risk have tended to focus attention on potential consequences to an organization when a decision maker perceives public information to reflect badly on that organization. For example:

\*) "Reputation risk arises when a situation, occurrence, business practice or event has the potential to materially influence the public and stakeholder's perceived trust and confidence in an institution"<sup>d</sup>.

\*) It is "the risk of loss resulting from negative publicity related to a company's business practices"<sup>e</sup>.

\*) It is "the current and prospective effect on earnings and capital arising from negative public opinion"<sup>f</sup>.

We build on these earlier definitions to define **reputational risk** as *the likely impact on an organization's earnings and capital from the decisions and actions of individuals whose opinions about the organization's integrity, reliability, and trustworthiness are informed by publicly available sources describing the organization's conduct*. We also define the individuals whose decisions and actions may impact the organization's earnings and capital as its **stakeholders**.

<sup>c</sup> Kamiya, S., Shi, P., Schmit, J., & Rosenberg, M. (2007; page 26-28). Risk Management Terms: University of Wisconsin-Madison; Actuarial Science, Risk Management and Insurance Department.

<sup>d</sup> *ibid*.

<sup>e</sup> Halpert, Aaron M. and Leslie R. Marlo; "Joint CAS-CIA-SOA Risk Management Section White Paper Project: Linkage of Risk Management, Capital Management and Financial Management"; page 43; accessed Sept 11, 2007; <http://www.soa.org/files/pdf/linkage-rm.pdf>

<sup>f</sup> The Information Systems and Audit Control Association (ISACA), quoted in Kamiya et al., 2007: 26.

Examples of stakeholders in the insurance industry include policy holders, investors, agents, employees, other financial institutions, and government regulators. In this project we focus on potential policy holders deciding whether to purchase a policy, policy holders deciding whether to renew, and potential investors.

Reputational risk is a set of material consequences that arises when stakeholders' opinions influence their decision making outcomes. The next section describes an example of negative consequences suffered by an insurance company in the early 1990's, and shows how the reputational risk of that incident is captured in the research reported here.

Material Impact of Reputation - An Example. Toward the end of December 1993, The New York Times reported that a major insurance company's "tarnished reputation" was due to its improper sales activities, inadequate training of new employees, poor supervision, and executive inattention to red-flags in their internal audit reports<sup>g</sup>. According to the article, the company announced voluntary remedial measures including refunds to customers, personnel changes among its senior executives, and establishment of an internal compliance office. The article quoted outside experts' opinions that these remedial actions were appropriate and did not harm the company's financial strength, but also reported that the state Insurance Commission "would continue its investigation and decide later what regulatory action is required." Moreover, these events received wide attention<sup>h</sup>.

The next year, The New York Times reported that the company's "personal insurance sales plunged amid the publicity over sales scandals"<sup>i</sup>. Reputation appears to matter in material ways. But which pieces of information -- reputational cues -- did potential customers use to form their judgments about the company? Which cues contributed to the drop in sales, which propped sales up despite the negative publicity, and how much difference did each reputational cue make? Was the negative information (*improper sales activities, inadequate training, poor supervision, executive inattention, government investigation, and possible regulatory action*) counteracted in any way by the positive (*refunds, appropriate remedial actions, financial strength*), and if so, by how much? After reputation was already tarnished by improper sales activities reported in 1993, how much more reputational damage was caused 12 months later by the negative headlines about the same company?

The research reported here applies policy-capturing methodology to estimate these reputational impacts. This method is a survey technique that collects an individual's decisions in multiple scenarios. In our application of it, each scenario describes a hypothetical insurance company with a variety of cues that may influence the

<sup>g</sup> Quint, Michael (December 28, 1993). New Refunds for Misled Met Life Customers; The New York Times, page D1; retrieved from <http://www.nytimes.com/1993/12/28/business/new-refunds-for-misled-met-life-customers.html>

<sup>h</sup> Wells B, Epermani K, Braswell M. "From Meatpacking to Insurance: Lessons in Ethical Downfalls". CPCU eJournal [serial online]. October 2009; 62(10):1-10. Available from: Academic Search Premier, Ipswich, MA. Accessed January 6, 2010

<sup>i</sup> Quint, Michael (October 29, 1994). Met Life Shakes Up Its Ranks; The New York Times, retrieved from <http://www.nytimes.com/1994/10/29/business/met-life-shakes-up-its-ranks.html>

decision maker's judgment positively or negatively about the company's integrity, reliability, and trustworthiness.

Likelihood of Policy Purchase – Baseline Example. Suppose an insurance company categorizes potential first time policy purchasers into seven different segments based on the likelihood of purchase when a policy is offered. Table A below shows each segment category and the likelihood of purchase when members of that segment are offered a policy.

Table A: Potential First Time Policy Purchasers

CATEGORY	% BUY	% DECLINE
1	100.0%	0.0%
2	83.3%	16.7%
3	66.7%	33.3%
4	50.0%	50.0%
5	33.3%	66.7%
6	16.7%	83.3%
7	0.0%	100.0%

Assume a scenario in which there is a \$1 marketing cost to offer one policy to one potential buyer, the annual premium is \$10 for each offer purchased, and the annual service cost for each policy sold is \$1. When prospective buyers are individually asked their likelihood to purchase a policy if offered, results show they are equally distributed across the segments. Table B shows the hypothetical results for an insurance company that surveys and offers a policy to each of 126 prospects.

Table B: Consequences of Prospects Evenly Distributed Across Categories

% PROSPECTS CHOOSING CATEGORY <sup>j</sup>	PURCHASE LIKELIHOOD			POLICIES		GROSS PREMIUMS	COST TO OFFER	SERVICE COST	PURE [Net] PROFIT
	CATEGORY	% BUY	% DECLINE	OFFERED	SOLD				
14.3%	1	100.0%	0.0%	18	18	\$180	\$18	\$18	\$144
14.3%	2	83.3%	16.7%	18	15	\$150	\$18	\$15	\$117
14.3%	3	66.7%	33.3%	18	12	\$120	\$18	\$12	\$90
14.3%	4	50.0%	50.0%	18	9	\$90	\$18	\$9	\$63
14.3%	5	33.3%	66.7%	18	6	\$60	\$18	\$6	\$36
14.3%	6	16.7%	83.3%	18	3	\$30	\$18	\$3	\$9
14.3%	7	0.0%	100.0%	18	0	\$0	\$18	\$0	-\$18
100.0%				126	63	\$630	\$126	\$63	\$441

With the assumptions in this scenario, Table B shows in the bottom row of the far right column that the first-year Pure [Net] Profit is \$441, and the center “Policies Offered, Sold” columns show the company converts 50% of the prospects to first-time policy holders (63 / 126). Of course, prospects may be normally distributed across categories instead of evenly, but that would not change the essential point – a path to better results, keeping 126 prospects constant, is for the company’s reputation to shift more prospects to the *highly likely to buy* categories and leave fewer in the *less likelihood* categories. This point is illustrated in Table C below.

Purchaser’s Assessment of Reputation and Likelihood of Purchase –Hypothetical Example. The underlying assumption of our research is that each potential policy holder uses available information about the company to form an expectation about its future integrity, reliability, and trustworthiness, and uses this judgment to inform the purchase decision. We label this judgment the *reputation* of the company, and we propose that as available information about the company becomes more positive there will be an increase in the percentage of potential customers who categorize themselves in the segments more likely to purchase. For example, if a company were to be publicly lauded for the excellent quality of its agents and service to policy holders, then we would expect to see an increase in the percentage of potential customers who categorize themselves in the segments most likely to purchase. Table C shows the results for this hypothetical *Favorable Reputation* scenario using the policy information provided above.

<sup>j</sup> Column adds to 100% with rounding.

Table C: Hypothetical Consequences of an Excellent Reputation

% PROSPECTS CHOOSING CATEGORY	PURCHASE LIKELIHOOD			POLICIES		GROSS PREMIUMS	COST TO OFFER	SERVICE COST	PURE [Net] PROFIT
	CATEGORY	% BUY	% DECLINE	OFFERED	SOLD				
80.95%	1	100.0%	0.0%	102	102	\$1,020	\$102	\$102	\$816
19.05%	2	83.3%	16.7%	24	20	\$200	\$24	\$20	\$156
0.0%	3	66.7%	33.3%	0	0	\$0	\$0	\$0	\$0
0.0%	4	50.0%	50.0%	0	0	\$0	\$0	\$0	\$0
0.0%	5	33.3%	66.7%	0	0	\$0	\$0	\$0	\$0
0.0%	6	16.7%	83.3%	0	0	\$0	\$0	\$0	\$0
0.0%	7	0.0%	100.0%	0	0	\$0	\$0	\$0	\$0
100.0%				126	122	\$1,220	\$126	\$122	\$972

Table C shows that the first-year Pure [Net] Profit is \$972, a 120% improvement over the baseline example in Table B. In addition, the company converts 97% of the prospects to first-time policy holders (122/126), almost twice the conversion rate shown in Table B.

Now let us re-examine the experience of the major insurance company whose reputation was tarnished in the early 1990's. The consequences of the company's tarnished reputation are illustrated in Table D.

Table D: Hypothetical Consequences of a Tarnished Reputation

% PROSPECTS CHOOSING CATEGORY	PURCHASE LIKELIHOOD			POLICIES		GROSS PREMIUMS	COST TO OFFER	SERVICE COST	PURE [Net] PROFIT
	CATEGORY	% BUY	% DECLINE	OFFERED	SOLD				
0.00%	1	100.0%	0.0%	0	0	\$0	\$0	\$0	\$0
0.00%	2	83.3%	16.7%	0	0	\$0	\$0	\$0	\$0
0.00%	3	66.7%	33.3%	0	0	\$0	\$0	\$0	\$0
0.00%	4	50.0%	50.0%	0	0	\$0	\$0	\$0	\$0
19.05%	5	33.3%	66.7%	24	8	\$80	\$24	\$8	\$48
76.20%	6	16.7%	83.3%	96	16	\$160	\$96	\$16	\$48
4.75%	7	0.0%	100.0%	6	0	\$0	\$6	\$0	-\$6
100.0%				126	24	\$240	\$126	\$24	\$90

Prior to the public availability of the negative information, the company's conversion of prospective customers to policy holders might have resembled Table C. The bulk of the prospective customers shifted from the highly likely to buy categories to the highly unlikely to buy categories. Table D shows that the first-year Pure [Net] Profit is \$90, more than a 90% decline from the Excellent Reputation shown in Table C. In addition, the company converts less than 20% of the prospects to first-time policy holders (24/126), an 80% drop from the conversion rate shown in Table C.

The examples shown in Tables B-D illustrate the aggregate material impacts from individual assessments of a company's reputation. In the remainder of this paper, we test the assumption that each potential policy holder uses available information to form a judgment about the insurance company's reputation, and uses this judgment to inform the likelihood of the purchase decision.

The next section of this paper offers a detailed description of the policy-capturing method we applied. We then report the results of statistical analysis, and describe a spreadsheet-based display that facilitates communication of these results for risk managers. Risk managers can apply the "tool-kit" described in this paper -- policy-capturing methodology, statistical analysis, and spreadsheet-based display -- in their insurance company's unique situation in order to assess the material impacts of reputational risk from the perspective of a variety of stakeholders.

