Accountability Amplifies the Status Quo Effect When Change Creates Victims

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ABSTRACT

This study assesses the impact of accountability, the status quo, and anticipated costs and benefits on judgment of the acceptability of a drug in the US pharmaceuticals market. Several effects are documented: (1) subjects were more accepting of a drug, the lower the anticipated risks of side effects and the greater the anticipated benefits; (2) subjects were especially unwilling to accept risk when the drug was not yet on the market and when they felt accountable for their decisions; (3) accountable subjects confronted by an off-the-market drug that posed moderate or high risk were also especially likely to procrastinate, to backpass, and to think in integratively complex ways about the problem, notwithstanding the fact that many more lives would be saved than lost. We explain these results by postulating that perceptual-cognitive processes (loss aversion) and political processes (blame avoidance) mutually reinforce each other when decision makers are accountable for choices that raise the possibility of changing the status quo in ways that impose losses on identifiable constituencies. We conclude by commenting on the complex normative issues that arise in labelling response tendencies as biases. Choices that look irrational within one ethical or political framework sometimes appear quite reasonable with another.

KEY WORDS: Accountability Risk Rationality Pharmaceuticals

Psychological research on judgement and choice addresses fundamental questions of human rationality: When do people draw inferences or make decisions in ways that are biased, flawed, or maladaptive? What normative models—Bayes’ theorem, expected utility maximization—should we use in gauging whether people have indeed made mistakes? How robust are the observed deviations from rational actor standards? (See Fiske and Taylor, 1991; Payne et al., 1992; Kahneman et al., 1982.)

The social contingency model of judgement and choice both complements and contradicts this burgeoning research literature (Tetlock, 1992). The model begins with the uncontroversial claim that people make the vast majority of decisions in social settings in which they feel accountable (to varying degrees and in varying ways) to others. The model then goes on to make a series of more complex and controversial claims. It maintains, for example, that under certain conditions, accountability pressures will motivate people to engage in pre-emptive self-criticism and to anticipate objections.
that others may raise to the positions they are about to take. As a result, people become more nuanced and differentiated thinkers (Beach and Mitchell, 1978; Chaiken, 1980; Hagafors and Brehmer, 1983; Tetlock, 1983a) who are less likely to fall prey to such commonly observed judgmental failings as insensitivity to tradeoffs (Tetlock, 1983a), primacy effects in impression formation (Tetlock, 1983b), overattribution effects in an essay attribution paradigm (Tetlock, 1985b), and overconfidence in a personality prediction task (Tetlock and Kim, 1987). The model also maintains that the same accountability manipulations that ‘debas’ judgement in some settings will amplify bias in others. For example, encouraging preemptive self-criticism magnifies the dilution effect (the tendency to lose confidence in the predictive power of diagnostic cues simply because those cues are accompanied by nondiagnostic cues — Tetlock and Boettger, 1989) as well as ambiguity aversion (the tendency to prefer gambles with well-defined probabilities over gambles with probabilities shrouded in uncertainty — Curley et al., 1986).

In addition to identifying ways in which accountability attenuates or exacerbates judgmental bias, the social contingency model raises questions about the normative baselines that we use in labelling response tendencies errors or biases. The most influential normative frameworks come from modeling (utilitarianism) and decision theoretical (analog of variance, Bayes theorem) and give little attention to the social or political functions that judgement and choice serve. It may be irrational from an economic perspective to try to recoup sunk costs but quite rational from a political perspective (decision makers who stay the course may be perceived as more decisive and principled than those who change their minds — Staw, 1980). It may be irrational from a multiple-regression perspective to lose confidence in a predictive cue merely because it is surrounded by nonpredictive cues but quite rational from the standpoint of the Gricean axioms of conversation (according toij, people assume others make good-faith efforts to communicate only truthful and relevant information in everyday transactions).

The present study explores both the empirical and normative implications of the social contingency model in a laboratory simulation of the Food and Drug Administration (FDA) decisions to admit prohibited drugs on the US pharmaceuticals market. We informed subjects that (1) the FDA has the power both to bar drugs from use in the country and to remove drugs that are currently in use and (2) they would be asked to role-play FDA regulators whose task was to determine whether a particular anti-clotting drug (Carozide) should either be allowed onto the market (change the status quo) or be allowed to remain on the market (retain the status quo). We also informed subjects about the likely risks and benefits of the drug and asked them to make their decisions under either total anonymity or public accountability. We then assessed (1) the degree of risk from the drug that subjects were willing to tolerate; (2) the tendency to avoid blame by buckpassing or procrastinating; and (3) the degree of conflict or ambivalence experienced in decision making through both rating-scale and though-protocol data.

What impact should accountability have on decision making in this context? The appropriate place to begin is by considering the role of the status quo. Numerous studies have shown that the status quo occupies a privileged position in decision making, and that it is possible to reverse preferences for decision alternatives by arbitrarily designating one option as the status quo and the other as the option that requires change (Rivot and Baron, 1990; Samuelson and Zeckhauser, 1987; Spranca et al., 1991). These reversals can be viewed as framing illusions. Assume that both options A and B have distinctive gains and losses. If A is the status quo, and if the utility function for losses is much steeper than the corresponding function for gains (as Kahneman and Tversky’s 1979, prospect theory predicts), then the losses created by switching to B (change) will loom larger than the gains created by switching to B (status quo) — a powerful incentive for sticking to the status quo. This preference for the status quo may also be reinforced by other mediational mechanisms, including anticipatory regret (loomes and Sugden, 1982; Kahneman and Miller, 1986; Miller and Turnbull, 1991). People experience greater regret from misfortunes that occur as a result of deviations from norms or routines than from adhering to the status quo. It is easier to imagine the counterfactual ‘if only I hadn’t changed…’ than the counterfactual ‘if only I had abandoned the routine…’. and the more cognitively accessible the counterfactual, the more intense the emotional reaction. Finally, preference for the status quo may be reinforced by the demands of dissonance reduction and impression management (Arkes and Blumer, 1985; Staw, 1980; Tetlock and Manstead, 1985). People sometimes opt for the status quo because they are unwilling to write off sunk costs and seek to justify past commitments.

