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Individual differences in managerial accounting judgments and decision making



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ABSTRACT

Managers are influenced in their decisions by the information provided by managerial accountants. Two typical examples from textbooks are the irrelevance of sunk costs and, more recently, the affect of knowing the outcome of a decision or revised budget forecast. Individual differences in the cognitive ability of decision makers to use information can lead to systematic differences in judgments. We identify and label one of these individual cognitive differences comprehensive thinking ability: the ability to think about multiple paths, branches or alternatives. Significant comprehensive thinking ability is likely to mitigate systematic differences in judgment in many contexts. We report the results of a series of studies using a variation on the investment trap (sunk cost or irrelevant cost) problem and a probability revision task. The findings suggest that comprehensive thinking ability may also explain other common systematic differences in judgment.

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1. Introduction

The management accounting control (MCS) system provides and uses information to help decision makers assess whether an organization, or its members, is achieving its objectives. However, individual differences in the cognitive ability of decision makers to use information and learn or adjust to it can lead to systematic differences in judgments (Kahneman & Tversky, 1984; Luckett & Eggleton, 1991). In this paper we identify and label one of these individual cognitive differences, "comprehensive thinking ability." By this we mean the ability to think about multiple paths, branches or alternatives. Significant comprehensive thinking ability is likely to mitigate systematic differences in judgment in many contexts. For instance, the tasks of reassessing probabilities of future events and identifying sunk costs may be successfully accomplished if one has a broad perspective on the problem.

Identifying individual differences in judgment is valuable when there is a normative solution to the problem. To the extent that low comprehensive thinkers can be recognized, MCS can prompt the use of underutilized information to improve their judgments (Butler, 1985; Kennedy, 1995; Merchant & Van der Stede, 2007). These prompts would be guided by the characteristics of a high comprehensive thinker and thus would involve asking for alternative paths to the same outcome or perhaps alternative outcomes resulting from the same initial state of the world (e.g., counterfactual reasoning). The goals are

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to avoid costly deviations from the normative answer and to allow the low comprehensive thinker to learn, through experience, how the high comprehensive thinker sees the problem.

The costs involved with the inability of some decision makers to use the information provided by the accounting system can be significant. For instance, the decision to acquire a firm is based on many factors including the critical factor, profitability of the acquired firm. In evaluating the decision to acquire another firm, a summary measure such as net income or profit can be used as a measure of the correctness of the decision. The acquisition process will result in a prediction of the profit to be contributed by the acquired firm. When the actual profit realized is different from the prediction, a "surprising" event has occurred. If the decision maker cannot think in a manner that can simulate many alternative outcomes and/or causal paths from the foresight knowledge available (i.e., a comprehensive thinking manner), the realized profit will seem inevitable and the acquisition decision will be deemed wrong.

By not being able to engage in comprehensive thinking, the decision maker overemphasizes the apparently inescapable realized profit and "... can do little more than berate himself for not taking the action which his knowledge seems to have dictated" (Fischhoff, 1975, 298). Research in psychology (e.g., Fischhoff, 1975) and accounting (e.g., Peecher & Piercey, 2008) shows that knowledge of actual results biases the assessments of the probabilities of particular events. In fact, the decision process may have been correct. Often the correct process yields a poor or bad outcome, while a poor decision process yields a good outcome due simply to state uncertainty. If the decision maker is cognitively limited in the ability to engage in comprehensive thinking, the outcomes used to test the hypotheses underlying the assumptions or rules of the decision process (e.g., the decision to acquire another firm discussed above) will be of much less value than they would be to a comprehensive thinker. If the wrong inference is drawn from the outcome knowledge, it would curtail learning and correctness of future decisions will be in jeopardy; for example, future acquisitions may be inappropriately foregone.

To many researchers this use of logical argument may appear to be a hit and miss approach to identifying individual differences as one of the *differentiating* driving forces in decisions and judgments. Arguably, it is entirely possible that monetary incentives drive such differences. We, however, believe that if it seems to be cognitive differences, then the next step is to use the precepts of the rapidly expanding discipline of neuroscience to identify brain activation and why errors may occur (Dickhaut, Smith, Xin, & Rustichini, 2011). So far this neural economics research has focused on choice behavior (e.g., Ekins, Caceda, Capra, & Berns, 2013). In the current paper we take a step back to fill the void by attempting to answer the question of differences by using business decisions. We would then be confident that brain activation by different individuals explains the bias in some but not others.

In this paper we report the results of a series of studies that examine differential judgments caused by different levels of comprehensive thinking ability. We argue that the high comprehensive thinkers are better able to understand the uncertainty inherent in the task and are less likely to focus on or be influenced by a single path leading to a result. We use variations on the psychology paradigms of the hindsight effect (Fischhoff, 1975) and the investment trap (Arkes & Blumer, 1985) by relaxing the assumption that the investment's target cannot be achieved and that the investment trap problem is being assessed at an intermediate point. Our motive is to improve the external validity of tests of comprehensive thinking ability. Here, we expect and find that high comprehensive thinkers are significantly less likely to continue to invest in a project that has failed to reach specific target returns; that is, avoid the "sunk cost" phenomenon. They seem less inclined to focus on the single path that got them to their current financial position. For a second example, we use a probability revision task similar to the traditional hindsight task. We expect and find that high comprehensive thinkers are less likely than low comprehensive thinkers systematically to put more weight (i.e., probability) on a revised forecast of yearly profit. Finally, we use this same task to test a simple decision aid that assists low comprehensive thinkers to use information in the same manner as would a high comprehensive thinker.

Important challenges remain to understand the way managers approach decisions. For example, researchers [e.g., Certo, Connelly, and Tihanyi (2008); Finkelstein, Whitehead, and Campbell (2009)] commonly suggest that managers are unable to get past their personal biases and often rely too much on past experiences to make decisions. Braybrooke and Lindblom (1970) argue that rather than use formal, analytical, rational-comprehensive planning, managers use seat of their pants judgment to muddle through. Cohen, March, and Olsen's (1972) garbage can model of behavior suggests that managers have a repertoire of problem responses and managers recognize problems when they match situations in which they have developed solutions. Chenhall (2003) argues that although the difficulty with these observations is that there is little that is prescriptive in terms of designing MCS, we still need to understand these types of issues as they provide the explanations for why the design of MCS still does not generate effective outcomes and decisions. While our research on an individual cognitive difference, "comprehensive thinking ability" is in the vein of one of these "explanations," our research also has design implications for MCS to mitigate the limitations of managers' decision making abilities and achieve effective outcomes.

The rest of the paper is as follows. The next section describes the concept of comprehensive thinking ability. We use two practical business decisions to see if the well-known psychology results are robust enough to also be reflected in these decisions. A simple decision aid is proposed and tested in order to measure its ability to help the decision makers who have low comprehensive thinking ability. Finally, we present our conclusions concerning the tasks and experiments.

2. Comprehensive thinking ability

One must be able to see the 'big picture' in order to think comprehensively. We do not mean, however, that the 'picture' is vague and ill-defined. When presented with a problem, the decision maker can identify the relevant information and

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