In this research project, we first construct scenarios composed of sets of reputational cues, and then provide potential stakeholders with these scenarios in online surveys that ask for purchase decisions based on their "comfort-level" with the reliability and trustworthiness of the insurance company described in the scenarios. Our perspective on *reputational risk* embedded in these scenarios adds value to earlier work in the following ways:

- \*) favorable opinions about reputation have the potential for positive consequences, so opportunity is as integral to *reputational risk* as is loss;
- \*) frames reputation as a subjective perception, or opinion, that individuals form about an organization based on a variety of publicly available information sources including word-of-mouth, alternative media, social media, community or association membership, as well as press headlines and publicity; and
- \*) introduces decision-making and action-oriented mechanisms for individuals to transform their opinions into quantifiable material impact on the organization.

Our research applies policy-capturing methodology to quantify and measure reputational risk from the perspective of stakeholders<sup>k</sup>. Following this method, we designed six surveys, described below, that ask

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<sup>k</sup> The reader interested in policy-capturing methodology is referred to Aiman-Smith, L., Scullen, S. E., & Barr, S. H. 2002. Conducting studies of decision making in organizational contexts: A tutorial for policy-capturing and other regression-based techniques. *Organizational Research Methods*, 5(4): 388-414.; and Karren, R. J. & Barringer, M. W. 2002. A review and analysis of the policy-capturing methodology in organizational research: Guidelines for research and practice. *Organizational Research Methods*, 5(4): 337-361.



respondents to make decisions based on factors presented in hypothetical scenarios. The next section describes the survey and scenario design in more detail.

## METHODOLOGY

Managers of reputational risk have two significant challenges: first, analyzing the organization's consequences of reputational risk in a material, timely, and comprehensive way; and second, communicating the rich analytical results in a clear, efficient, accurate, and useful manner. To address the first challenge, this project applies policy capturing methodology to embed reputational cues into scenario-based surveys and analyze responses using multinomial logistic regression.

To construct the scenarios, we first reviewed industry literature and interviewed experts<sup>1</sup> to identify "situation[s], occurrence[s], business practice[s] or event[s that have] the potential to materially influence the ... stakeholder's perceived trust and confidence in an institution" (Kamiya et al.: 26, supra note c). Based on this preliminary work, we identified two broad categories of information that are likely to be material, publicly available, and influential on stakeholders' opinions about the organization. These are: (1) *Company Reputation for Care in Direct Relationships with Stakeholders* and (2) *Company Reputation for Reliability, Integrity, And Trustworthiness in Third-Party Assessments*. For the first category, labeled Set#1 in Table 1, we provide 30 scenarios each manipulating six reputational cues (two cues related to insurance company relationship with policyholders; and one factor each for investors, employees, business partners, and community). For the second category, labeled Set#2 in Table 1, we have an additional 30 scenarios that each manipulates another set of six cues (two cues for independent rating agencies, three related to government entities, and one for the news media). Table 1 lists the reputational cues embedded in the scenarios, and Appendix 1 describes them in more detail including the content, coding, and correlations of the reputational cues embedded in each scenario set. Importantly for the interpretation of results, the level of reputational cues is not correlated across scenarios within a set (except where logic requires it in Set#2). We used these two sets of reputational cues to construct 60 unique scenarios, 30 for each set. After each scenario, respondents choose one of seven different decisions:

- #1: ALWAYS BUY FROM THIS INSURANCE COMPANY
- #2: USUALLY BUY FROM THIS INSURANCE COMPANY
- #3: OFTEN BUY FROM THIS INSURANCE COMPANY
- #4: BUY FROM THIS INSURANCE COMPANY AS OFTEN AS NOT
- #5: OFTEN BUY ELSEWHERE
- #6: USUALLY BUY ELSEWHERE
- #7: ALWAYS BUY ELSEWHERE

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<sup>1</sup> We are very appreciative for the expert guidance of the Project Oversight Group to instill relevance in the 60 scenarios included in this pilot study.

TABLE 1: REPUTATIONAL CUES *parameters in italics*

SET#1	Set#2
Insurance Agent Quality ( <i>High, Low</i> )	Independent Rating Agency's Overall Assessment of Insurance Company ( <i>Excellent, Strong, Weak</i> )
Customer Service Quality ( <i>High, Low</i> )	Independent Rating Agency's Assessment of Insurance Company's Enterprise Risk Management ( <i>Excellent, Strong, Weak</i> )
Quality of Relationship with Investors ( <i>High, Low</i> )	Customer Complaints to Oversight Organization ( <i>Many, Few</i> )
Quality of Relationship with Community ( <i>High, Low</i> )	Under Government Investigation ( <i>Yes, No</i> )
Quality of Relationship with Employees ( <i>High, Low</i> )	Fined or Sentenced by Government ( <i>Yes, No</i> )
Quality of Relationship with Business Network ( <i>High, Low</i> )	Media Headlines ( <i>Positive, Negative</i> )

When experimental design calls for a large number of cues and scenarios, scholars of policy-capturing methods<sup>m</sup> and professional practitioners of reputational audits for risk management<sup>n</sup> recommend a partitioning scheme. In this way, surveys are less likely to cause respondent fatigue and a correspondingly low useable sample size. Accordingly, we divided the survey distribution into two pools, one for each set in Table 1, and each member of a pool received the 30 scenarios with its set of reputational cues.

We further divided each pool into three subsets, one for each of three different purchase decisions: New Policy, Renewal, and Investment. Within each subset, each respondent is asked to make just one type of purchase decision after each scenario. Subset#A decides on a Policy Renewal; Subset#B decides on making an Investment with the Insurance Company, and Subset#C decides on purchasing a New Policy. Results of pilot surveys showed that respondents were able to complete an entire survey in about 20 minutes (providing demographic profile information, self-reports of important reputational attributes, and one decision in each of 30 scenarios).

We surveyed two populations, Risk Management Section members and people on the information distribution list kept current by the Enterprise Risk Management Initiative (ERMI) of NC State University. Table 2 below shows the number of respondents and observations in the samples. The survey activity achieved more than a 15% response rate with Risk Management Section members, and almost a 9% response rate from ERMI. As indicated in the Table, however, the unit of analysis in policy-capturing methodology is not the respondent but rather the decision response to a scenario. Total observations from Scenario Set#1, for example, are N=7560 (252

<sup>m</sup> such as Karren & Barringer, 2002; *op cit*

<sup>n</sup> Resnick, J. T. 2006. Reputational Risk Management: A framework for safeguarding your organization's primary intangible asset. Princeton, NJ: Opinion Research Corporation.

survey respondents who each made 30 decisions = $252 \times 30 = 7560$ ), and  $N=8010$  from Set#2. These are more than enough observations for using statistical techniques such as regression analyses to describe reputational risk from the perspective of stakeholders.

**TABLE 2: Respondents' Decision And Scenario Theme**

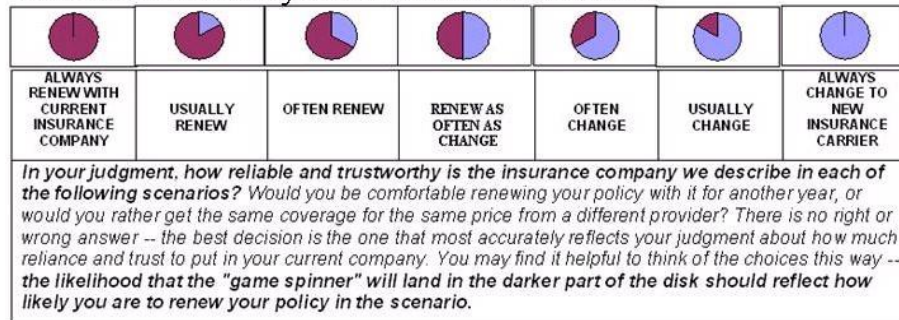
SCENARIO THEME	(A) Renew Policy?	(B) Invest?	(C) Purchase New Policy?
<b>Set#1. Company Care For Stakeholders In Direct Relationships.</b> <b>N=7560</b> 194 SOA respondents x 30 Scenarios 58 ERMI respondents x 30 Scenarios	<b>SURVEY 1(A): N=2550</b> 72 SOA Respondents: N=2160 13 ERMI Respondents: N=390	<b>SURVEY 1(B): N=2790</b> 67 SOA Respondents: N=2010 26 ERMI Respondents: N=780	<b>SURVEY 1(C): N=2220</b> 55 SOA Respondents: N=1650 19 ERMI Respondents: N=570
<b>Set#2. Company Reliability, Integrity and Trustworthiness Assessed By Third-Parties.</b> <b>N=8010</b> 193 SOA respondents x 30 Scenarios 74 ERMI respondents x 30 Scenarios	<b>SURVEY 2(A): N=2280</b> 53 SOA Respondents: N=1590 23 ERMI Respondents: N=690	<b>SURVEY 2(B): N=2850</b> 69 SOA Respondents: N=2070 26 ERMI Respondents: N=780	<b>SURVEY 2(C): N=2880</b> 71 SOA Respondents: N=2130 25 ERMI Respondents: N=750

Figure 1(1A, 2A) shows the Policy Renewal decision description each respondent viewed, and also shows the choices available to the respondents after each scenario. The size of the pie slices in the figures informs respondents that their choices have quantitative meaning. For example, a choice to *Usually Renew* means that the decision maker has about an 83% likelihood of policy renewal when presented with the Reputational Cues in the scenario. With this information, analyses of results can report decisions in probabilistic terms. The Investment and New Policy decisions, not shown here, are substantially identical in decision making structure.

**FIGURE 1(1A, 2A) THE DECISION: Surveys #1A and #2A**

Your insurance policy is coming up to its annual renewal date. While you have no complaints about your insurance company, the identical insurance is available from other companies who guarantee to provide it at the same cost. You would, however, have to spend time and some expense to change your insurance carrier. In each of the scenarios that follow, you must decide: Renew your policy with your current company, or change to another carrier?

These are the choices you can make in each scenario:



**Surveys#1A and #2A: Decision for Each Scenario (scenario content described in Appendix).**

Are you more likely to renew your policy in Scenario#1, or more likely to change companies?



**ANALYSIS OF RESPONSES USING MULTINOMIAL LOGISTIC REGRESSION**

We report the influence of Reputational Cues on the likelihood of purchase decision outcomes as determined by multinomial logistic regression analysis of survey responses. Appendix 2 presents the actual decision responses reported by respondents who received scenarios with SET#1 Reputational Cues, and the regression models' predictions of the percentage of respondents in each decision category. Appendix 3 contains this information for responses to SET#2 cues.

We use the multinomial logit model<sup>o</sup> to estimate coefficients corresponding to the influence of Reputational Cues on each decision category, after controlling for demographic characteristics (*gender, education, SOA membership, years of work experience*). Table 100-1 shows the results of multinomial logistic regression analysis of the decisions for New Policy Purchases as informed by the Reputational Cues in Set #1. Table 200-1 shows these results for the Policy Renewal decisions; Table 300-1 shows these for the Investment decisions; and Table 400-1 combines these three different types of purchases into one analytical sample informed by Reputational Cue

<sup>o</sup> "Stata Reference Manual"; release 5, Volume 2: G-O; pg 541-543.

Set#1. Tables 500-800 1 show the results of multinomial logistic regression analyses for decisions informed by the Reputational Cues in Set #2.

The regression coefficients reported in these tables are not percentages likely to be in each decision category. We refer the reader to page 26 for a description of the method to convert coefficients to probabilities. We also refer the reader to page 22 for a description of a spreadsheet tool with graphical presentation of probabilities.