If this analysis is correct, accountability is more likely to magnify than to diminish the status quo effect. Consider the problem from the perspective of accountable decision makers who are confronted by a currently off-the-market drug that will save many more lives than it takes, but will nonetheless kill some people. On the one hand, if decision makers abandon the status quo and allow the drug into the market, they assume personal responsibility for a drug that will cause a certain number of deaths. The victims’ families will know they have been harmed and will not be reticent about complaining and seeking legal remedies. On the other hand, if the accountable decision makers stick to the status quo (notwithstanding its inferior cost-benefit ratio), the life of the accountable decision maker will be simpler. Those who would have benefited from allowing the new drug into the market have no way of knowing who they are (the invisible opportunity costs). They are merely a small increment in the vast number of Americans who die annually from heart attacks (people who might have died in any case) and are much less likely to emerge as a vocal protest group than the loved ones of those who died because of a newly introduced drug that has, as a known side effect in a certain proportion of cases, the tendency to cause massive internal bleeding. It is not that the decision is easier from the point of view of the individuals, but that it is easier overall and that it results in a lesser harm.

Consider now the mirror-image problem of accountable decision makers confronted by a drug already on the market and with identical cost-benefit profiles to the off-the-market drug. The political accountability calculus should shift in favor of preserving the status quo. First, although some people are harmed by the currently approved drug, the beneficiaries are much more visible than in the case of the currently prohibited drug. The people whose lives have been saved by the drug know who they are and are likely both to support the continued availability of the drug and to protest against its withdrawal from the market (a move which would impose a severe loss on them should they ever again have a potentially lethal blood clot). Second, accountable subjects may correctly surmise that they are less likely to be blamed for a sin of omission than for a sin of commission — a well-replicated finding in the study of blame attribution (Spranca et al., 1991).

Taken together, these arguments lead us to expect accountability to amplify, not attenuate, the cognitive process underlying the status quo effect. Building on this logic, we expected the status quo effect in the current experiment to be moderated by another independent variable: the size of the patient group adversely affected by the drug. More precisely, we expected the status quo manipulation to be especially powerful when decision makers expected to justify their choices and when the alternative to the status quo required imposing a substantial risk of injury or death on an identifiable patient population. The theoretical rationale was straightforward. Accountability demands should sensitize subjects to the need to construct compelling justifications for their choices (Tetlock 1983a, b, 1985a, b, Tetlock and Kim, 1987). On balance, such pressures should lead subjects to prefer options with lower expected costs and greater expected benefits. Although a favourable cost-benefit ratio makes a good justification, it is not always a decisive consideration. Accountable decision makers will be attuned to other considerations. They will also be concerned with (1) defending what they or their agency have done in the past (Tetlock et al., 1989) and (2) minimizing responsibility for losses or bad outcomes, especially when vocal protest groups are likely to arise to represent the victims of the policy (Staw, 1980; Tetlock, 1992). These concerns should lead accountable decision
makers to be exceptionally loss-averse when weighing the pros and cons of admitting a moderate-risk drug into the US pharmaceuticals market.

In sum, this theoretical argument suggests that decision makers, especially accountable ones, will weigh lives lost from changing the status quo more heavily than lives lost from retaining the status quo (see Ritov and Baron, 1990; Spranca et al., 1991). The effect will be fueled in part by basic cognitive processes: the tendency for losses to loom larger than gains and the low salience of opportunity costs in decision making. But the effect will be also fueled by political accountability demands which motivate subjects to avoid acting in ways that trigger anger and blaming from well-defined constituencies such as the people who would be killed by introducing a new drug or those who would die as a result of withdrawing the old one.

This analysis leads to several testable predications. First, we should expect decision makers to give preferential treatment to drugs that are already on the market over those that are currently off-the-market. Off-the-market drugs will need a more favourable benefit-cost (lives saved/losses lost) ratio than status quo drugs to receive the same acceptability rating. Second, accountability will amplify this preferential treatment of the status quo whenever policy change requires imposing a loss on an identifiable constituency which could protest against one's decision. Thus, whenever one's decision to change the status quo will cause some people to die (even if more have died if one stayed with the status quo), accountable subjects will be (1) less enthusiastic about the off-the-market drug and (2) more likely to look for ways to delay making the decision or to diffuse responsibility for the decision.

How might the increased caution of accountable decision makers manifest itself? One obvious way is through lower ratings of the acceptability of the off-the-market drug and more frequent refusals to allow it into the market. This response strategy is, however, neither psychologically nor politically painless. Subjects who regret drugs with favorable benefit-cost ratios are still in the dissonant position of allowing more people to die than to live. Following the Janis and Mann (1977) conflict model of decision making, we predict that accountable subjects would cope with this unpleasant trade-off in two distinct ways: backpassing (referring the decision to a fictitious governmental body — the Agency for Cost Benefit Analysis — for further consideration) and procrastination (requesting additional time to make the decision in the hope that more decisive evidence would later be in hand). In this way, accountable decision makers can simultaneously qualify their reluctance to accept the drug and claim the moral high ground: 'I am not prepared to kill people by allowing a drug with lethal side effects into the market, but I am not ruling out the possibility that the wisest decision for society may ultimately be to accept the drug with the favorable benefit-cost ratio.'

It should be emphasized here that the conflict model treats backpassing and procrastination as motivated by blame- and decision-avoidance. To provide a strong test of the conflict model therefore, it is necessary to distinguish good political motivations from bad. Reasonable people might prefer responsibility to others if there were grounds for believing that others possess critical information not available to them. Accordingly, we explicitly told subjects that the Agency for Cost Benefit Analysis would have access only to the same information available to them. Reasonable people might also delay decision making if there were grounds for believing that evidence on the safety and effectiveness of the drug would emerge in the permissible 'delay-action period' of one year or that a technological breakthrough might occur in that period. Accordingly, we explicitly told subjects that experts were unanimous that both events were 'highly improbable' in the next year. In short, we did not introduce any dependent variables of 'passing responsibility' and 'deferring decision' as 'backpassing' and 'procrastination', respectively, only to the degree we can (1) eliminate reasonable policy grounds for adopting these coping responses and (2) demonstrate that these coping responses are most likely to occur when the preconditions for activating 'defensive avoidance' are

most fully satisfied (accountable subjects confronted by a medium- or high-risk drug not yet on the market).

We also drew upon Tetlock's (1985a, 1992) social contingency model of judgement and choice to predict that accountable subjects confronted by an off-the-market drug would report the most 'integratively complex' cognitive strategies in their thought protocols. This prediction is consistent with past work in which subjects who were accountable for their views to an audience with unknown preferences engaged in 'pre-emptive self-criticism' — a coping strategy that involves demonstrating one's understanding of arguments on both sides of the problem (Tetlock, 1985a, 1989, Tetlock and Kim, 1987). Caught between the desire to avoid sharp confrontations with the victims of the drug and the desire to save the most lives possible, accountable subjects confronted by an off-the-market drug will be more likely to (1) report evaluatively differentiated thoughts ('on the one hand, ... on the other hand, ...'); (2) emphasize the need for additional information and time to make the decision; and (3) to comment spontaneously on the difficulty of integrating the conflicting needs represented in the problem. Finally, we speculated that there are close psychological connections between the coping responses identified by the Janis and Mann conflict model and the Tetlock social contingency model. The more integratively complex one's view of a problem, the more attractive backpassing and procrastination may become as means of avoiding tragic choices. Conversely, the more prone one is to backpass or procrastinate, the greater the need to justify those decisions (non-decisions) by pointing to the integratively complex nature of the policy problem.

**METHOD**

**Subjects and design**

A total of 60 subjects were randomly assigned to experimental conditions in a mixed design 2 (status quo/new drug in US market) x 2 (anonymity/accountability) x 3 (expected magnitude of cost) x 3 (expected magnitude of benefit) design. All subjects were Berkeley undergraduates: 14 males, 26 females. Each of the 15 subjects was run in small groups of three to five persons. Equal numbers of subjects were assigned to the 2 (status quo) x 2 (accountability) between-subjects conditions of the design (15 per cell). All subjects responded to each of the 9 (3x3) cost-benefit variations of the drug (low, medium and high costs and benefits). Six subjects failed to follow experimental instructions (or to pass the knowledge test) and were replaced.

**Procedure**

Subjects were told that the FDA is responsible for protecting the public from dangerous drugs and false claims, and, in this capacity, regulates the drugs that doctors can prescribe for a very large range of ailments. In principle, all drugs must be judged both safe and effective prior to approval. In practice, however, very few drugs are perfectly safe, and the regulatory decision-making process often requires balancing the anticipated benefits of drugs against the anticipated costs and risks. When the costs outweigh the benefits, the mandate of the regulatory agency is either to prevent the drug from entering the US pharmaceuticals market (non-status-quo version) or to remove the drug from the market (status-quo version).

All subjects were then asked to play the role of a regulatory decision maker and given the following background information:

As part of the US government, the FDA must, of course, be responsive to the President who appoints the top administrators, to the relevant oversight committees of Congress (before whom FDA decision makers frequently testify) and to the Courts (drug companies or citizen groups
may appeal certain decisions) and, ultimately, to the American people. In short, as a decision maker in the FDA, you may be criticized by a variety of groups for a variety of sometimes contradictory reasons. You do not have an easy job.

Some critics of your organization think it is far too cautious about approving drugs and that lives are being needlessly lost. Other critics claim the opposite: that the FDA is far too willing to approve drugs that we know with reasonable certainty will cause the death of identifiable people. Some say that the FDA should strive to save as many lives as possible even if that means approving controversial or not-fully proven medications; others say that the FDA stamp of approval should be given only to drugs that, we can be reasonably sure, will not kill or seriously injure people. The FDA, in this latter view, should keep very literally to its legal mandate from Congress to approve only drugs that are proven in scientific research to be safe and effective.

Subjects were told that the purpose of this study was to investigate the ethical intuitions that ordinary people (as opposed to regulatory specialists) have about when a drug should be permitted. They were then presented with a brief description of a fictitious anti-coagulant drug known by the brand name of Carozil. They learned that Carozil had been found in experimental research to be effective in breaking up blood clots that could otherwise lead to fatal heart attacks. This beneficial application of Carozil created certain risks, particularly massive internal bleeding in certain patients. Unfortunately, given current knowledge, it is impossible to determine which patients would benefit and which ones would be harmed by Carozil until after the fact. Also unfortunately, there is at present no good pharmaceutical substitute for Carozil for those patients who benefit from its anti-clotting effects. Without Carozil, it is very likely that many of these patients would die. Although there is always a chance of a major breakthrough that would eliminate the cost-benefit trade-off for Carozil (and all other perfect drugs) that dissolve blood clots without raising the risk of internal bleeding and strokes), the leading researchers in the field unanimously caution us 'not to hold our breath'. The likelihood of significant breakthroughs and even of significant new evidence in the next year is extremely low.

Within-subject independent variables (cost and benefits)

We then asked subjects to read nine summaries of the research evidence on the 'clinical costs and benefits' of Carozil (order randomized). We explained to subjects that, although only one of the nine data patterns represented the 'true cost-benefit profile' for Carozil, we wanted their thoughtful reactions to all nine patterns to allow us to gauge accurately people's beliefs and feelings about 'acceptable risk' in the regulation of life-saving and life-threatening drugs. The three levels of benefit for Carozil were described as follows: 'Carozil is the only known effective anti-coagulating medication for a significant subgroup of American heart attack victims. The best available clinical evidence is that approximately 300 (600 or 900) more of these heart attack patients would die each year if doctors could not administer Carozil to them.' The three levels of cost for Carozil were described as follows: 'A side-effect of Carozil is heightened risk of serious internal bleeding.'

This statement was then followed by (1) the best clinical evidence is, however, that this risk can be controlled by other medical interventions and that zero lives will be lost as a result of the side-effects or (2) the best clinical evidence is that approximately (100) or (300) patients per year will die — people who would not otherwise have died — as a result of the administration of Carozil.