Tables in Appendices 2 and 3 include predicted percentages to show the influence of each Reputational Cue on each decision. The next section discusses a spreadsheet, transmitted with this report, that contains the information in Tables 100-800 and in Appendices 2 and 3. This spreadsheet makes this information more accessible to risk managers, and provide them with “what-if” query capability.

TABLE 100-1: MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#1

Dependent Variable: New Policy; N=2220

DECISION OUTCOME: <b>New Policy</b> Log likelihood = Prob > chi <sup>2</sup> = <b>0.000</b>	<b>Always Buy</b>	<b>Usually Buy</b>	<b>Often Buy</b>	<b>Often Switch</b>	<b>Usually Switch</b>	<b>Always Switch</b>
<b>INDEPENDENT FACTOR:</b>						
(1a) RELATIONSHIP WITH POLICYHOLDERS: <i>Agent Quality IA</i>	2.538***	0.767**	0.275	-0.656**	-0.995***	-2.004***
(1b) RELATIONSHIP WITH POLICYHOLDERS: <i>Service Quality RPS</i>	22.444***	2.732***	1.427***	-1.111***	-2.383***	-3.445***
(2) RELATIONSHIP WITH INVESTORS <b>RI</b>	1.938***	0.896***	0.512**	-0.020	-0.436**	-1.130***
(3) RELATIONSHIP WITH COMMUNITY <b>RC</b>	1.514***	0.855***	0.307 <sup>+</sup>	-0.027	-0.313 <sup>+</sup>	-0.925***
(4) RELATIONSHIP WITH EMPLOYEES <b>RE</b>	2.640***	1.160***	0.497**	-0.567**	-0.503**	-1.127***
(5) RELATIONSHIP WITH BUSINESS PARTNER <b>RBP</b>	1.541***	0.729***	0.245	-0.252	-0.480**	-0.869***
(6) SOA RESPONDENT <i>0=No; 1=Yes</i>	1.575***	-0.166	0.381 <sup>+</sup>	-0.673**	-0.744***	-0.532 <sup>*</sup>
(7a) EDUCATION of RESPONDENT <i>Bachelor degree highest completed 0=No; 1=Yes</i>	0.352	1.243 <sup>+</sup>	0.341	-0.201	0.930 <sup>+</sup>	2.183**
(7b) EDUCATION of RESPONDENT <i>Masters degree highest completed 0=No; 1=Yes</i>	1.292	1.635 <sup>*</sup>	0.386	-0.132	0.371	1.657 <sup>*</sup>
(7c) EDUCATION of RESPONDENT <i>PhD degree highest completed 0=No; 1=Yes</i>	1.764	1.602 <sup>*</sup>	-0.212	-0.714	0.458	1.065
(8) GENDER of RESPONDENT <i>0=male; 1=female</i>	0.854 <sup>+</sup>	-0.615 <sup>+</sup>	0.292	-0.309	0.162	0.781***
(9) INDUSTRY EXPERIENCE of RESPONDENT <i>in years</i>	-0.039 <sup>+</sup>	0.018 <sup>*</sup>	-0.009	0.042***	0.058***	0.072***
INTERCEPT	-32.771	-6.874***	-2.952***	1.902**	2.072**	1.732 <sup>*</sup>

<sup>+</sup>  $\rho < 0.10$ ; <sup>\*</sup>  $\rho < 0.05$ ; <sup>\*\*</sup>  $\rho < 0.01$ ; <sup>\*\*\*</sup>  $\rho < 0.001$ ; two-tailed significance reported.

Neutral Decision ("Buy as Often as Switch") is Baseline for Calculation

TABLE 200-1: MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#1

Dependent Variable: Policy Renewal; N=2550

DECISION OUTCOME: <b>Policy Renewal</b> Log likelihood = Prob > $\chi^2 = 0.000$	<b>Always Buy</b>	<b>Usually Buy</b>	<b>Often Buy</b>	<b>Often Switch</b>	<b>Usually Switch</b>	<b>Always Switch</b>
<b>INDEPENDENT FACTOR:</b>						
(1a) RELATIONSHIP WITH POLICYHOLDERS: <i>Agent Quality IA</i>	2.014***	0.914***	0.467*	-0.303 <sup>+</sup>	-0.759***	-1.619***
(1b) RELATIONSHIP WITH POLICYHOLDERS: <i>Service Quality RPS</i>	3.803***	1.848***	0.681***	-1.323***	-2.313***	-2.433***
(6) RELATIONSHIP WITH INVESTORS <b>RI</b>	1.487***	0.769***	0.215	-0.498**	-0.608***	-1.268***
(7) RELATIONSHIP WITH COMMUNITY <b>RC</b>	1.232***	0.766***	0.419**	0.310 <sup>+</sup>	0.035	-0.604**
(8) RELATIONSHIP WITH EMPLOYEES <b>RE</b>	1.578***	0.521**	0.057	-0.343*	-0.659**	-0.659*
(9) RELATIONSHIP WITH BUSINESS PARTNER <b>RBP</b>	1.349***	0.799***	0.116	0.129	-0.384*	-0.771**
(6) SOA RESPONDENT <i>0=No; 1=Yes</i>	0.071	-0.139	-0.186	-0.397 <sup>+</sup>	-0.762**	-0.527*
(7a) EDUCATION of RESPONDENT <i>Bachelor degree highest completed 0=No; 1=Yes</i>	-0.401	1.822*	0.019	-0.255	-0.686	-1.338*
(7b) EDUCATION of RESPONDENT <i>Masters degree highest completed 0=No; 1=Yes</i>	-0.426	1.612 <sup>+</sup>	-0.094	-0.135	-0.356	-0.875
(7c) EDUCATION of RESPONDENT <i>PhD degree highest completed 0=No; 1=Yes</i>	0.000	0.000	0.000	0.000	0.000	0.000
(8) GENDER of RESPONDENT <i>0=male; 1=female</i>	-0.606*	-0.115	0.007	0.306 <sup>+</sup>	0.956***	0.712**
(9) INDUSTRY EXPERIENCE of RESPONDENT <i>in years</i>	-0.024*	-0.001	0.008	0.024**	0.018*	0.013
INTERCEPT	-8.037***	-5.075***	-1.141 <sup>+</sup>	1.029 <sup>+</sup>	2.428***	3.735***

<sup>+</sup>  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; two-tailed significance reported.

Neutral Decision ("Buy as Often as Switch") is Baseline for Calculation

TABLE 300-1: MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#1

Dependent Variable: Investment; N=2790

DECISION OUTCOME: <b>Investment</b> Log likelihood = Prob > $\chi^2 = 0.000$	<b>Always Buy</b>	<b>Usually Buy</b>	<b>Often Buy</b>	<b>Often Switch</b>	<b>Usually Switch</b>	<b>Always Switch</b>
<b>INDEPENDENT FACTOR:</b>						
(1a) RELATIONSHIP WITH POLICYHOLDERS: <i>Agent Quality IA</i>	2.566***	1.379***	0.559*	-0.524**	-0.983***	-1.613***
(1b) RELATIONSHIP WITH POLICYHOLDERS: <i>Service Quality RPS</i>	3.411***	2.863***	0.889***	-0.863***	-1.425***	-1.910***
(10) RELATIONSHIP WITH INVESTORS <b>RI</b>	4.291***	2.102***	0.620**	-0.863***	-1.479***	-2.303***
(11) RELATIONSHIP WITH COMMUNITY <b>RC</b>	2.121***	0.701**	0.159	-0.289 <sup>+</sup>	-0.444**	-0.882***
(12) RELATIONSHIP WITH EMPLOYEES <b>RE</b>	3.612***	2.062***	0.611**	-0.096	-0.569***	-0.808***
(13) RELATIONSHIP WITH BUSINESS PARTNER <b>RBP</b>	2.672***	0.667**	0.428*	-0.163	-0.190	-0.563***
(6) SOA RESPONDENT <i>0=No; 1=Yes</i>	1.240***	0.819***	0.590**	-0.041	-0.186	-0.186
(7a) EDUCATION of RESPONDENT <i>Bachelor degree highest completed 0=No; 1=Yes</i>	19.660***	-0.343	0.291	0.959*	-0.027	1.855**
(7b) EDUCATION of RESPONDENT <i>Masters degree highest completed 0=No; 1=Yes</i>	19.440***	-0.151	0.543	1.392**	0.167	2.294***
(7c) EDUCATION of RESPONDENT <i>PhD degree highest completed 0=No; 1=Yes</i>	-12.201	-1.005	-0.769	1.124*	0.150	3.126***
(8) GENDER of RESPONDENT <i>0=male; 1=female</i>	-0.338	-0.206	-0.905	-0.341*	-0.293 <sup>+</sup>	0.076
(9) INDUSTRY EXPERIENCE of RESPONDENT <i>in years</i>	-0.011	-0.011	-0.021**	-0.017**	0.001	0.019**
INTERCEPT	-37.635***	-8.116***	-3.177***	1.313**	3.478***	2.211**

<sup>+</sup>  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; two-tailed significance reported.

Neutral Decision ("Buy as Often as Switch") is Baseline for Calculation



TABLE 400-1: MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#1

Dependent Variable: All Purchase Decisions; N=7560

DECISION OUTCOME: <b>All Purchase Decisions</b> Log likelihood = Prob > chi <sup>2</sup> = <b>0.000</b>	<b>Always Buy</b>	<b>Usually Buy</b>	<b>Often Buy</b>	<b>Often Switch</b>	<b>Usually Switch</b>	<b>Always Switch</b>
<b>INDEPENDENT FACTOR:</b>						
(1a) RELATIONSHIP WITH POLICYHOLDERS: <i>Agent Quality IA</i>	1.825***	0.810***	0.346**	-0.423***	-0.769***	-1.531***
(1b) RELATIONSHIP WITH POLICYHOLDERS: <i>Service Quality RPS</i>	3.530***	2.013***	0.791***	-0.944***	-1.681***	-2.176***
(14) RELATIONSHIP WITH INVESTORS <b>RI</b>	1.496***	0.848***	0.281**	-0.456***	-0.833***	-1.567***
(15) RELATIONSHIP WITH COMMUNITY <b>RC</b>	1.104***	0.612***	0.226*	0.023	-0.200*	-0.722***
(16) RELATIONSHIP WITH EMPLOYEES <b>RE</b>	1.838***	0.975***	0.301**	-0.252**	-0.465***	-0.773***
(17) RELATIONSHIP WITH BUSINESS PARTNER <b>RBP</b>	1.287***	0.637***	0.185*	-0.059	-0.241**	-0.579***
(6) SOA RESPONDENT <i>0=No; 1=Yes</i>	0.926***	0.375**	0.323**	-0.305**	-0.560***	-0.561***
(7a) EDUCATION of RESPONDENT <i>Bachelor degree highest completed 0=No; 1=Yes</i>	0.434	0.654*	0.199	-0.084	-0.228	0.750 <sup>+</sup>
(7b) EDUCATION of RESPONDENT <i>Masters degree highest completed 0=No; 1=Yes</i>	0.715	0.757*	0.272	0.144	-0.276	0.855**
(7c) EDUCATION of RESPONDENT <i>PhD degree highest completed 0=No; 1=Yes</i>	-0.571	0.127	-0.832 <sup>+</sup>	-0.083	0.036	1.669***
(8) GENDER of RESPONDENT <i>0=male; 1=female</i>	-0.202	-0.253*	0.040	-0.122	0.171 <sup>+</sup>	0.505***
(9) INDUSTRY EXPERIENCE of RESPONDENT <i>in years</i>	-0.025***	-0.004	-0.007 <sup>+</sup>	0.013**	0.021***	0.037***
INTERCEPT	-10.398***	-5.125***	-1.932***	1.457***	2.733***	2.412***

<sup>+</sup>  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; two-tailed significance reported.

Neutral Decision ("Buy as Often as Switch") is Baseline for Calculation

TABLE 500 (100-2): MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#2

Dependent Variable: New Policy; N=2880

DECISION OUTCOME: <b>New Policy</b> Log likelihood = -3862.00 Prob > chi <sup>2</sup> = <b>0.000</b>	<b>Always Buy</b>	<b>Usually Buy</b>	<b>Often Buy</b>	<b>Often Switch</b>	<b>Usually Switch</b>	<b>Always Switch</b>
INDEPENDENT FACTOR: (1a) RATING AGENCY: <b>Weak</b> Overall Rating RO_D1 0=No; 1=Yes	-3.967***	-3.393***	-1.061***	0.738**	1.884***	3.055***
(1b) RATING AGENCY: <b>Excellent</b> Overall Rating RO_D2 0=No; 1=Yes	0.829*	-0.289	-0.464	-0.206	-0.265	0.290
(2a) ERM RATING: <b>Weak</b> Rating RERM_D1 0=No; 1=Yes	-35.586	-3.284***	-1.265***	0.126	0.610*	0.697*
(2b) ERM RATING: <b>Excellent</b> Rating RERM_D2 0=No; 1=Yes	0.040	-0.484	0.004	-0.322	-0.102	-0.584
(2) GOVERNMENT OVERSIGHT Regulator's Information -Customer Complaints GO_REG	2.421***	1.369***	0.823***	-0.434*	-0.721***	-1.415***
(4a) GOVERNMENT OVERSIGHT INVESTIGATIONS GO_INV	-2.988***	-1.214***	-0.218	0.584**	0.962***	1.293***
(4b) GOVERNMENT OVERSIGHT SANCTIONS GO_SANC	-4.506***	-2.220***	-0.836**	0.612**	1.145***	1.776***
(4) HEADLINES MEDIA	3.223***	2.031***	1.046***	-0.335+	-0.740***	-1.450***
(6) SOA RESPONDENT 0=No; 1=Yes	0.854**	0.273	0.275	-0.412*	0.180	0.103
(7a) EDUCATION of RESPONDENT Bachelor degree highest completed 0=No; 1=Yes	-2.827**	-2.441**	-1.652+	-1.216	-1.114	0.012
(7b) EDUCATION of RESPONDENT Masters degree highest completed 0=No; 1=Yes	-2.679**	-2.002*	-1.402	-1.155	-0.751	0.516
(7c) EDUCATION of RESPONDENT PhD degree highest completed 0=No; 1=Yes	-1.610	-2.423*	-2.044+	-0.826	0.143	1.241
(8) GENDER of RESPONDENT 0=male; 1=female	0.212	-0.368	-0.317	-0.119	0.417*	0.686***
(9) INDUSTRY EXPERIENCE of RESPONDENT in years	0.034**	0.011	-0.002	0.012	0.026***	0.051***
INTERCEPT	-3.062*	-6.874	0.791	1.946*	0.533	-1.310

+  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; two-tailed significance reported.

Neutral Decision ("Buy as Often as Switch") is Baseline for Calculation

**TABLE 600 (200-2): MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#2**  
**Dependent Variable: Policy Renewal; N=2280**

DECISION OUTCOME: <b>Policy Renewal</b> Log likelihood = -3623.77 Prob > chi <sup>2</sup> = 0.000	Always Buy	Usually Buy	Often Buy	Often Switch	Usually Switch	Always Switch
INDEPENDENT FACTOR: (1a) RATING AGENCY: <b>Weak</b> Overall Rating RO_D1 0=No; 1=Yes	-2.204***	-1.061***	-0.149	0.513*	1.421***	2.048***
(1b) RATING AGENCY: <b>Excellent</b> Overall Rating RO_D2 0=No; 1=Yes	0.121	0.166	0.279	-0.219	0.195	1.100
(2a) ERM RATING: <b>Weak</b> Rating RERM_D1 0=No; 1=Yes	-1.771***	-1.074***	-0.459 <sup>+</sup>	-0.064	0.728**	0.345
(2b) ERM RATING: <b>Excellent</b> Rating RERM_D2 0=No; 1=Yes	-0.070	-0.378	-0.138	-0.359	-0.327	-1.067
(3) GOVERNMENT OVERSIGHT Regulator's Information -Customer Complaints GO_REG	0.946***	0.719***	0.165	0.133	-0.267	-0.653*
(4a) GOVERNMENT OVERSIGHT INVESTIGATIONS GO_INV	-1.179***	-0.343 <sup>+</sup>	-0.060	0.768***	0.525*	0.732**
(4b) GOVERNMENT OVERSIGHT SANCTIONS GO_SANC	-2.143***	-0.790***	-0.181	0.430*	0.873***	1.159***
(5) HEADLINES MEDIA	1.701***	0.990***	0.274	0.040	-0.641**	-0.674**
(6) SOA RESPONDENT 0=No; 1=Yes	0.660**	0.596**	0.305 <sup>+</sup>	0.373*	0.776***	0.379 <sup>+</sup>
(7a) EDUCATION of RESPONDENT Bachelor degree highest completed 0=No; 1=Yes	-2.340***	-0.541	-0.370	0.456	-0.423	-0.560
(7b) EDUCATION of RESPONDENT Masters degree highest completed 0=No; 1=Yes	-2.709***	-0.490	-0.458	0.583	-0.228	0.339
(7c) EDUCATION of RESPONDENT PhD degree highest completed 0=No; 1=Yes	-2.329***	-0.567	0.120	0.164	-1.222 <sup>+</sup>	-0.943
(8) GENDER of RESPONDENT 0=male; 1=female	-0.042	0.021	0.135	0.003	0.061	0.175
(9) INDUSTRY EXPERIENCE of RESPONDENT in years	0.018*	0.003	-0.012 <sup>+</sup>	0.010	0.013 <sup>+</sup>	0.016 <sup>+</sup>
INTERCEPT	1.004 <sup>+</sup>	0.088	0.331	-1.489*	-1.600*	-2.415**

<sup>+</sup> p<0.10; \* p<0.05; \*\* p<0.01; \*\*\* p<0.001; two-tailed significance reported.

Neutral Decision (“Buy as Often as Switch”) is Baseline for Calculation

TABLE 700 (300-2): MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#2

Dependent Variable: Investment; N=2850

DECISION OUTCOME: <b>Investment</b> Log likelihood = -3986.66 Prob > chi <sup>2</sup> = <b>0.000</b>	<b>Always Buy</b>	<b>Usually Buy</b>	<b>Often Buy</b>	<b>Often Switch</b>	<b>Usually Switch</b>	<b>Always Switch</b>
INDEPENDENT FACTOR: (1a) RATING AGENCY: <b>Weak</b> Overall Rating RO_D1 0=No; 1=Yes	-4.255***	-2.642***	-1.028***	1.166***	2.266***	2.839***
(1b) RATING AGENCY: <b>Excellent</b> Overall Rating RO_D2 0=No; 1=Yes	0.683*	-0.008	0.173	0.367	1.236***	0.611
(2a) ERM RATING: <b>Weak</b> Rating RERM_D1 0=No; 1=Yes	-34.537	-2.619***	-1.222***	0.534*	1.152***	1.388***
(2b) ERM RATING: <b>Excellent</b> Rating RERM_D2 0=No; 1=Yes	-0.115	-0.163	-0.448	-0.178	-0.418	-0.315
(4) GOVERNMENT OVERSIGHT Regulator's Information -Customer Complaints GO_REG	1.257**	0.869***	0.144	-0.581**	-0.857***	-1.179***
(4a) GOVERNMENT OVERSIGHT INVESTIGATIONS GO_INV	-4.359***	-1.084***	-0.327	0.354 <sup>+</sup>	0.586**	1.108***
(4b) GOVERNMENT OVERSIGHT SANCTIONS GO_SANC	-4.021***	-1.098***	-0.498 <sup>+</sup>	0.638**	1.250***	1.481***
(6) HEADLINES MEDIA	4.010***	1.959***	1.089***	-0.176	-0.405*	-1.002***
(6)SOA RESPONDENT 0=No; 1=Yes	-0.308	-0.468*	-0.145	-0.319 <sup>+</sup>	-0.372*	-0.746***
(7a) EDUCATION of RESPONDENT Bachelor degree highest completed 0=No; 1=Yes	0.419	0.619	-0.331	0.320	0.647 <sup>+</sup>	-0.131
(7b) EDUCATION of RESPONDENT Masters degree highest completed 0=No; 1=Yes	0.393	0.532	-0.341	0.466	0.738*	0.007
(7c) EDUCATION of RESPONDENT PhD degree highest completed 0=No; 1=Yes	-34.832	-1.076 <sup>+</sup>	-2.355**	0.498	1.199**	0.338
(8) GENDER of RESPONDENT 0=male; 1=female	-0.439	-0.669**	-0.356 <sup>+</sup>	0.249	0.410*	0.359 <sup>+</sup>
(9) INDUSTRY EXPERIENCE of RESPONDENT in years	-0.020	-0.026*	-0.007	0.016 <sup>+</sup>	0.028**	0.064***
INTERCEPT	-4.065***	-0.648	0.549	-0.313	-1.574***	-1.233**

<sup>+</sup>  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; two-tailed significance reported.

Neutral Decision ("Buy as Often as Switch") is Baseline for Calculation

TABLE 800 (400-2): MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#2

Dependent Variable: All Purchases (*New Business, Policy Renewal, Investment*); N=8010

DECISION OUTCOME: <b>All Purchases</b> Log likelihood = -12478.13 Prob > chi <sup>2</sup> = 0.000	Always Buy	Usually Buy	Often Buy	Often Switch	Usually Switch	Always Switch
INDEPENDENT FACTOR: (1a) RATING AGENCY: <i>Weak Overall Rating</i> RO_D1 0=No; 1=Yes	-2.262***	-1.721***	-0.579***	0.568***	1.489***	2.138***
(1b) RATING AGENCY: <i>Excellent Overall Rating</i> RO_D2 0=No; 1=Yes	0.380*	-0.079	0.041	-0.073	0.280	0.321
(2a) ERM RATING: <i>Weak Rating</i> RERM_D1 0=No; 1=Yes	-2.171***	-1.791***	-0.781***	0.032	0.574***	0.590***
(2b) ERM RATING: <i>Excellent Rating</i> RERM_D2 0=No; 1=Yes	-0.238	-0.444**	-0.282	-0.258	-0.200	-0.457 <sup>+</sup>
(5) GOVERNMENT OVERSIGHT <i>Regulator's Information -Customer Complaints</i> GO_REG	0.988***	0.796***	0.284*	-0.236*	-0.475***	-0.864***
(4a) GOVERNMENT OVERSIGHT <i>INVESTIGATIONS</i> GO_INV	-1.534***	-0.516***	-0.039	0.460***	0.585***	0.936***
(4b) GOVERNMENT OVERSIGHT <i>SANCTIONS</i> GO_SANC	-2.377***	-0.894***	-0.258 <sup>+</sup>	0.441***	0.899***	1.209***
(7) HEADLINES MEDIA	1.948***	1.367***	0.639***	-0.075	-0.395***	-0.855***
(6) SOA RESPONDENT 0=No; 1=Yes	0.248 <sup>+</sup>	0.136	0.132	-0.072	0.209*	-0.019
(7a) EDUCATION of RESPONDENT <i>Bachelor degree highest completed</i> 0=No; 1=Yes	-1.277***	-0.216	-0.524*	0.045	0.007	-0.143
(7b) EDUCATION of RESPONDENT <i>Masters degree highest completed</i> 0=No; 1=Yes	-1.298***	-0.032	-0.492 <sup>+</sup>	0.133	0.147	0.077
(7c) EDUCATION of RESPONDENT <i>PhD degree highest completed</i> 0=No; 1=Yes	-1.323**	-0.529	-0.550	-0.067	0.069	-0.232
(8) GENDER of RESPONDENT 0=male; 1=female	0.090	-0.114	-0.040	0.050	0.270**	0.304**
(9) INDUSTRY EXPERIENCE of RESPONDENT <i>in years</i>	0.022***	0.002	-0.005	0.011**	0.020***	0.040***
INTERCEPT	-1.029**	-5.125	0.348	-0.035	-0.947**	-1.171***

<sup>+</sup>  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; two-tailed significance reported.