Subjects were asked to judge the acceptability of the drug for each of the nine cost-benefit profiles (order randomized). We also informed them that, although they must make a categorical yes/no recommendation for each profile, they could also recommend other courses of action in each case, including deferring the decision for up to a year — the maximum 'delayed-action period' — until further evidence and opinions can be collected (the measure of procrastination) and referring the decision to another governmental body, the Agency for Cost-Benefit Analysis, that will not have any information beyond that available to the FDA but which specializes in dealing with difficult decision-making problems (the measure of buckpassing).

Between-subjects independent variables

Accountability

Subjects read through each of these nine summaries of evidence under the expectation either that all decisions they made would be completely confidential and anonymous or that they would later be asked to justify their decisions to a post-doctoral research fellow who had first-hand experience in working at the FDA, and who would raise the types of challenges to subjects' decisions that were typically raised to real FDA decisions. Subjects assigned to the accountability condition were asked to give permission to the experimenter to audiotape the interview for later data-analysis purposes.

Status quo

As subjects read through the nine summaries of evidence, they were told either that (1) Carozil is currently on the US pharmaceutical market; you must decide whether it should continue to be on the market or (2) Carozil is not currently on the US pharmaceutical market (although it is used in some other countries); you must decide whether this drug should be allowed onto the market.

To ensure the subjects in the status-quo versus new-drug conditions did not conclude that there was more or less accurate evidence on the effects of the status-quo drug, we provided each group with the same information on the clinical effectiveness of the drug and its possible side-effects, and required all subjects to pass a knowledge test on this information.

Knowledge test

Before judging the acceptability of the drug, subjects received a 7-item multiple-choice test concerning the responsibilities of the FDA, the clinical properties of Carozil, the evidence on the impact of Carozil on patients' health and longevity, and the options available to subjects in their roles as FDA decision makers. Subjects had to answer six out of seven questions correctly before proceeding to the next phase of the study.

Dependent variables

After reading each summary of the evidence on the cost-benefit profile of the drug, we asked subjects to make five judgements:

(1) To rate the overall acceptability of the drug on a 1-9 scale (completely unacceptable/completely acceptable);
(2) To rate the advisability of deferring the decision for one year until further evidence and opinions can be collected (1-9 scale: extremely bad idea/extremely good idea);
(3) To rate the advisability of passing responsibility for making a recommendation onto another decision-making body for further consideration (Agency for Cost-Benefit Analysis) (1-9 scale: extremely bad idea/extremely good idea);
(4) To rate the difficulty of the decision-making process (1-9 scale: extremely easy/extremely difficult);
(5) To make a yes/no recommendation on permitting the drug in the US pharmaceutical market.
Continuous rating variables

We analyzed the data with a repeated measures analysis of variance with three levels of risk and three levels of benefit as within-subjects independent variables, and the market status of the drug and accountability of the subjects as between-subjects independent variables, yielding a 3 x 3 x 2 x 2 mixed design. Exhibit 1 presents judgements of the accountability of the drug Carozile. As expected, there were powerful main effects for level of risk (F(2, 112) = 1167.1, p < 0.0001) and benefit (F(2, 112) = 101.8, p < 0.0001), which were highly significant in the expected directions (all F’s reported are for Wilks’ lambda; similar results obtain for Pillai’s trace and the Hotelling-Lawley trace criteria). Because there were no interactive effects of benefit level with the between-subjects independent variables, we simplified presentation by collapsing the three levels of benefit at each level of risk.

There was a main effect for the status quo manipulation, F(1,56) = 9.6, p < 0.01, with subjects preferring a drug already on the market (M = 6.95) over a drug not yet on the market (M = 6.28). Replicating past work, the status quo effect emerged in the no-accountability conditions, M = 6.96 versus 6.63, F(1,56) = 4.47, p < 0.05, but was much more pronounced in the accountability conditions, M = 6.93 versus 5.90, F(1,56) = 13.74, p < 0.01. The status-quo-by-accountability interaction was highly significant, F(1,56) = 10.65, p < 0.01. As also predicted, the status quo effect was weakest when the risk of side-effects was least (no one was expected to die from the drug), M’s = 7.6 versus 7.35, F(1,56) = 2.84, p < 0.10, and became progressively stronger as the risk of side-effects rose to moderate (100 would die), M’s = 6.9 versus 6.05, F(1,56) = 9.44, p < 0.01 and to high (300 would die), M’s = 6.4 versus 5.4, F(1,56) = 11.12, p < 0.01. The status-quo-by-risk interaction was, as a result, highly significant, F(2, 112) = 10.62, p < 0.01.

The primary effect noted on Figure 1 was, however, the second-order interaction of the level of risk-benefit, the market status of the drug, and the accountability of the subjects, F(2, 112) = 7.83, p < 0.01. For accountable subjects evaluating an off-the-market drug, the within-subject manipulations of medium and high risk resulted in judgements of Carozile as far less acceptable than for subjects in the three other conditions: M(15) = 5.08 versus M(45) = 6.57. This basic pattern, moreover, replicated across all four of our decisonal dependent variables. To test the robustness of the interaction, we relied on the conservative Tukey HSD test of the difference of means (a test that caps the overall Type I error at 0.05). The Tukey procedure confirmed the interactions that can be observed in Exhibits 1 through 4. For instance, for accountability, the medium- and high-risk judgements of accountable subjects evaluating an off-the-market drug were significantly different from all other means, with only one exception: the contrast between a medium-risk/accountable/off-the-market drug and a high-risk/unaccountable/off-the-market drug, (minimum significant difference = 0.86).

Our second dependent measure was the tendency to defer the decision. Again, there were powerful main effects for level of risk, F(2, 112) = 130.76, P < 0.0001 and benefit F(2, 112) = 51.42, p < 0.0001. Exhibit 2 shows a greater tendency to defer the decision on the drug as risk increased, a tendency that was especially pronounced among accountable subjects who were considering a drug that had not already been introduced into the market. The interaction between status quo, accountability, and risk-benefit was highly significant, F(2, 112) = 7.87, p < 0.0001. The results of the Tukey HSD test were even more clear-cut than before; the medium- and high-risk judgements of accountable subjects evaluating an off-the-market drug were not significantly different from each other, forming their own group, and were significantly different from all other judgmental groupings at the 0.05 level (minimum significant difference = 1.09).