Neutral Decision ("Buy as Often as Switch") is Baseline for Calculation

### BUILDING A SPREADSHEET FROM SURVEY AND REGRESSION RESULTS

To address the second challenge of communicating the rich analytical results in a clear, efficient, accurate, and useful manner, this project designed and developed an Excel spreadsheet that displays on user request tables and charts with content calculated from multinomial logistic regression analysis of survey responses. The spreadsheet user selects radial buttons (Excel: Developer-Insert-Form Control) to specify parameters of reputational cues and respondent profile. A display of tables and charts presents the user with likely purchase outcomes given these parameters. These tables and charts fit on one screen-display when the Excel VIEW-FULL SCREEN is toggled on.

“Excel Form Control” linked to each radial button transmits the user selected parameters to hidden worksheets in the spreadsheet. These hidden worksheets store the results of the multinomial logistic regression analyses (calculated by the Stata statistics package from survey responses, see Appendices 2 and 3). VLOOKUP functions point to these predicted probabilities for display to the spreadsheet user in tabular and graphical formats. The tables below list the worksheets that supply data to these displays.

**Table #3: Spreadsheet Query and Reporting for Reputational Cue Set#1**

REPUTATIONAL SCENARIO <i>(user-selected query)</i>	DATA WORKSHEET <i>(hidden from user, holds data generated by Stata)</i>	OUTCOMES DISPLAYED TO USER
<p><b>Pred. Prob.: Set#1 Query:</b> User selects transaction [PURPLE], magnitudes for all reputational cues [PINK] in Set#1; and demographic profile [LIGHT GREEN]</p>	<p><b>Worksheet: MLOGIT ALL 1</b> holds results shown in Table 100-1: New Policy Transaction  Table 200-1: Policy Renewal  Table 300-1: Investment  Table 400-1: All Purchase Transaction</p>	<p><b>[PINK TABLE]:</b> Likelihood that decision outcome will be in category. <b>Relative to Neutral:</b> Neutral Decision: “BUY as often as NOT”.  Other Decisions: Probability as multiple of likelihood for “BUY as often as NOT”.  <b>FAVORABLE REPUTATION</b> [GREEN]: sum of probabilities that decision outcome will be better than neutral. <b>UNFAVORABLE REPUTATION</b> [RED]: sum of probabilities that decision outcome will be worse than neutral.</p>

*Continued on next page*

Table #3: continued

<p><b>Pred. Prob. all else constant:</b> User selects transaction [PURPLE] and one reputational cue in Set#1 [ORANGE]. All else held constant.</p>	<p><b>Worksheet: Tab INVST SET1</b> holds results for Investment Transaction: shown in Tables 301a-306b</p>	<p><b>[ORANGE TABLE]:</b> Likelihood that decision outcome will be in category, varying magnitude of one cue and holding all else equal</p> <p><b>FAVORABLE REPUTATION [GREEN]:</b> sum of probabilities that decision outcome will be better than neutral.</p> <p><b>UNFAVORABLE REPUTATION [RED]:</b> sum of probabilities that decision outcome will be worse than neutral.</p>
	<p><b>Worksheet: TAB RNWL SET1</b> holds results for Policy Renewal Transaction: shown in Tables 201a-206b</p>	
	<p><b>Worksheet: TAB NB SET1</b> holds results for New Policy Transaction: shown in Tables 101a-106b</p>	
	<p><b>Worksheet: TAB ALL SET1</b> holds results for All Purchase Transactions Together: shown in Tables 401a-406b</p>	

Table #4: Spreadsheet Query and Reporting for Reputational Cue Set#2

REPUTATIONAL SCENARIO (user-selected query)	DATA WORKSHEET (hidden from user, holds data generated by Stata)	OUTCOMES DISPLAYED TO USER
<p><b>Pred. Prob.: Set#2 Query:</b> User selects transaction [PURPLE], magnitudes for all reputational cues [YELLOW] in Set#2; and demographic profile [LIGHT GREEN]</p>	<p><b>Worksheet: MLOGIT ALL 2</b> holds results shown in Table 500 (100-2): New Policy Transaction  Table 600 (200-2): Policy Renewal  Table 700 (300-2): Investment  Table 800 (400-2): All Purchase Transaction</p>	<p><b>[YELLOW TABLE]:</b> Likelihood that decision outcome will be in category.</p> <p><b>Relative to Neutral:</b> Neutral Decision: "BUY as often as NOT".  Other Decisions: Probability as multiple of likelihood for "BUY as often as NOT".</p> <p><b>FAVORABLE REPUTATION [GREEN]:</b> sum of probabilities that decision outcome will be better than neutral.</p> <p><b>UNFAVORABLE REPUTATION [RED]:</b> sum of probabilities that decision outcome will be worse than neutral.</p>

Table #4: continued on next page

Table #4: continued

<p><b>Pred. Prob. all else constant:</b> User selects transaction [PURPLE] and one reputational cue in Set#2 [BLUE]. All else held constant.</p>	<p><b>Worksheet: Tab INVST SET2</b> holds results for Investment Transaction: shown in Tables 701a-710b</p>	<p><b>[BLUE TABLE]:</b> Likelihood that decision outcome will be in category, varying magnitude of one cue and holding all else equal.</p>
	<p><b>Worksheet: TAB RNWL SET2</b> holds results for Policy Renewal Transaction: shown in Tables 601a-610b</p>	<p><b>FAVORABLE REPUTATION [GREEN]:</b> sum of probabilities that decision outcome will be better than neutral.</p>
	<p><b>Worksheet: TAB NB SET2</b> holds results for New Policy Transaction: shown in Tables 501a-510b</p>	<p><b>UNFAVORABLE REPUTATION [RED]:</b> sum of probabilities that decision outcome will be worse than neutral.</p>
	<p><b>Worksheet: TAB ALL SET2</b> holds results for All Purchase Transactions Together: shown in Tables 801a-810b</p>	

The spreadsheet described in Tables 3 and 4 above is submitted as an attachment to this report.

For some risk managers, the spreadsheet display presents information with more transparency than the sequential listing of many pages of tables. See, for example, the spreadsheet screenshots in Figure 2a. The data in Figure 2a was generated from survey responses by the multinomial logistic regression command in Stata, stored in the spreadsheet, and displayed on user request. The first row of the leftmost tabular block of the figure, for example, shows that the marginal effect of going from Low to High in “Insurance Agency Quality” is a fourfold increase in the probability of a prospect self-identifying as a member of the “Always Buy” segment (this same information also is presented in the annotated spreadsheet example in Figure 6, page 37.)

It appears in Figure 2a that a reputation for *High Quality Service* results in the highest overall probability of Favorable New Policy Purchase decisions, with Favorable defined as the sum of categories better than “Buy as Often as Not”. Further, changing *Low Quality Service* to *High Quality Service* yields the largest percentage improvement in New Policy Purchase decisions. This change in decision outcomes from reputational shift is more easily visible when the above results are plotted in the spreadsheet.



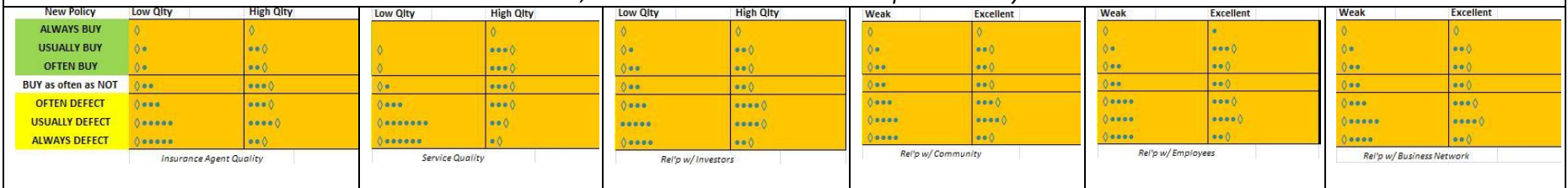
**FIGURE 2a: Influence of Reputational Cues on Predicted Probability of New Policy Purchase**  
*Except for Reputational Cue in Column Header all else constant as given by respondents to scenarios with Set#1 Cues*

New Policy	Insurance Agent Quality		Service Quality		Rel'p w/ Investors		Rel'p w/ Community		Rel'p w/ Employees		Rel'p w/ Business Network	
	Low Qlty	High Qlty	Low Qlty	High Qlty	Low Qlty	High Qlty	Weak	Excellent	Weak	Excellent	Weak	Excellent
<i>N=2220</i>												
ALWAYS BUY	0.01	0.04	0.00	0.05	0.01	0.04	0.01	0.04	0.01	0.05	0.01	0.04
USUALLY BUY	0.06	0.12	0.01	0.19	0.08	0.13	0.08	0.13	0.07	0.16	0.08	0.13
OFTEN BUY	0.09	0.13	0.03	0.19	0.10	0.13	0.11	0.12	0.11	0.14	0.11	0.13
BUY as often as NOT	0.10	0.15	0.09	0.18	0.15	0.14	0.14	0.13	0.14	0.14	0.14	0.14
OFTEN DEFECT	0.20	0.20	0.20	0.20	0.18	0.21	0.18	0.20	0.22	0.15	0.20	0.19
USUALLY DEFECT	0.25	0.24	0.37	0.13	0.25	0.23	0.24	0.23	0.24	0.23	0.25	0.22
ALWAYS DEFECT	0.30	0.14	0.30	0.06	0.23	0.13	0.23	0.15	0.21	0.13	0.21	0.15
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<< FAVORABLE >>	15.2%	28.0%	4.1%	42.2%	18.9%	29.8%	20.2%	28.6%	18.7%	34.4%	20.4%	29.5%
<< UNFAVORABLE >>	74.6%	56.9%	87.1%	39.6%	66.5%	56.5%	65.3%	57.8%	66.9%	51.6%	65.5%	55.8%

Note: <<Favorable>> sums all percentages in segments better than “Buy as Often as Not”; <<Unfavorable>> sums for segments that defect, or switch, to a competitor.

Figure 2b below presents screenshots of the plots that correspond to the numeric data above. In the figure, each solid bullet represents five percentage points, and a diamond represents a remaining percentage less than five percentage points. The first row of the leftmost tabular block of the figure, for example, has a diamond in both columns of the “Always Buy” segment because less than 5% of respondents will always buy when the Insurance Agency Quality is Low, and less than 5% will “Always Buy” when Agent Quality is High. The solid bullet with diamond in the “Usually Buy” segment when Agent Quality is Low graphically portrays the 6% of buyers predicted to be in that category. The reader is invited to compare the length of the left-hand bars to the right-hand bars within each Reputational Cue. Service Quality appears to have the biggest change in bar length (longer Favorable bars and shorter Unfavorable bars) as reputation goes from Low to High Quality:

**FIGURE 2b: Influence of Reputational Cues on Predicted Probability of New Policy Purchase**  
*Each bullet=.05; a remainder less than .05 is represented by a diamond.*



Key: ●=5%; ◊: greater than 0% and less than 5%.

Spreadsheet radial buttons enable the user to customize reputational parameters and request a report of decision outcomes predicted by the stored results from Stata. The spreadsheet recalculates probabilities for decision outcomes by applying the user-selected parameters to the coefficients of the multinomial logistic regression analyses. We convert significant coefficients to probabilities using Equation 01, where  $y$  is one of the seven decision choices captured after each scenario:

$$\text{prob}(Y=y) = \frac{e^{X\beta^{(y)}}}{e^{X\beta^{(1)}} + e^{X\beta^{(2)}} + e^{X\beta^{(3)}} + e^{X\beta^{(4)}} + e^{X\beta^{(5)}} + e^{X\beta^{(6)}} + e^{X\beta^{(7)}}} \quad \text{Equation 01.}$$

To identify this model, we arbitrarily set  $\beta^{(4)}=0$  for the neutral decision outcome “BUY FROM THIS INSURANCE COMPANY AS OFTEN AS NOT”, so Equation 01 for  $y=4$  becomes:

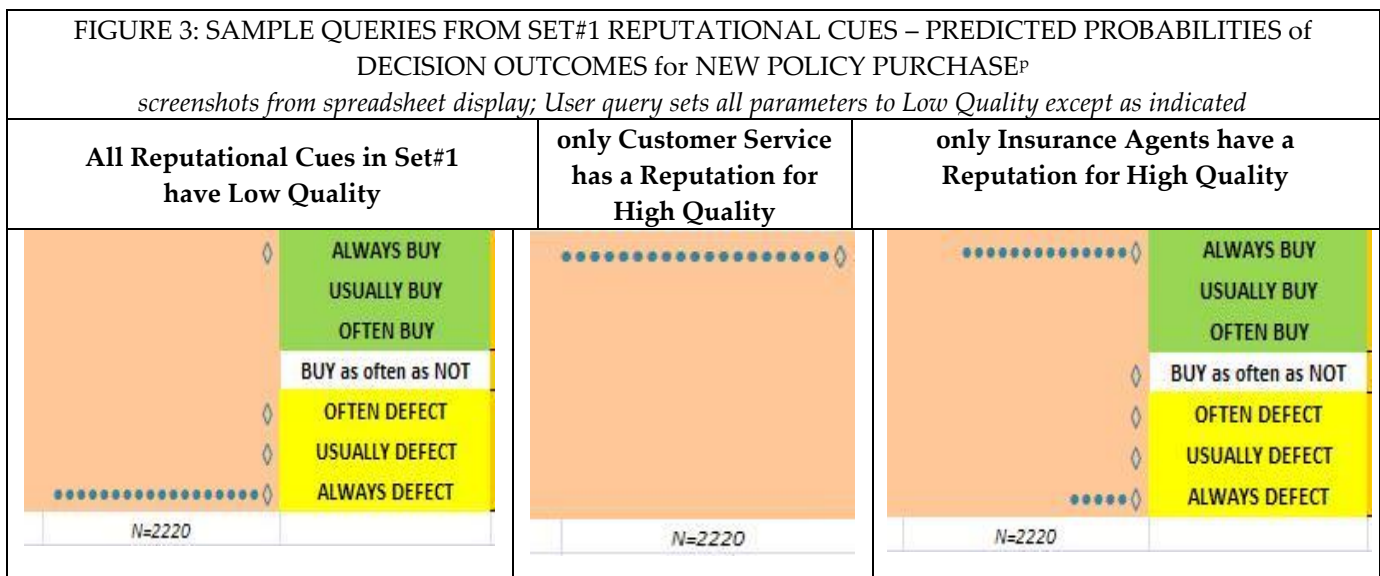
$$\text{prob}(Y=4) = \frac{1}{1 + e^{X\beta^{(1)}} + e^{X\beta^{(2)}} + e^{X\beta^{(3)}} + e^{X\beta^{(5)}} + e^{X\beta^{(6)}} + e^{X\beta^{(7)}}} \quad \text{Equation 02.}$$

And for  $Y \neq 4$ :

$$\text{prob}(Y \neq 4) = \frac{e^{X\beta^{(y \neq 4)}}}{1 + e^{X\beta^{(1)}} + e^{X\beta^{(2)}} + e^{X\beta^{(3)}} + e^{X\beta^{(5)}} + e^{X\beta^{(6)}} + e^{X\beta^{(7)}}} \quad \text{Equation 03.}$$

Results are presented to the spreadsheet user in tables, and the spreadsheet VLOOKUP function in a hidden worksheet [GRAPH ICONS] converts the tabular data to plots for a more intuitive and easily understood presentation of the numeric data. The plots provide a visual reputational pattern composed of the purchase decision responses to changes in the magnitude of reputational cues provided to the respondents.

For example, a user query for the probability decision outcomes for New Policy Purchase by *female SOA members* if Set#1 Reputational Cues all have Low Quality; if only Customer Service has a reputation for High Quality; or if only Insurance Agents have a reputation for High Quality:



Key: ●=5%; ◇: greater than 0% and less than 5%.

<sup>P</sup> Demographic profile of decision maker: female SOA member, all educational degrees included, years of work experience included.  
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The plots above are representations of the following predicted outcomes:

FIGURE 4: SAMPLE QUERIES FROM SET#1 REPUTATIONAL CUES – PREDICTED PROBABILITIES of DECISION OUTCOMES for NEW POLICY PURCHASE																																																																												
<i>screenshots from spreadsheet display; User query sets all parameters to Low Quality except as indicated</i>																																																																												
All Reputational Cues in Set#1 have Low Quality	only Customer Service has a Reputation for High Quality	only Insurance Agents have a Reputation for High Quality																																																																										
<table border="1"> <thead> <tr> <th>SET#1 CUES</th> <th>New Policy</th> </tr> <tr> <th>New Policy</th> <th>N=2220</th> </tr> </thead> <tbody> <tr><td>0.028</td><td>ALWAYS BUY</td></tr> <tr><td>0.000</td><td>USUALLY BUY</td></tr> <tr><td>0.000</td><td>OFTEN BUY</td></tr> <tr><td>0.003</td><td>BUY as often as NOT</td></tr> <tr><td>0.009</td><td>OFTEN DEFECT</td></tr> <tr><td>0.026</td><td>USUALLY DEFECT</td></tr> <tr><td>0.934</td><td>ALWAYS DEFECT</td></tr> <tr><td>1.00</td><td></td></tr> <tr><td>2.8%</td><td>&lt;&lt; FAVORABLE &gt;&gt;</td></tr> <tr><td>96.9%</td><td>&lt;&lt; UNFAVORABLE &gt;&gt;</td></tr> </tbody> </table>	SET#1 CUES	New Policy	New Policy	N=2220	0.028	ALWAYS BUY	0.000	USUALLY BUY	0.000	OFTEN BUY	0.003	BUY as often as NOT	0.009	OFTEN DEFECT	0.026	USUALLY DEFECT	0.934	ALWAYS DEFECT	1.00		2.8%	<< FAVORABLE >>	96.9%	<< UNFAVORABLE >>	<table border="1"> <thead> <tr> <th>SET#1 CUES</th> <th>New Policy</th> </tr> <tr> <th>New Policy</th> <th></th> </tr> </thead> <tbody> <tr><td>1.000</td><td></td></tr> <tr><td>0.000</td><td></td></tr> <tr><td>0.000</td><td></td></tr> <tr><td>0.000</td><td></td></tr> <tr><td>0.000</td><td></td></tr> <tr><td>0.000</td><td></td></tr> <tr><td>0.000</td><td></td></tr> <tr><td>0.000</td><td></td></tr> <tr><td>1.00</td><td></td></tr> <tr><td>100.0%</td><td></td></tr> <tr><td>0.0%</td><td></td></tr> </tbody> </table>	SET#1 CUES	New Policy	New Policy		1.000		0.000		0.000		0.000		0.000		0.000		0.000		0.000		1.00		100.0%		0.0%		<table border="1"> <thead> <tr> <th>SET#1 CUES</th> <th>New Policy</th> </tr> <tr> <th>New Policy</th> <th>N=2220</th> </tr> </thead> <tbody> <tr><td>0.713</td><td>ALWAYS BUY</td></tr> <tr><td>0.001</td><td>USUALLY BUY</td></tr> <tr><td>0.000</td><td>OFTEN BUY</td></tr> <tr><td>0.005</td><td>BUY as often as NOT</td></tr> <tr><td>0.010</td><td>OFTEN DEFECT</td></tr> <tr><td>0.019</td><td>USUALLY DEFECT</td></tr> <tr><td>0.252</td><td>ALWAYS DEFECT</td></tr> <tr><td>1.00</td><td></td></tr> <tr><td>71.4%</td><td>&lt;&lt; FAVORABLE &gt;&gt;</td></tr> <tr><td>28.1%</td><td>&lt;&lt; UNFAVORABLE &gt;&gt;</td></tr> </tbody> </table>	SET#1 CUES	New Policy	New Policy	N=2220	0.713	ALWAYS BUY	0.001	USUALLY BUY	0.000	OFTEN BUY	0.005	BUY as often as NOT	0.010	OFTEN DEFECT	0.019	USUALLY DEFECT	0.252	ALWAYS DEFECT	1.00		71.4%	<< FAVORABLE >>	28.1%	<< UNFAVORABLE >>
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#### SUMMARY

Survey-based policy-capturing with scenario analysis generates rich information about reputational risk stated in probabilistic terms. We suggest that the methodology offers a significant contribution to empirical research toward understanding reputation. An organization with online access to stakeholders can combine this method with spreadsheet capabilities to give risk managers the capability to quickly forecast material consequences of changes to reputation. Importantly, the technique predicts probabilistic outcomes that risk managers can integrate with financial ratios to respond to regulatory requirements.

As in all research efforts grounded in survey techniques, however, policy-capturing with scenario analysis has limitations. A survey-based technique captures what people say they do, as compared to observing what they actually do. A risk manager who applies this method with stakeholders should undertake follow-on efforts to compare predicted results with actual stakeholder behavior.

Despite these limitations, we suggest that the scenario-based policy-capturing technique enables risk managers to develop rich insight into reputational risk. Potential areas for enterprise-specific application of this method include:

1. Capture responses from different stakeholder groups, such as independent salespeople and industry experts, to understand reputational risk from their perspective.
2. Capture responses for one organization over multiple time periods to gain insight into pace of reputational erosion and recovery in a variety of circumstances.