The same pattern prevailed for our third measure, the tendency to pass responsibility for the decision onto another government agency. There were powerful main effects for level of risk (F(2, 112) = 126.9, p < 0.0001) and benefit (F(2, 112) = 12.86, p < 0.0001). Exhibit 3 shows a much stronger buckpassing tendency for accountable subjects evaluating an off-the-market drug than for subjects

RESULTS

Manipulation checks

The accountability manipulation produced the intended impact on subjects. Accountable subjects were much more likely than unaccountable ones to feel pressure to justify their views later on (M’s = 5.6 versus 2.4, F(1,56) = 28.58, p < 0.001) and to report thinking carefully about how they would account for their positions they took later on (M’s = 5.8 versus 3.0, F(1,56) = 19.95, p < 0.001). We also checked on whether subjects in the status-quo conditions (drug-on-the-market) felt that they had a better scientific basis for judging the effectiveness of Carozile than those in the non-status-quo conditions (drug-off-the-market) — a potential confound we attempted to eliminate through experimental instructions and the knowledge test. Results revealed no differences between conditions in the adequacy of existing scientific knowledge for making decisions on the effectiveness of the drug (M’s = 5.1 versus 4.9, F < 1, ns).

Correlations among dependent variables

Judgements of the accountability of the drug Carozile were negatively correlated with the tendency to postpone the decision (r = −0.39, P < 0.01), to pass responsibility for the decision onto someone else (r = −0.32, p < 0.01), and to rate the decision as difficult (r = −0.25, p < 0.05). These three variables were even more highly intercorrelated with each other: the correlation between procrastination and buckpassing, r = 0.62, (p < 0.0001), between procrastination and subjective difficulty, r = 0.48, (p < 0.0001), and between buckpassing and subjective difficulty, (r = 0.57, p < 0.001).
in the other three conditions: $M(15) = 5.78$ versus $M(45) = 3.40$. This interaction was again highly significant, $F(2, 112) = 6.50, p < 0.0001$. Again, the results of the Turkey HSD test were unequivocal: the medium- and high-risk judgements of accountable subjects evaluating an off-the-market drug were not significantly different from each other, forming their own grouping, and were significantly different from all other conditions at the 0.05 level (minimum significant difference = 1.08).

Essentially the same pattern prevailed for our fourth measure, the subjects' ratings of the difficulty of the decision. Again, there were powerful main effects for level of risk ($F(2,112) = 137.6, p < 0.0001$) and benefit ($F(2, 112) = 31.75, p < 0.0001$). Exhibit 4 shows a much higher difficulty rating for accountable subjects evaluating an off-the-market drug than for subjects in the other three conditions: $M(15) = 5.08$ versus $M(45) = 3.56$. This interaction is again highly significant, $F(2, 112) = 7.92, p < 0.0001$. However, in this case the results of the Tukey HSD test were less clear-cut; the medium- and high-risk judgments of accountable subjects evaluating an off-the-market drug were not significantly different from each other, but also were not different from the third- and fourth-highest rated.
Exhibit 3. Tendency to pass responsibility for the drug to someone else as a function of risk level, by accountability and status quo.

Exhibit 4. Ratings of the difficulty of the decision as a function of risk level, accountability, and market status recommendation on whether the drug should be allowed onto the market (or allowed to continue on the market). Exhibit 5 presents the results for this dichotomous dependent variable — results that parallel those for the acceptability variable (although the effects were somewhat weaker). As before, a three-way interaction emerged which revealed an especially strong accountability-by-status-quo effect only when subjects believed that allowing the off-the-market drug onto the market would lead to the loss of 100 or 300 lives (medium or high risk) $F(2, 122) = 2.69, p < 0.05$. Accountable subjects confronting a drug currently not on the market were more likely to make a negative recommen-
dation when they thought the drug would kill 100 or 300 people. Planned contrasts revealed the accountable/off-market/high-risk drug (M = 0.13) and accountable/off-market/medium-risk drug (M = 0.27) conditions differed significantly from all other conditions taken together (M = 0.68, F(1, 112) = 4.03, p < 0.05, and from all conditions taken individually, with the exception of accountable/off-market/high-risk drug condition (M = 0.31) and the unaccountable/off-market/medium risk drug (M = 0.53, neither mean is significantly different from 0.27).

We performed a number of additional analyses on the choice data. A Gutmann scalogram analysis revealed that subjects made choices concerning the permittibility of Carozile in highly internally consistent ways. Using either of the two possible Gutmann orderings (ratio of lives saved versus lost or absolute difference of lives saved versus lost) the coefficient of reproducibility was either 0.91 or 0.92. The consistency of these judgments is especially impressive given that subjects made the nine judgments in randomized order and were not required to make relative rankings or explicit comparisons. Subjects, it seems fair to infer, took the task seriously.

We also explored the magnitude of what Spranca et al. (1991) have called the omission bias among our subjects. Using the within-subjects choice data, we computed the number of deaths by omission that subjects considered to equal a death by commission. As Exhibit 6 indicates, there were two ways to compute this relative balance. Of our 60 subjects, 17 made Yes–no decisions on Carozile that indicated a proportional Gutmann scaling, 15 chose an ordering indicating the implicit calculation by absolute difference of deaths, and 28 selected an order that could be considered consistent with both proportion and absolute difference. These relative weightings range from no omission bias at all by eight subjects who made affirmative decisions on all combinations of risk and benefit, even the combination for which death by omission equaled expected deaths by commission, to a single subject who rejected use of the drug under all circumstances.

Because there were three experimental combinations that included zero risk (making it impossible mathematically to compute proportions), we constructed a proxy proportion by linearly extrapolating the three zero-risk proportions in line with the other six combinations as in Exhibit 6(a). Using this standard, the mean proportion of deaths our subjects as a whole accepted by omission as equal to a single death by commission was 4.32. As Exhibit 7 indicates however, this ratio varied quite significantly as a function of both market status and accountability. Subjects accepted more deaths by omission if they were accountable (F(1, 56) = 7.88, p < 0.01) and if the drug were not yet on the market (F(1, 56) = 24.23, p < 0.001). The interaction was also significant: F(1,56) = 6.57, p = 0.01.