For results to be meaningful, the risk manager must work with each stakeholder group to design and revise the scenarios and decisions in the survey instrument for relevance. Collaborative engagement with stakeholders and risk information users during the design and change phases of developing meaningful surveys, scenarios, reputational cues, reports, and spreadsheet will contribute to productivity of effort for two reasons. First it is easy and inexpensive to make changes and accommodate requests before complex systems are implemented. Second, and perhaps most importantly, we expect that dialogue between risk managers and stakeholders during the preliminary stage of the process will contribute to better understanding of reputational risk from the perspective of stakeholders. After all, it is in the spirit of sustainable harmonious relationships and reputation that we offer this report.

**APPENDIX 1. EXPERIMENTAL DESIGN USING POLICY-CAPTURING METHODOLOGY:  
SCENARIO CONTENT AND STRUCTURE.**

**TABLE 5: Reputational Cues Embedded in Each Scenario of Set#1:  
“Company Care For Stakeholders In Direct Relationships” – The Independent Variables in the Analyses of Surveys #1A-C**

**INDEPENDENT VARIABLES:**

Scenario Cues	CUE DESCRIPTION IN SCENARIO AND CODING
RELATIONSHIP WITH POLICYHOLDERS: (1) <i>Insurance Agent</i> <b>IA</b>	<b>CUE (IA=0):</b> News reports say that, compared to its competitors, this company does FEWER background checks on its agents, requires LESS product & ethics training, and uses LESS technology to keep agents informed & prevent their misbehavior. <b>CUE (IA=1):</b> News reports say that, compared to its competitors, this company does more BACKGROUND CHECKS on its agents, requires them to take more product & ethics TRAINING, and uses more TECHNOLOGY that keeps agents informed & prevents their misbehavior.
RELATIONSHIP WITH POLICYHOLDERS: (2) <i>Service Quality</i> <b>RPS</b>	<b>CUE (RPS=0):</b> Never won an award for "Best Insurance Customer Service". Overall, its customer service (including payment of claims and problem resolution) is LESS RESPONSIVE with MORE DELAYS compared to competitors. <b>CUE (RPS=1):</b> Winner of several "Best Insurance Customer Service" awards. Overall, its customer service (including payment of claims and problem resolution) is MORE RESPONSIVE with FEWER DELAYS compared to competitors.
<b>(3)</b> RELATIONSHIP WITH INVESTORS <b>RI</b>	<b>CUE (RI=0):</b> Analysts report your company has LOWER profits ( <i>dollars</i> ) and profitability ( <i>return on equity</i> ) compared to competitors; LOWER PAYOUTS to investors; and its shareholders have LESS VOICE in its corporate governance. <b>CUE (RI=1):</b> Analysts report your company has HIGHER profits ( <i>dollars</i> ) and profitability ( <i>return on equity</i> ) compared to competitors; HIGHER PAYOUTS to investors; and its shareholders have MORE VOICE in its corporate governance.
(4) RELATIONSHIP WITH COMMUNITY <b>RC</b>	<b>CUE (RC=0):</b> Your insurance company is NOT A MEMBER of The Insurance Industry Charitable Foundation, and its lack of support for employee volunteerism has been written about in several articles. <b>CUE (RC=1):</b> Your insurance company has a leadership role in The Insurance Industry Charitable Foundation, and its support of employee volunteerism has been written about favorably.
(5) RELATIONSHIP WITH EMPLOYEES <b>RE</b>	<b>CUE (RE=0):</b> News reports say your insurance company MAY LOSE KEY PERSONNEL to competitors because it is cutting back on its benefit package which already is less attractive than competitors offer their employees. <b>CUE (RE=1):</b> Surveys show your company's personnel are "VERY SATISFIED", and its benefits package MORE ATTRACTIVE than competitors (including <i>yearly bonuses, retirement, insurance, paid vacation, and wellness programs</i> ).
(6) RELATIONSHIP WITH BUSINESS PARTNER <b>RBP</b>	<b>CUE (RBP=0):</b> According to published reviews comparing competitors, your insurance company has FEWER LONG-STANDING business relationships and a SMALLER NETWORK of health care providers, auto repair facilities, legal services, and home repair contractors. <b>CUE (RBP=1):</b> According to published reviews comparing competitors, your insurance company has a MORE LONG-STANDING and LARGER NETWORK of health care providers, auto repair facilities, legal services, and home repair contractors.

**TABLE 6: Reputational Cues Embedded in Each Scenario of Set#2:  
“Company Reputation for Reliability, Integrity, and Trustworthiness in Third-Party Assessments” –  
The Independent Variables in the Analyses of Surveys #2A-C**

INDEPENDENT VARIABLES: Scenario Cues	CUE DESCRIPTION IN SCENARIO AND CODING
RATING AGENCY: (1) <i>OVERALL RATING</i> <b>RO_D1</b>	<b>CUE (RO_D1=1):</b> Company Earns STRONG OVERALL RATING from Independent Rating Agency. <b>CUE (RO_D1=0):</b> Company does NOT Earn STRONG OVERALL RATING from Independent Rating Agency.
RATING AGENCY: (2) <i>OVERALL RATING</i> <b>RO_D2</b>	<b>CUE (RO_D2=1):</b> Company Earns EXCELLENT OVERALL RATING from Independent Rating Agency. <b>CUE (RO_D2=0):</b> Company does NOT Earn EXCELLENT OVERALL RATING from Independent Rating Agency.
(3) <i>ERM RATING</i> <b>RERM_D1</b>	<b>CUE (RERM_D1=1):</b> Company Earns STRONG ENTERPRISE RISK MANAGEMENT RATING from Independent Rating Agency. <b>CUE (RERM_D1=0):</b> Company does NOT Earn STRONG ENTERPRISE RISK MANAGEMENT RATING from Independent Rating Agency.
(4) <i>ERM RATING</i> <b>RERM_D2</b>	<b>CUE (RERM_D2=1):</b> Company Earns EXCELLENT ENTERPRISE RISK MANAGEMENT RATING from Independent Rating Agency. <b>CUE (RERM_D2=0):</b> Company does NOT Earn EXCELLENT ENTERPRISE RISK MANAGEMENT RATING from Independent Rating Agency.
GOVERNMENT OVERSIGHT (5) <i>Regulator's Information</i> <i>-Customer Complaints</i> <b>GO_REG</b>	<b>CUE (GO_REG=0):</b> Government Regulators have MANY CUSTOMER COMPLAINTS about the insurance company, <b>CUE (GO_REG=1):</b> Government Regulators have FEWER CUSTOMER COMPLAINTS about the insurance company,
GOVERNMENT OVERSIGHT (6) <i>INVESTIGATIONS</i> <b>GO_INV</b>	<b>CUE (GO_INV=0):</b> Government has NO INVESTIGATION into the insurance company. <b>CUE (GO_INV=1):</b> Government has an INVESTIGATION into the insurance company.
GOVERNMENT OVERSIGHT (7) <i>SANCTIONS</i> <b>GO_SANC</b>	<b>CUE (GO_SANC=0):</b> Government has NO PUNISHMENTS OR SANCTIONS LEVIED AGAINST the insurance company. <b>CUE (GO_SANC=1):</b> Government has PUNISHMENTS OR SANCTIONS LEVIED AGAINST the insurance company.
(8) <b>HEADLINES MEDIA</b>	<b>CUE (MEDIA=0):</b> NEGATIVE HEADLINES have been published about the insurance company. Articles with bad news about the company are in press, and the news is not about content already included in other scenario cues. <b>CUE (MEDIA=1):</b> POSITIVE HEADLINES have been published about the insurance company. Articles with good news about the company are in press, and the news is not about content already included in other scenario cues.

**TABLE 7. SURVEYS#1A-C: SCENARIO CUES AND CODING**  
**Company Reputation for Care in Direct Relationships with Stakeholders**

SCENARIO	RELATIONSHIP WITH POLICYHOLDERS		RELATIONSHIP WITH INVESTORS: (profit, profitability, payout, and voice in governance) <b>(RI)</b>	RELATIONSHIP WITH COMMUNITY (philanthropy and volunteerism) <b>(RC)</b>	RELATIONSHIP WITH EMPLOYEES: (benefits and satisfaction) <b>(RE)</b>	RELATIONSHIP WITH BUSINESS PARTNERS: (durability and scope of network) <b>(RBP)</b>
	<i>Insurance Agent</i> <b>(IA)</b>	<i>Service Quality</i> <b>(RPS)</b>				
1	H	H	E	E	E	E
2	H	L	W	W	W	W
3	H	L	E	E	E	E
4	L	L	E	E	E	E
5	H	L	W	E	E	E
6	L	L	W	E	E	E
7	H	L	W	E	W	E
8	H	L	W	E	W	W
9	H	H	W	E	E	E
10	H	H	W	E	W	E
11	H	H	W	E	W	W
12	H	H	W	W	W	W
13	H	H	W	W	E	W
14	H	H	E	W	E	E
15	H	H	E	W	W	E
16	H	L	E	W	W	E
17	H	H	W	W	W	E
18	H	H	E	E	W	E
19	H	H	E	E	W	W
20	L	H	E	E	W	W
21	H	H	E	W	W	W
22	L	H	E	W	W	W
23	H	L	E	W	W	W
24	L	L	E	W	W	W
25	H	H	E	E	E	W
26	H	L	E	E	E	W
27	H	L	W	E	E	W
28	L	L	W	E	W	W
29	L	L	W	W	W	W
30	L	H	E	E	E	E

**KEY**

RELATIONSHIP WITH POLICYHOLDERS		OTHER STAKEHOLDER RELATIONSHIPS	
H: HIGH <i>Indicator Variables</i> <b>IA=1;</b> <b>RPS=1.</b>	L: LOW <i>Indicator Variables</i> <b>IA=0;</b> <b>RPS=0.</b>	E: EXCELLENT <i>Indicator Variables</i> <b>RI=1; RC=1;</b> <b>RE=1; RBP=1.</b>	W: WEAK <i>Indicator Variables</i> <b>RI=0; RC=0;</b> <b>RE=0; RBP=0.</b>

**TABLE 8. SURVEYS#2A-C: SCENARIO CUES AND CODING**  
**Company Reputation for Reliability, Integrity, and Trustworthiness in Third-Party Assessments**  
*(content key on next page)*

SCENARIO	INDEPENDENT RATING AGENCY		GOVERNMENT OVERSIGHT			MEDIA COVERAGE
	<i>Overall Rating:</i> <i>excellent, strong, weak</i> (RO_d1; RO_d2)	<i>ERM Rating:</i> <i>excellent, strong, weak</i> (RERM_d1; RERM_d2)	<i>Regulator's Information -Customer Complaints</i> <i>more/fewer</i>  (GO_REG)	<i>Government Investigation</i> <i>yes/no</i>  (GO_INV)	<i>Government Sanction</i> <i>yes/no</i>  (GO_SANC)	<i>Headlines:</i> <i>positive/negative</i>  (MEDIA)
1	E	E	1	0	0	+
2	W	W	0	1	1	-
3	W	S	1	0	0	+
4	W	S	1	0	0	-
5	S	E	1	0	0	+
6	W	E	1	0	0	+
7	W	W	1	0	0	+
8	W	W	0	0	0	+
9	W	W	0	1	0	+
10	W	S	1	1	1	-
11	S	W	1	0	0	+
12	S	S	1	0	0	+
13	S	S	0	0	0	-
14	S	W	0	0	0	+
15	S	W	0	1	0	+
16	S	W	0	1	1	+
17	S	W	0	1	1	-
18	S	W	1	1	1	-
19	E	E	0	0	0	+
20	E	E	0	1	0	+
21	E	E	0	1	0	-
22	E	E	1	1	0	+
23	E	E	1	1	0	-
24	E	E	1	1	1	-

*continued on next page*



TABLE 8. *continued*

SCENARIO	INDEPENDENT RATING AGENCY		GOVERNMENT OVERSIGHT			MEDIA COVERAGE
	<i>Overall Rating:</i> <i>excellent, strong, weak</i> (RO_d1; RO_d2)	<i>ERM Rating:</i> <i>excellent, strong, weak</i> (RERM_d1; RERM_d2)	<i>Regulator's Information - Customer Complaints</i> <i>more/fewer</i> (GO_REG)	<i>Government Investigation</i> <i>yes/no</i> (GO_INV)	<i>Government Sanction</i> <i>yes/no</i> (GO_SANC)	<i>Headlines:</i> <i>positive/negative</i>  (MEDIA)
25	E	E	1	0	1	+
26	W	W	1	0	1	-
27	E	E	1	0	1	-
28	E	E	1	0	0	-
29	W	W	0	1	0	-
30	E	S	1	0	0	+

KEY			
RATING AGENCY	REGULATOR'S INFORMATION	INVESTIGATION; SANCTIONS	HEADLINES
<b>E: EXCELLENT</b> <i>Indicator Variables</i> RO_d1=0. RO_d2=1. RERM_d1=0. RERM_d2=1.	<b>0: MORE COMPLAINTS</b> <i>Indicator Variable</i> GO_REG=0	<b>0: NO</b> <i>Indicator Variables</i> GO_INV=0 GO_SANC=0	<b>- = NEGATIVE</b> <i>Indicator Variable</i> MEDIA=0
<b>S: STRONG</b> <i>Indicator Variables</i> RO_d1=1. RO_d2=0. RERM_d1=1. RERM_d2=0.	<b>1: FEWER COMPLAINTS</b> <i>Indicator Variable</i> GO_REG=1	<b>1: YES</b> GO_INV=1 GO_SANC=1	<b>+ = POSITIVE</b> <i>Indicator Variable</i> MEDIA=1
<b>W: WEAK</b> <i>Indicator Variables</i> RO_d1=0; RO_d2=0. RERM_d1=0; RERM_d2=0.			

**TABLE 9: DESCRIPTION AND CORRELATION OF SCENARIO CUES IN SURVEY SET#1. (N=30)**

SCENARIO CUE	MEAN	STD DEV	RELATIONSHIP WITH POLICYHOLDERS: <i>Quality of Insurance Agent</i> <b>IA</b>	RELATIONSHIP WITH POLICYHOLDERS: <i>Service Quality</i> <b>RPS</b>	RELATIONSHIP WITH INVESTORS <b>RI</b>	RELATIONSHIP WITH COMMUNITY <b>RC</b>	RELATIONSHIP WITH EMPLOYEES <b>RE</b>	RELATIONSHIP WITH BUSINESS PARTNERS <b>RBP</b>
			<b>IA</b>	0.733	0.450	--		
<b>RPS</b>	0.533	0.507	-0.191	--				
<b>RI</b>	0.533	0.507	0.111	0.196	--			
<b>RC</b>	0.600	0.498	0.031	-0.082	-0.082	--		
<b>RE</b>	0.400	0.498	-0.031	-0.055	0.082	0.389*	--	
<b>RBP</b>	0.467	0.507	-0.111	0.071	0.071	0.218	0.327 <sup>+</sup>	--

<sup>+</sup>  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; two-tailed significance reported.

**TABLE 10: DESCRIPTION AND CORRELATION OF SCENARIO CUES IN SURVEY SET#2. (N=30)**

SCENARIO CUE	MEAN	STD DEV	INDEPENDENT RATING AGENCY				GOVERNMENT OVERSIGHT			MEDIA COVERAGE
			Overall Rating		ERM Rating		Regulator's Information - Customer Complaints	Government Investigation	Government Sanction	Headlines
			RO_d1	RO_d2	RERM_d1	RERM_d2	GO_REG	GO_INV	GO_SANC	MEDIA
RO_d1	0.300	0.466	--							
RO_d2	0.367	0.490	-0.498**	--						
RERM_d1	0.200	0.407	0.036	-0.208	--					
RERM_d2	0.400	0.498	-0.386*	0.791***	-0.408*	--				
GO_REG	0.600	0.498	-0.208	0.198	0.238	0.250	--			
GO_INV	0.433	0.504	0.015	0.033	-0.269	-0.028	-0.385*	--		
GO_SANC	0.300	0.466	0.048	-0.045	-0.146	-0.089	0.089	0.308 <sup>+</sup>	--	
MEDIA	0.567	0.504	0.132	-0.033	-0.067	0.028	-0.028	-0.321 <sup>+</sup>	-0.455*	--

<sup>+</sup>  $\rho < 0.10$ ; <sup>\*</sup>  $\rho < 0.05$ ; <sup>\*\*</sup>  $\rho < 0.01$ ; <sup>\*\*\*</sup>  $\rho < 0.001$ ; two-tailed significance reported.

**NOTES:**

\*) High correlation between RO\_d2 and RERM\_d2 (0.791; <sup>\*\*\*</sup>  $\rho < 0.001$ ; indicators for Excellence in Overall rating and ERM Rating, respectively) makes intuitive sense but confounds interpretation of results about unique influence of either one.

**APPENDIX 2: RESULTS OF MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#1**

See separate document.

**APPENDIX 3: RESULTS OF MULTINOMIAL LOGISTIC REGRESSION FOR CATEGORICAL OUTCOMES in SET#2**

See separate document.

**APPENDIX 4: TUTORIAL FOR USE OF SPREADSHEET**

**Figure 5**

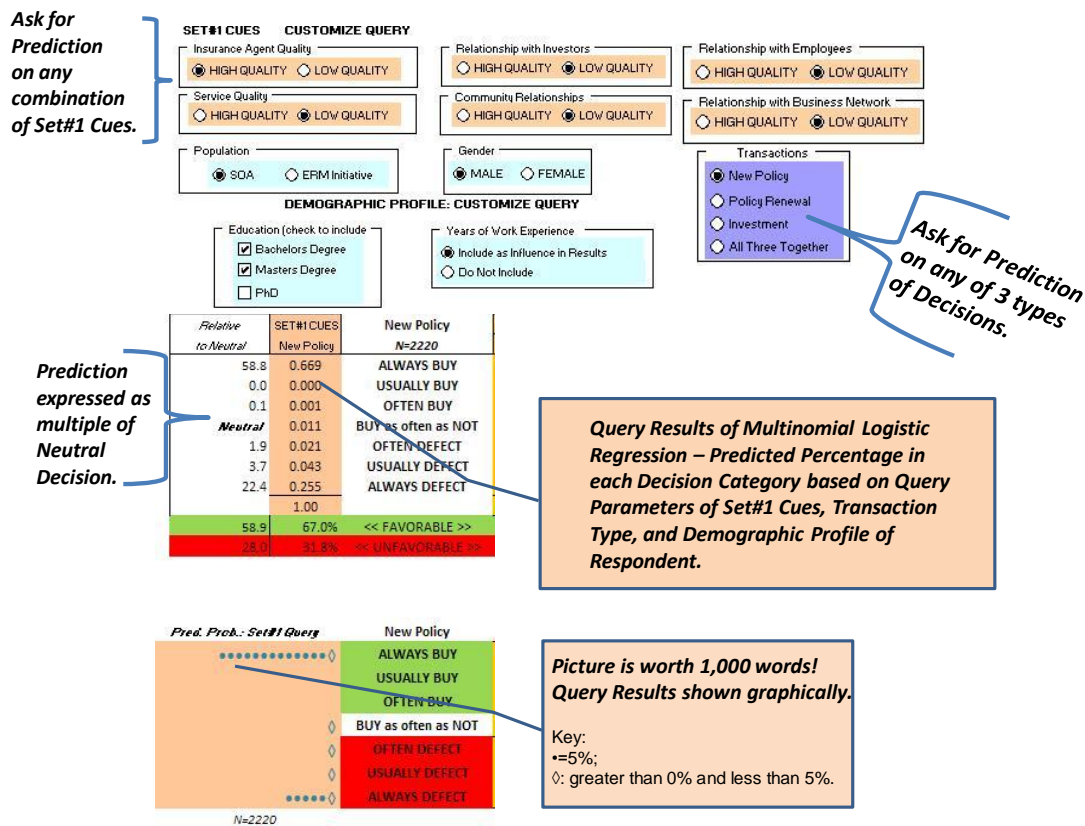


Figure 6

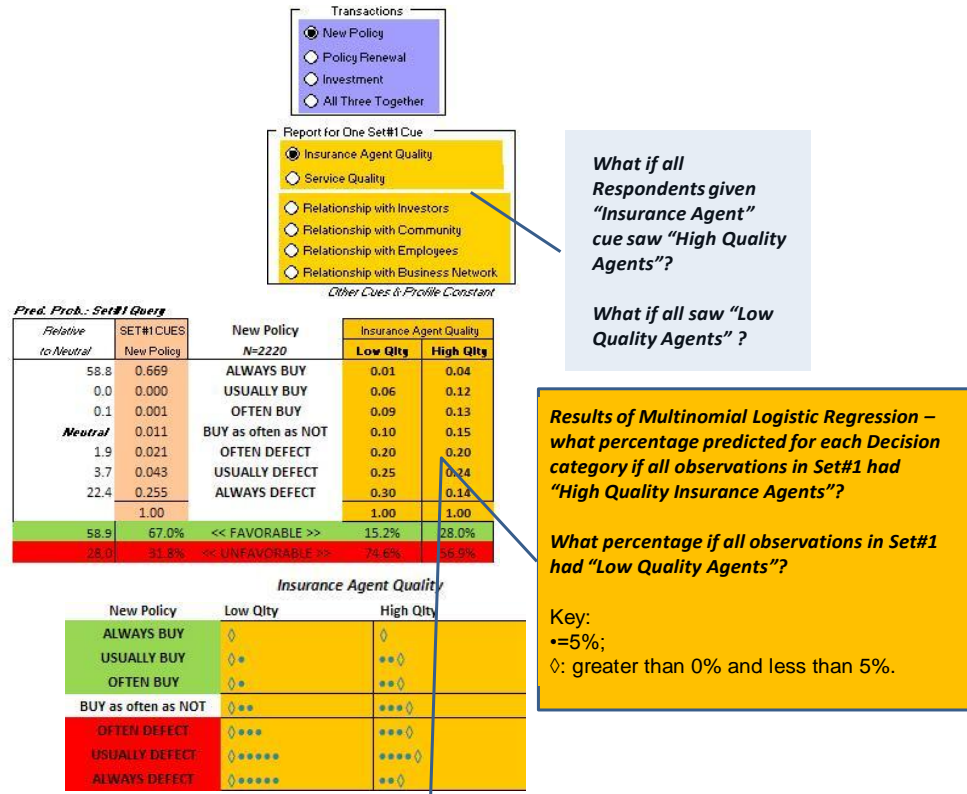


Figure 7