As a measure of the consistency between subjects' responses on the four continuous rating scales and their ultimate accept/reject decision on the drug, we did a discriminant function analysis that predicted the accept/reject decision based on answers to the continuous response scales. For each of the nine risk/benefit levels, we computed the number of correct predictions of the accept/reject decision based on each subject's responses to the four continuous scales. The average number of 'correct' predictions across all nine risk/benefit levels was high (51.44 accurate predictions for 60 subjects), based on the full discriminant model. Errors tended to be concentrated in the medium-benefit/medium-risk and high-risk and low-benefit/low-risk conditions. Reducing the model to include only the most direct continuous predictor, the acceptability of the drug, increased the average number of inconsistent predictions to only 10.11 out of 60.

**Thought protocol hypotheses**

Exhibit 8 summarizes the means of several indices derived from the content and structural analyses of thought protocols. These indices tended to intercorrelate in roughly the expected patterns. The ratio balance index was negatively correlated with integrative complexity (r = −0.74) and the measure of ‘trade-off cognitions’ was highly positively correlated (r = 0.82). We simplify presentation by focusing solely on trade-off cognitions here. There was also a negative correlation between a ‘content-of-thought’ indicator (the number of anti-drug cognitions) and integrative complexity and trade-off cognitions, r = −0.41, −0.35, respectively — which indicates more complex protocols tend to include more expressions of concern about the drug.

The thought-protocol measures correlated with the rating-scale measures in interesting patterns. Although neither the number of pro-drug nor that of anti-drug thoughts strongly predicted acceptability ratings, the ratio of pro-drug to anti-drug thoughts proved a powerful predictor in the medium-risk (100 will die) and high-risk (300 will die) conditions, r's = 0.70 and 0.61, respectively. The predictive power of the ratio of pro- to anti-drug thoughts fell off sharply in the low-risk (no one likely to die) condition, r = 0.18. The pro-to-anti-drug-thought ratio was also correlated with buck-passing (low risk, −0.42; medium risk, −0.59, and high risk, −0.55), procrastination (low risk, −0.50; medium...
risk, 0.21; medium risk, 0.29; high risk, 0.39), and subjective difficulty of decision making (low risk, 0.15; medium risk, 0.24; high risk, 0.27). As can be seen, the correlations between trade-off thoughts and buckpassing/procrastination/difficulty are consistently higher for the medium-/high-risk drug than for the low-risk one. Moreover, the trade-off cognition index was also a more powerful predictor under accountability than under no accountability. Under accountability, correlations varied from buckpassing (low risk, 0.14; medium risk, 0.25; high risk, 0.38), to procrastination (low risk, 0.13; medium risk, 0.26; high risk, 0.49), to subjective difficulty (low risk, 0.12; medium risk, 0.18; high risk, 0.24) (all n's = 30). Under no accountability, the consistently nonsignificant correlations varied from buckpassing (low risk, 0.08; medium risk, 0.04; high risk, −0.14), to procrastination (low risk, 0.06; medium risk, 0.24; high risk, −0.10), to subjective difficulty (low risk, 0.23; medium risk, 0.15; high risk, −0.19) (all n's = 30). The predictive power of trade-off cognitions was also more powerful for the non-status-quo (off-the-market) drug than for the status-quo (on-the-market) one. In the non-status-quo conditions, correlations varied from buckpassing (low risk, 0.09; medium risk, 0.28; high risk, 0.41), to procrastination (low risk, −0.09; medium risk, 0.46; high risk, 0.36), to subjective difficulty (low risk, 0.17; medium risk, 0.26; high risk, 0.46). In the status-quo conditions, the consistently nonsignificant correlations ranged from buckpassing (low risk, 0.05; medium risk, −0.03; high risk, 0.10) to procrastination (low risk, 0.11; medium risk, −0.21; high risk, −0.02) to subjective difficulty (low risk, −0.01; medium risk, −0.08; high risk, −0.08).

In brief, the correlational analyses across and within conditions reveal a consistent picture. Subjects with more complex (trade-off cognition) thought protocols were more likely to buckpass, to procrastinate, and to have had a hard time making up their minds when they were confronted by a medium- or high-risk drug that was not currently on the market and when they were accountable for their judgements.

Analyses of variance of the thought protocol data revealed the following effects:

1. Accountability depressed the ratio of pro- and anti-drug thoughts (M's = 2.19 versus 1.42), F(1, 56) = 10.53, p < 0.01, but neither the status quo nor accountability-by-status-quo effect approached significance;

2. This effect of accountability on the ratio index was primarily due to the tendency of accountable subjects to report more anti-drug thoughts (M's = 0.73 versus 1.42) (F(1, 56) = 8.07, p < 0.05);

3. One cognitive structural index — the measure of trade-off cognitions — did have effects that closely paralleled those for the continuous rating scale and dichotomous choice variables.

The accountability and status quo manipulations had an interactive effect on trade-off cognitions, F(1, 56) = 5.38, p < 0.05, with markedly more references to trade-offs appearing in the accountable/off-the-market drug conditions (M = 0.87 versus 0.40, 0.40, and 0.20). Analysis of covariance indicated that when we controlled for trade-off cognitions, the interactive impact of accountability and status quo on acceptability of the drug was diminished, F(1, 55) = 5.88, p < 0.05, but remained significant.
DISCUSSION

Although accountable and unaccountable decision-makers differed little in their responses to the on-the-market drug, they differed dramatically in their responses to the off-the-market drug that threatened to kill 100 or 300 people in the process of saving 300, 600 or 900 others. These findings are consistent with the notion that decision makers relied on a variant of the 'acceptability heuristic' (Tellock, 1992) in which their guiding assumption was 'avoid doing anything that will antagonize a potent political constituency'. Taking the drug off the market would impose steep costs on those who depend on it and whose risk of dying from heart attacks would now rise. Accordingly, accountable subjects in the on-market condition are no faster than their unaccountable counterparts to pull the drug off the market as risks rise. Introducing the drug into the market would impose steep costs on the potential stroke victims, and the prospect of making a political enemy (the stroke victims) apparently outweighed the prospect of gaining a political friend (those saved by Carozile). Accordingly, accountable subjects in the off-market condition are much more reluctant to accept the drug into the market as risks rise than are unaccountable ones.

The caution of the accountable subjects in the off-the-market condition was evident on all four continuous dependent variables: the acceptability judgments of the drug, the desire to pass responsibility for making the decision onto another institutional actor (backpassing), the desire to defer making the decision until further evidence was available (procrastination), and the perceived difficulty of the decision. Especially illuminating was the similar functional form of the interactions across these dependent variables. Whenever accountable subjects were confronted by an off-the-market drug that posed moderate or high risk they were not only especially reluctant to permit the drug, they looked for ways to escape the decisional dilemma that had been created for them. Accountable subjects confronted by an off-the-market drug did not feel comfortable either with the option of permitting a drug that would with certainty kill 100 or 300 patients or rejecting a drug that would, on balance, save more lives (300, 600, or 900) than it would take (100 or 300). This discomfort was reflected in their ratings of decisions as especially difficult when these decisions involved a medium- or high-risk off-the-market drug. Placed in an awkward value conflict, these subjects turned to two coping strategies identified by the Janis and Mann (1977) conflict model of decision making: backpassing and procrastination. On the other hand, they tried to pass responsibility for making the decision to another government agency (the fictitious Agency for Cost-Benefit Analysis), even though it was clear that this agency did not possess any medical information beyond that available to the FDA and that people would die during the bureaucratic transition period. On the other hand, they tried to defer making the decision for a year, even though it was extremely unlikely that any additional evidence would be available on the drug in that time period.

The thought protocol evidence is also consistent with the view that accountable subjects in the off-the-market condition felt especially conflicted. These subjects reported the most evaluatively differentiated thoughts about the decision-making process (thoughts organized in dialectical point/counterpoint fashion). They were also most likely to generate trade-off or integrative cognitions that specified ways of coping with contradictory arguments. As expected, there were positive correlations between these trade-off cognitions and the self-reported difficulty of the decision-making process and the measures of backpassing and procrastination, even though correlations that were especially pronounced in the medium- and high-risk drug conditions, in the off-the-market conditions, and in the accountability conditions. Although we cannot test strong mediational hypotheses (we measured thoughts only retrospectively after subjects had judged all nine cost-benefit combinations), the thought-protocol data do reinforce a theoretical account that depicts accountable subjects contemplating admitting the medium- or high-risk drug onto the market as mired in trade-off paralysis in which negative thoughts about the drug become relatively more frequent (the accountability main effect),

1 Another useful direction for follow-up work is exploration of individual differences in ethical reasoning here. Forsyth and Pope (1984), for example, have developed a taxonomy of ethical ideologies that helps to organize some of the within-subjects variation in the data. In their terminology, some of our subjects were 'absolutists' whose judgments were swayed only or primarily by risks (ratios of risk-sensitivity to benefit-sensitivity between 2.0 and 12.0) whereas others were 'situationalists' whose judgments were swayed equally by risk and benefit (ratio of risk-sensitivity to benefit-sensitivity from 0.6 to 1.2). These two groups overlapped randomly distributed across experimental conditions. It was worth noting, however, that the absolutists placed higher value on lives lost from omission (stay with status quo) than on lives lost from commission (change). M(15) = 5.03 versus M(15) = 3.67, F(1.27) = 2.92, p = 0.05.

subject try to generate more integrative or trade-off cognitions to cope with their increasing ambivalence (the ratio of pro- to anti-drug thoughts approaches 1), subjects report that the decision-making task has become especially difficult, and seek escape from the decisional dilemma through backpassing and procrastination.

The highly replicable interaction of the status quo, accountability, and risk-benefit level is best explained as the product of mutually reinforcing cognitive and political accountability pressures. Neither the status quo nor the accountability manipulation by itself had a particularly powerful impact on judgment policies toward the drug. Together, however, these two independent variables significantly shifted the cost-benefit calculus toward conservatism when the drug posed risks to human lives. Lives lost from inaction (continuing to bar the drug from the US market) became much less valuable than lives lost from changing the status quo and allowing the drug into the US market (by a ratio that approached 9:1 in the accountability/off-the-market condition). Accountability caused subjects to think carefully about the justifiability of what they were planning to do. When the status quo is to keep the drug off the market, and the drug has a favorable cost-benefit ratio, accountability has virtually no effect. Some people may be unhappy with the drug, but more are happy and one can invoke the precedent that someone before you already decided that the drug belongs on the market. Accountable subjects in the on-market condition do not therefore have an unduly difficult time making up their minds. Accountability made decision making difficult, for some subjects downright averse, when the drug was not on the market, and had lethal side-effects, but also a favorable risk-benefit ratio. The question then became whether subjects were willing to assume personal responsibility to change the status quo and impose severe losses on an identifiable group.

Whether one considers the effects documented here to be errors or biases hinges on both one's ethical philosophy and institutional perspective. From a simple utilitarian perspective, the unwillingness (especially among accountable decision makers) to contemplate a new drug) to accept Carozile whenever its benefit-cost ratio exceeded 1 is puzzling. In effect, subjects were willing to allow more people to die than to live. Also puzzling from this perspective is the apparent interest in delaying or passing responsibility for making the decision. We explicitly told subjects that there was virtually no prospect of either a technical breakthrough (new drug without side-effects) or evidence that would alter the benefit-cost ratio for the drug. These response tendencies are, however, easier to reconcile with rule-constrained forms of utilitarianism and deontological frameworks which alert us to the dangers of simply focusing on benefit-cost ratios (the dangers of granting too much discretionary authority to regulators and of compromising on issues best treated as matters of principle). One might argue, for example, that one sets a dangerous precedent by permitting drugs that are known with certainty to be lethal for identifiable patient groups (an effect, a regulatory agency arrogates to itself the 'right' to decide which group will die in order to save another group. This argument illustrates why one might want to place constraints on maximizing benefit-cost ratios (a point that a few subjects did make).
subjects became more cautious because they saw the perils of simplistic utilitarianism (adopt whatever policy has the highest benefit-cost ratio), then they should have become more cautious in both the on-market and off-market conditions. But they did not. Accountable subjects differed from their unaccountable counterparts only when considering a drug that was not yet on the market. This selectivity in their responses is highly consistent with the hypothesis that accountable subjects were driven much more by the desire to avoid controversy and criticism than they were by the discovery of subtle philosophical principles.

Viewing the data in the context of other research on accountability, the current study suggests a quite different normative perspective on both integrative complexity and pre-emptive self-criticism. In past work, Tetlock (1983a, b, 1985b; Tetlock and Kim, 1987) has argued that encouraging integrative complexity confers a degree of protection against judgmental biases such as the unwillingness to acknowledge trade-offs, belief perseverance, and fundamental attribution error, and overconfidence. Growing evidence suggests that this view of integrative complexity is too simple. Tetlock and Boettger (1989) found that integratively complex thinkers were more easily distracted and confused in an environment with an unfavourable signal-to-noise ratio (and hence more susceptible to the dilution effect). If one views preference for the policy arbitrarily deemed the status quo as a judgemental bias or error (Samelson and Zeckhauser, 1987), or the tendency to value lives lost by omission less than lives lost from commission as a bias or error (Ritov and Baron, 1991; Spranca et al., 1991), then integrative complexity and pre-emptive self-criticism amplify deviations from normative models in the present study as well. Normative judgments of this sort should, however, be made with caution. Although some observers might view the tendency of more integratively complex thinkers to backpass and procrastinate in the new-drug context as evidence of moral confusion or political timidity, others may defend this judgmental strategy as circumspect and prudent given the gravity of the issues at stake.

The present study also highlights tricky issues of rationality at different levels of analysis. At an individual level, it is understandable that regulatory decision makers want to keep their lives reasonably simple. Decision makers (especially accountable ones) who admit a drug that will cause deaths guarantee themselves controversy; decision makers who defer or postpone decisions can always claim to be acting responsibly in the public interest (to learn more about the views of patients and physicians, the (slim) hope of new evidence or a breakthrough . . . ). At an institutional level, it is also arguably best to proceed incrementally and cautiously to be alert to the possibility of triggering a political uproar and bringing the wrath of other branches of the government upon the agency. Only at the level of the mass public do the losers usually clearly outnumber the winners. There is little political incentive to take up the cause of people who do not know how much better off they would have been had the new drug been adopted. Organizational and political accountability demands — ostensibly designed to serve the public interest — tend instead to serve the interests of those constituencies who can effectively mobilize and challenge the regulators (Buchanan and Tullock, 1962).

In closing, it is instructive to view the 87-year history of the actual Food and Drug Administration within an accountability framework. In 1906, the United State Congress created the FDA to protect a vulnerable public from unscrupulous companies that made inflated claims for patent medicines that were either worthless or harmful (Quirk, 1980). Over time, the regulatory powers of the agency slowly expanded. In 1938, legislation required companies to test drugs for safety and gave the FDA the power to halt the distribution and marketing of drugs deemed dangerous (legislation that coincided with the death of 107 people from ingesting an elixir of sulfanilamide, the same chemical used in antibiotics). In 1961, after the birth of thousands of deformed babies to mothers who had taken the sedative thalidomide during pregnancy, Congress went even further and required companies to submit 'substantial evidence' from 'well-controlled experiments' that demonstrated the safety and effectiveness of proposed new drugs. As Graham (1991) notes, in the ensuing two decades (roughly 1962-82), the top administrators of the FDA were frequently held accountable by Congressional committees for failing to exercise sufficient caution in approving drugs. Errors were inevitable. Some were the product of sloppy research; others arose from idiosyncratic or delayed reactions of patients which could not have been predicted from even the most rigorous experimental controls. Whatever the cause, the FDA was cast in a decidedly defensive role.

Not surprisingly, in response to these political accountability pressures, the FDA adopted an increasingly cautious approach to approving drugs — an approach that, of necessity, was both time consuming and expensive. These policies probably allowed the FDA to avoid many Type I errors (concluding a drug is safe and effective when it is not), but the price was, inevitably, increased susceptibility to Type II errors (failing to approve drugs whose net benefits to the public greatly exceed the net costs).

In the mid-1980s the rapid spread of the AIDS epidemic began to change the calculus of political accountability. Whereas the safe bureaucratic response was once 'when in doubt, buy time by seeking additional evidence', a new and vocal interest group now appeared on the scene. AIDS activists demanded that patients confronting otherwise certain painful death be given access to drugs that had not passed the lengthy screening process but that could conceivably save their lives. The political mood shifted. Representative Henry Waxman, who chaired the subcommittee that monitors drug approval policies, conceded:

'We've too rigid in not making lifesaving drugs available to people who otherwise face certain death . . . It is true of AIDS, but it is also true of cancer and other life-threatening diseases. (Quoted in Graham, 1991, p. 39).

The FDA, at the time of this article, is now caught in a classic two-pronged accountability dilemma (Tetlock, 1992). On the one hand, the Agency is accountable to (impatient) patient interest groups who demand swifter access to high-risk drugs; on the other, the Agency must conform to its legislative mandate to approve only drugs that are both safe and effective (tricky-to-operationalize concepts given that virtually no drug is perfectly safe). The key question from both a practical and theoretical point of view, is: How will the Agency respond to these cross-pressures? The social contingency model of judgment and choice predicts that decision makers will respond in a combination of two ways: the acceptability heuristic (shift policies so they are acceptable to the most strident and potent protest groups) and greater integrative complexity (develop abstract principles that explain why thresholds of acceptable risk should vary as a function of the lethality of the disease, the risk preferences of affected groups, and available treatment alternatives).

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REFERENCES


Hagafors, R. and Brehmer, B. 'Does having to justify one's decision change the nature of the judgment process?' Organizational behavior and Human Performance, 31 (1983), 223-232.
Miller, D. T. and Turnbull, W. 'The counterfactual fallacy: Confusing what might have been with what ought to have been', Social Justice Research, 4 (1991), 1-19.
Ritov, I. and Baron, J. 'Reluctance to vaccinate: Omission bias and ambiguity', Journal of Behavioral Decision Making, 3 (1990), 263-278.
Ritov, I. and Baron, J. 'Status quo and omission biases', Journal of Risk and Uncertainty, in press.

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